EXHIBIT A
REDACTED VERSION OF DOCUMENT SOUGHT TO BE FILED UNDER SEAL

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION, This document relates to: ALL ACTIONS	**MDL NO. 2843** CASE NO. 3:18-MD-02843-VC-JSC HON. VINCE CHHABRIA HON. JACQUELINE SCOTT CORLEY COURTROOM 4 – 17TH FLOOR SPECIAL MASTER, DANIEL GARRIE, ESQ. **AMENDED ORDER REGARDING PRODUCTION OF NAMED PLAINTIFF DATA**

INTRODUCTION

1. Pending before the Special Master is Plaintiffs' Motion to Compel Production of Named Plaintiffs' Content and Information.

BACKGROUND

2. On November 25, 2019, Plaintiffs' served Requests for Production Nos. 9-13, which seek documents relating to the named Plaintiffs in this matter ("Named Plaintiffs"). See Exhibit A (RFPs 9-13). In brief, Request No. 9 seeks all documents relating to each of the Named Plaintiffs; Request No. 10 seeks documents sufficient to show the categories of content and information Facebook collects, tracks, and maintains about them; and Requests Nos. 11-13 seek documents identifying third parties that were able to access information about the Named Plaintiffs. Id.

3. In response to Requests for Production Nos. 9-13, Facebook produced more than one million pages of individual user data it maintained relating to the Named Plaintiffs, most of which was obtained from the "Download Your Information" tool ("DYI Tool"). The data obtained from the DYI Tool is mostly limited to information pertaining to users' on platform Facebook activity. See Exhibit B (DYI Data).

4. Statements by Facebook's counsel during an August 14, 2020, discovery hearing indicated that Facebook maintained additional data related to the Named Plaintiffs that was not produced. See Exhibit C (8/14/2020 Discovery Hearing Transcript) at 8:10-13 ("There is other – there's Facebook-generated information, information generated by third parties, information received from third parties. We have not represented that that is comprehensively included in our production.").

5. Plaintiffs filed a motion in September 2020 to compel additional discovery related to Requests for Production Nos. 9-13. See Exhibit D (Motion to Compel Additional Discovery Related to RFPs 9-13). Plaintiffs asked the Court to compel production of sensitive information Facebook derives and collects from business partners, app developers, apps, and other sources. This request included

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"native, appended and behavioral data" and purportedly anonymized data that could be connected to the Named Plaintiffs. Id. at 7-11.

6. On October 8, 2020, Facebook responded to Plaintiffs' motion to compel. See Exhibit E (Facebook's October 2020 Response). Facebook contended that all information related to the Named Plaintiffs that they did not themselves share on Facebook was outside the scope of the case; that all information not shared through one of the four theories of the case was not within the scope of the case; that Plaintiffs were not entitled to all data collected from third parties about the Named Plaintiffs; that the Stored Communications Act and Video Protection Privacy Act claims did not require the production of additional data Facebook had collected about the Named Plaintiffs; and that Facebook could not reasonably collect any of the additional information Plaintiffs sought. Id. at 6-10.

7. On October 29, 2020, Judge Corley issued Discovery Order No. 9, ruling "that discovery is not as limited as Facebook contends" and "the discoverable user data at issue includes: [1] Data collected from a user's on-platform activity; [2] Data obtained from third parties regarding a user's off-platform activities; and [3] Data inferred from a user's on or off-platform activity." See Exhibit F (Discovery Order No. 9) at 2.

8. Facebook did not produce additional documents in response to Requests for Production Nos. 9-13.

9. On October 6, 2021, Special Master Garrie and Judge Andler declared impasse on the issue of whether Facebook should be compelled to produce additional documents related to the Named Plaintiffs pursuant to Discovery Order No. 9.

10. On November 29, 2021, Special Master Garrie issued an Order Re: Plaintiffs' Motion to Compel Production of Plaintiff Data which found that "Discovery Order No. 9 does not limit the scope of discoverable data related to the Named Plaintiffs to data that was shared with third parties, as Facebook contends, because Judge Corley's ruling contains no language indicating such a limitation." See Exhibit G (Order Re: Plaintiffs' Motion to Compel Production of Plaintiff Data) at 4. The November

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29, 2021, order also required Facebook to provide a list of data sources that may contain Named

Plaintiff data, including descriptions of the data sources and the Named Plaintiff data they may contain.

11. Facebook subsequently provided a list of data systems that may contain Named Plaintiff data without descriptions of the systems or data. See Exhibit H (Declaration of David Pope, Exhibit A).

12. On December 29, 2021, Special Master Garrie issued an Amended Order Re: Plaintiffs' Motion to Compel Production of Plaintiff Data, which required Facebook to provide descriptions of the purposes of each system and the business units that use each system. Special Master Garrie held a hearing with David Pope to address these points. See Exhibit I (David Pope Hearing Transcript).

13. Over the next three months, Special Master Garrie held a series of hearings with various Facebook engineers and requested documentation to develop an understanding of the systems identified by David Pope. The submissions and findings in connection with these hearings are reflected in the following documents: Exhibit J (Facebook's January 6, 2022 Letter); Exhibit K (Facebook's January 27, 2022 Letter); Exhibit L (February 17, 2022 Hearing Transcript); Exhibit M (Facebook's March 7, 2022 Letter); Exhibit N (March 9, 2022 Hearing Transcript).

14. On March 22, 2022, Special Master Garrie issued the Order Following March 9, 2022, Hearing Regarding Plaintiffs' Motion to Compel Production of Plaintiff Data, which required each party to submit a proposed protocol for production of Named Plaintiff data. See Exhibit O (March 9, 2022, Hearing Order).

15. The parties subsequently submitted their proposed protocols and on May 17, 2022, Special Master Garrie held a hearing with the parties to identify and resolve areas of disagreement with respect to proposed protocols. See Exhibit P (Facebook's Letter of April 18, 2022) and Exhibit Q (Plaintiffs' Letter of April 29, 2022).

16. Following the May 17, 2022 hearing, the parties agreed on all aspects of the proposed

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protocols except for the following three issues: selection of Hive tables for production;[1] production of data related to apps installed by friends of Named Plaintiffs; and whether Facebook should search cold storage for Named Plaintiff data in Hive. Special Master Garrie requested briefing on these three issues, an updated proposed protocol submission from Facebook reflecting the areas of agreement, and additional information from Facebook regarding the Hive tables. See Exhibit R (May 17, 2022 Hearing Order); Exhibit S (Facebook's May 30, 2022 Letter); Exhibit T (Facebook's June 2, 2022 Letter).

17. On June 7, 2022, the parties submitted their briefs on the three outstanding issues regarding the Named Plaintiff data proposals.

18. Facebook proposed searching for and producing Named Plaintiff data from a sample of the ███ Hive tables identified in Exhibit B to Facebook's April 11, 2022 submission.[2] See Exhibit U (Facebook's June 7, 2022 Letter). The sample would include 250 tables selected by Facebook and 250 tables selected by Plaintiffs. Id. To assist Plaintiffs in the table selection, Facebook agreed to provide Plaintiffs with the schema (column names) for all ███ Hive tables from which the sample would be selected. See Exhibit T (Facebook's June 2, 2022 Letter). Facebook agreed to "provide Plaintiffs data regarding interactions that friends of the named plaintiffs had with businesses/apps using Facebook Login, without identifying which friend interacted with each business/app." See Exhibit U (Facebook's June 7, 2022 Letter). With respect to the cold storage issue Facebook stated that "Facebook is willing to consider restoring data from cold storage, but identifying what, if any, data should be restored is premature at this stage." Id. Facebook instead proposed the following: "Once the Hive tables have been identified, Facebook will evaluate which tables, if any, include data in cold storage, and make a proposal regarding what, if any, data it can reasonably restore, search, and produce." Id.

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[1] Facebook initially proposed searching a sample of 200 Hive tables (100 selected by Plaintiffs and 100 selected by Facebook) for Named Plaintiff data. See Exhibit P (Facebook's Letter of April 18, 2022). Plaintiffs initially proposed that Facebook produce the first five rows of all 11.051 Hive tables identified in Exhibit B to Facebook's April 11, 2022 submission. See Exhibit Q (Plaintiffs' Letter of April 29, 2022).

[2] Facebook identified these ███ Hive tables as potentially containing Named Plaintiff data using a data classification tool that can classify tables within Hive as containing ██████████ (identification numbers for individual Facebook users). See Exhibit T (Facebook's June 2, 2022 Letter).

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19. Plaintiffs' June 7, 2022 submission largely did not address the three issues on which Special Master Garrie requested briefing in the May 17, 2022 Hearing Order. Instead, Plaintiffs argued "new evidence has come to light in two 30(b)(6) depositions related to those questions" showing that (1) Facebook selected ██ Hive tables and put them in "cold storage" precisely because they were relevant to this litigation; (2) Facebook is capable of searching offline Hive tables using ██ and the ██ tool; (3) the DYI file is not the most complete or usable compilation of user data; and (4) Facebook has withheld from production at least 52 snapshots of Named Plaintiff data using a never-before revealed tool more commonly used to collect user data called ██████ See Exhibit V (Plaintiffs' June 7, 2022 Submission).

20. At Special Master Garrie's request, the parties submitted additional briefs on the issues regarding the ██ Hive tables Facebook preserved in cold storage and the ██████ snapshots. See Exhibit W (Facebook's June 16, 2022 Letter); Exhibit X (Plaintiffs' June 20, 2022 Letter).

21. Facebook responded to Plaintiffs' claims regarding preservation of the Hive tables as follows:

> Tables in Hive were preserved in connection with this litigation and related litigation for a number of reasons, many of which have nothing to do with Named Plaintiff data. Of the ██ tables identified, a minority contain user identifiers, and several of those tables were put on hold in connection with Facebook's April 18, 2022 proposal to produce categories of data requested or referenced by Plaintiffs. See Exhibit W (Facebook's June 16, 2022 Letter) at 3.

Facebook further stated that it agreed to produce the schema (i.e. column names) for the preserved tables containing user identifiers and will meet and confer with Plaintiffs regarding a production of Named Plaintiff data from those tables. Id. at 3. Facebook also agreed to produce Named Plaintiff data from the ██████ system. Id. at 2. Facebook stated that Facebook had not previously identified or produced data from ██████ because the data in ██████ is largely a subset of the data in the DYI files already produced. Facebook stated that the ████████████████████

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██ (neither of which are relevant to these Named Plaintiff data proceedings)." Id. at 1-2.

22. Plaintiffs argue, among other things, that representations made by Facebook's counsel with respect to ████████ and the Hive tables is inconsistent with Facebook's sworn testimony. See Exhibit X (Facebook's June 20, 2022 Letter) at 2. Plaintiffs request an order requiring a production date of Friday, June 24, 2022 for the Hive schema, fields and documents sufficient to describe the contents of the tables. Id. at 2. Plaintiffs further request an order to show cause why Facebook should not be ordered to produce all Hive tables referencing user identifiers immediately. Id. at 2. Plaintiffs also argue that internal Facebook communications produced to date indicate that it is easier for Facebook to restore data from cold storage than Facebook has represented, and Facebook should be ordered to restore data from cold storage. Id. at 3.

FINDINGS

23. Special Master Garrie finds that the parties agree with respect to the production of the following buckets of data: (1) user objects and associations to those objects in the TAO system for each Named Plaintiff; (2) Named Plaintiff data in the ████████ system; (3) specific types of data in Hive requested or referenced by Plaintiffs in challenging Facebook's production of Named Plaintiff data;[3] and (4) data regarding interactions that friends of the Named Plaintiffs had with businesses/apps using Facebook Login (without identifying which friend interacted with each business/app). See Exhibit S (Facebook's May 30, 2022 Letter); Exhibit U (Facebook's June 7, 2022 Letter).

24. Special Master Garrie finds that the parties agree on the following additional items in connection with the production of Named Plaintiff data: (1) Facebook will produce the TAO schema for the TAO data to be produced; (2) Facebook confirms it will produce the Hive data described in paragraph 23 above regardless of whether it appears in the DYI files; (3) Facebook will provide the

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[3] This includes off-platform activity, ad interests, ad click data, ad impressions data, and custom audience data. See Exhibit S (Facebook's May 30, 2022 Letter) at 3.

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names of the tables from which the Hive data described in paragraph 23 above will be produced, how Facebook identified the tables, and the schema for such data; (4) Facebook will provide the schema (column names) for all ███ Hive tables identified in Exhibit B to Facebook's April 11, 2022 submission and the schema for all of the ████████████ that contain user identifiers; (5) Facebook will produce "set permissions" (audience controls on a post), including any audience controls on individual pieces of content, from TAO; (6) Facebook will produce updated privacy settings for each Named Plaintiff. See Exhibit S (Facebook's May 30, 2022 Letter).

25. The issues on which the parties do not appear to agree are the procedure for sampling Hive tables and searching cold storage for Hive tables.

26. With regards to Hive table sampling, Facebook's proposal to provide the schema for the ███ Hive tables, search a sample 500 tables (250 selected by Facebook and 250 selected by Plaintiffs) for Named Plaintiff data, and produce Named Plaintiff data identified is more appropriate than Plaintiffs' initial proposal of requiring Facebook to produce the first five rows of all ███ Hive tables because the Hive table schema Facebook agreed to provide would give Plaintiffs substantially the same information sought by Plaintiffs' proposal without the additional burden of producing tens of thousands of rows of data that are unlikely to contain Named Plaintiff data. Plaintiffs also will be able to use the Hive table schema to select tables they believe are most relevant.

27. With regards to searching cold storage for Hive tables, Facebook's proposal to first identify the Hive tables to be searched, then determine whether any tables contain data in cold storage, and, if so, make proposals as to searching cold storage is appropriate, as we will be better positioned to develop a protocol for searching cold storage once we know the volume of cold storage data there will be for the Hive tables selected (if any). Facebook's proposal also preserves both parties' rights to make arguments regarding cold storage once the tables are identified.

28. Based on Special Master Garrie's interviews with Facebook engineers and the Facebook's

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submissions regarding the other systems identified in the Exhibit H (aside from TAO, Hive,

███████████, Special Master Garrie finds that the burden of searching and producing from such

systems outweighs any probative value the data may have. Issues regarding searching and producing

from systems other than TAO, Hive, and ███████████ have been resolved, and the parties have removed

all other systems from their proposals.

ORDER

29. No later than July 13, 2022, Facebook is to produce user objects and associations to those

objects in the TAO system for each Named Plaintiff, along with the TAO schema for such data.

Facebook is also to produce Named Plaintiffs' "set permissions" (audience controls on a post),

including any audience controls on individual pieces of content, from TAO.

30. No later than August 1, 2022, Facebook is to produce Named Plaintiff data from the

███████████████.

31. No later than August 8, 2022, Facebook is to produce the following types of Named Plaintiff

data in Hive regardless of whether it appears in the DYI files: off-platform activity, ad interests, ad

click data, ad impressions data, and custom audience data. Facebook will also provide the names of the

tables from which the Hive data described above will be produced, how Facebook identified the tables,

and the schema for such data

32. No later than July 25, 2022, Facebook is to produce the schema (column names) for all

██████ Hive tables identified in Exhibit B to Facebook's April 11, 2022 submission and the schema for

all of the ███████████████████ that contain user identifiers.

33. No later than July 18, 2022, Facebook is to produce updated privacy settings for each

Named Plaintiff as set out in Facebook's May 30, 2022 Letter.

34. No later than July 8, 2022, Facebook is to produce data regarding interactions that friends

of the Named Plaintiffs had with businesses/apps using Facebook Login (without identifying which

friend interacted with each business/app).

35. No later than August 7, 2022, each party is to provide to each other and Special Master Garrie

a list of 250 Hive tables to be searched for Named Plaintiff data. Three business days after the 500

tables have been identified, Facebook will submit a statement identifying which tables contain data in

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cold storage and estimate the amount of data in cold storage for each table. Special Master Garrie will set a briefing schedule for proposals regarding searching cold storage at this time. In parallel with the cold storage analysis, Facebook is to search data in warm storage for the 500 Hive tables for data associated with the Named Plaintiffs and produce such data on a rolling weekly basis. Once Named Plaintiff data has been produced from all 500 Hive tables, Facebook is to determine what percentage of this data has not been produced from other sources and to submit a statement to this effect. Once Facebook has provided the results of this analysis Special Master Garrie will determine the appropriate next steps concerning Hive data.

IT IS SO ORDERED.

Friday, July 1, 2022

Daniel Garrie
Discovery Special Master

Exhibit A

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION	MDL No. 2843 Case No. 18-md-02843-VC
This document relates to: ALL ACTIONS	**PLAINTIFFS' SECOND SET OF REQUESTS FOR PRODUCTION TO DEFENDANT FACEBOOK, INC.** Judge: Hon. Vince Chhabria Courtroom: 4, 17th Floor

PROPOUNDING PARTY: Plaintiffs

RESPONDING PARTY: Facebook

SET NUMBER: Two (2)

Plaintiffs hereby propound the following requests for production of documents to

Defendant Facebook, Inc. ("Facebook"), pursuant to Federal Rules of Civil Procedure 26 and 34,

and request that Facebook produce the documents and electronically-stored information set forth

herein within thirty (30) days of service of these requests, at Bleichmar Fonti & Auld LLP, 555

12th Street, Suite 1600, Oakland, CA 94607.

INSTRUCTIONS

1.   You shall respond to these requests for the production of documents in a manner

consistent with the Federal Rules of Civil Procedure and the following instructions:

2.   In responding to each document request, furnish all responsive documents

available at the time of production, including documents in your possession, custody or control,

and in the possession, custody or control of your agents, employees, partners, representatives,

subsidiaries, affiliates, investigators, or by your attorneys or their agents, employees or

investigators.

3.   If any otherwise responsive document was, but is no longer, in existence or in

your possession, custody or control, identify the type of information contained in the document,

its current or last known custodian, the location/address of such document, the identity of all

persons having knowledge or who had knowledge of the document and describe in full the

circumstances surrounding its disposition from your possession or control.

4.   This is a continuing request for the production of documents and requires

supplemental responses as provided for in the Federal Rules of Civil Procedure. If, after making

your initial production, you (or any other persons acting on your behalf) obtain or become aware

of any further documents responsive to any document request, you are required to produce such additional documents to plaintiffs. Each supplemental response shall be served on plaintiffs no later than thirty days after the discovery of the further information.

5.   You shall produce the original of each document described below or, if the original is not in your custody, then a copy thereof, and in any event, all non-identical copies which differ from the original or from the other copies produced for any reason, including, without limitation, the making of notes thereon.

6.   Documents shall be produced as kept in the regular course of business together with the original folders, binders, boxes or other containers in which they were maintained.

7.   All documents or things that respond in whole or in part to any portion of these requests are to be produced in their entirety, including attachments and their enclosures.

8.   Documents attached to each other should not be separated.

9.   Documents not otherwise responsive to any particular document request shall be produced if such documents mention, discuss, refer to, or explain the documents called for by any document request, or if such documents are attached to documents called for by any document request.

10.   Documents shall be produced in such fashion as to identify the custodian of each document.

11.   Identify the source of each document produced, by identifying: (a) all of the person(s) who possessed the document; (b) the positions or titles of any such individuals; and (c) all of the divisions and departments where each document was located. If you are unable to determine the individual(s) who possessed the document, identify the department and division where the document was located when produced.

12.   If you claim any form of privilege, whether based on statute or otherwise, as a ground for not producing any document, state the following:

    a.   The date of the document;

    b.   The name, the present or last known home and business address, the telephone numbers, the title (or position), and the occupation of those individuals who prepared, produced, reproduced or who were recipients of said document;

    c.   A description of the document sufficient to identify it without revealing the information for which the privilege is claimed;

    d.   The nature of the privilege asserted;

    e.   The factual basis upon which you claim any such privilege;

    f.   The location of the document; and

    g.   The custodian of the document.

13.   To the extent you object to any document request, you must provide specific responses as to what portion of the request you object to and state expressly why you will not respond to such request in sufficient detail to permit the Court to determine the validity of the objection. Responsive documents to which your objection does not apply should be produced.

14.   If you claim that all or any part of any document request, the Definitions, or Instructions is vague or ambiguous, please identify the specific language you consider vague or ambiguous and state the interpretation of the language in question you used to frame your response.

15.   Each document requested herein is to be produced in its entirety and without deletion or excision, regardless of whether you consider the entire document to be relevant or responsive to any document request. If you have removed, excised or deleted any portion of a

document, stamp the word "REDACTED" on each page of the document that you have redacted.
Redactions should be included on the privilege log described in Instruction No. 13, above.

16.   One copy of each document should be produced. A document that varies in any
way from the original or from any other copy, including drafts or a document with handwritten
notations or deletions constitutes a separate document and must be produced, whether or not the
original is in your possession, custody or control. Color (*i.e.*, not black and white) originals
should be produced in color. If any identical copy cannot be produced for any reason (*e.g.*, faint
writing, erasures, etc.), produce the original.

17.   Indicate the origin of each document and number each document with
consecutive Bates numbers.

DEFINITIONS

Unless otherwise stated, the terms set forth below are defined as follows and shall be
used in construing the meaning of these requests for the production of documents.

1.   The use of the singular shall be deemed to include the plural, and the use of one
gender shall include all others, as appropriate, in the context.

2.   The present tense of a verb includes its past tense, and vice versa.

3.   "And" and "or" are to be construed conjunctively and disjunctively, as necessary,
to bring within the scope of this request for production all responses that might otherwise be
construed to be outside its scope.

4.   "Any" and "all" mean each and every.

5.   "App" means an interactive software application developed to utilize the core
technologies of the Facebook social networking platform.

6.   "App Developer Investigation" or "ADI" means (as described in paragraph seven
of the Chen Declaration) Facebook's investigation to determine "whether there has been misuse

of data in violation of Facebook's policies and associated legal liabilities, in connection with the first version of the [Facebook] Platform."

7. "Apps Others Use" means the setting used to prevent the disclosure of personal information to third party App Developers through Facebook's API, as described in paragraphs 366 to 368 of the FAC.

8. "App Settings" means settings that a User can alter or accept to limit Third Parties from accessing or obtaining Users' Content and Information, including Apps Others Use, Granular Data Permissions, Platform Opt Out, and the like.

9. "Chen Declaration" means the Declaration of Stacy Chen in Support of Respondent's Opposition to the Attorney General's Petition, *Attorney General Maura Healy v. Facebook, Inc.*, No. 1984CV02597-BFS-1 (Mass. Super Ct., Suffolk Cty.).

10. "Communication" means the transmittal (in the form of facts, ideas, thoughts, opinions, data, inquiries or otherwise) and includes, but is not limited to, correspondence, memoranda, reports, presentations, face-to-face conversations, telephone conversations, text messages, instant messages, messages sent on Facebook Messenger, voice messages, negotiations, agreements, inquiries, understandings, meetings, letters, notes, telegrams, mail, electronic mail or email, and postings of any type.

11. "Computer System" or "Computer Systems" include(s), but is not limited to, any server (whether physical or virtual), desktop computer, tablet computer, point of sale system, smart phone, cellular telephone, networking equipment, internet site, intranet site, and the software programs, applications, scripts, operating systems, or databases used to control, access, store, add, delete, or modify any information stored on any of the foregoing non-exclusive list.

12. "Content and Information" refers to the definition in footnote 2 of the FAC, referring to "content" and "information" as Facebook's Statements of Rights and

Responsibilities have defined those terms. In brief, Facebook has generally used "information" to mean facts and other information about Users, including the actions they take, and "content" to mean anything Users post on Facebook that would not be included in the definition of "information." Content and Information also includes both personally identifiable content and information and anonymized content and information that is capable of being de-anonymized. *See* FAC ¶¶ 223-224. Content and Information includes data that identifies, relates to, describes, is capable of being associated with, or could reasonably be linked, directly or indirectly, with a particular User, including:

a. Identifiers such as a real name, alias, postal address, unique personal identifier, online identifier, Internet Protocol address, email address, account name, social security number, driver's license number, passport number, or other similar identifiers.

b. Characteristics of protected classifications under California or federal law.

c. Commercial information, including records of personal property, products or services purchased, obtained, or considered, or other purchasing or consuming histories or tendencies.

d. Biometric information.

e. Internet or other electronic network activity information, including, but not limited to, browsing history, search history, and information regarding a consumer's interaction with an Internet Web site, application, or advertisement.

f. Geolocation data.

g. Audio, electronic, visual, thermal, olfactory, or similar information.

h. Professional or employment-related information.

i. Education information, defined as information that is not publicly available personally identifiable information as defined in the Family Educational Rights and Privacy Act (20 U.S.C. section 1232g, 34 C.F.R. Part 99).

j. Inferences drawn from any of the information identified in this paragraph to create a profile, dossier, or similar collection of information about a consumer reflecting the consumer's preferences, characteristics, psychological trends, predispositions, behavior, attitudes, intelligence, abilities, and aptitudes.

13. "Document" or "Documents" is defined to include any Document, ESI, or Electronic Media stored in any medium, and is synonymous in meaning and equal in scope to the usage of this term in Federal Rule of Civil Procedure 34(a)(1)(A), including, but not limited to, electronic or computerized data compilations, Communications, electronic chats, instant messaging, documents created through Workplace by Facebook, encrypted or self-destructing messages, messages sent via Facebook messenger, email Communications, other electronically stored information from Personal computers, sound recordings, photographs, and hard copy Documents maintained in your Personal files.

14. "Electronic Media" means any magnetic, optical, or other storage media device used to record ESI including but not limited to computer memory, hard disks, floppy disks, flash memory devices, CDs, DVDs, Blu-ray discs, cloud storage (*e.g.*, DropBox, Box, OneDrive, or SharePoint), tablet computers (*e.g.*, iPad, Kindle, Nook, or Samsung Galaxy), cellular or smart phones (*e.g.*, BlackBerry, iPhone, or Samsung Galaxy), personal digital assistants, magnetic tapes of all types, or any other means for digital storage and/or transmittal.

15. "Electronically Stored Information" or "ESI" means information that is stored in Electronic Media, regardless of the media or whether it is in the original format in which it was created, and that is retrievable in perceivable form and includes, but is not limited to, metadata,

system data, deleted data, fragmented data, data pertaining to or maintained in Apps, database contents, and computer code.

16.   "FAC" refers to the First Amended Consolidated Complaint filed February 22, 2019, ECF No. 257.

17.   "Facebook," "Defendant," "You," or "Your" shall mean Facebook, Inc. and any of its executives, directors, officers, employees, partners, members, representatives, agents (including attorneys, accountants, consultants, investment advisors or bankers), and any other Person purporting to act on its behalf. In the case of business entities, these defined terms include parents, subsidiaries, affiliates, predecessor entities, successor entities, these defined terms include parents, subsidiaries, affiliates, predecessor entities, successor entities, divisions, departments, groups, acquired entities and/or related entities or any other entity acting or purporting to act on its behalf.

18.   "FTC Consent Order" shall refer to the July 27, 2012 Federal Trade Commission Consent Order in *In the Matter of Facebook, Inc.*, No. C-4365.

19.   "Granular Data Permissions" means the setting through which the User accessing an App may limit the categories of Content and Information an App Developer may collect.

20.   "Identify," with respect to Documents, means to give, to the extent known, the (a) type of Document; (b) general subject matter; (c) date of the Document; (d) author(s); (e) addressee(s); and (f) recipient(s).

21.   "Including" means "including but not limited to," or "including, without limitation." Any examples which follow these phrases are set forth to clarify the request, definition or instruction but not to limit the request.

22. "Internal Policy" or "Internal Policies" mean any formal or informal policy, procedure, rule, guideline, collaborative document, directive, instruction, or practice, whether written or unwritten, that You expect Your employees to follow in performing their jobs.

23. "Misuse of Data," when used as a capitalized phrase, means the use by an App of a User's Content or Information that was broader or different than the use of that content or information only in connection with the person that gave the permission to the App to access such User's Content or Information.

24. "Named Plaintiffs" means Steven Akins, Jason Ariciu, Samuel Armstrong, Anthony Bell, Bridgett Burk, Brendan Carr, John Doe, Terry Fischer, Shelly Forman, Paige Grays, Mary Beth Grisi, Tabielle Holsinger, Taunna Lee Johnson, Olivia Johnston, Tyler King, Ashley Kmieciak, William Lloyd, Gretchen Maxwell, Scott McDonnell, Ian Miller, Jordan O'Hara, Bridget Peters, Kimberly Robertson, Scott Schinder, Cheryl Senko, Dustin Short, Tonya Smith, Mitchell Staggs, Charnae Tutt, Barbara Vance-Guerbe, and Juliana Watson.

25. "Person" or "Persons" means any natural Person or any business, legal or governmental entity or association.

26. "Platform" refers to the services, tools, and products provided by Facebook to third parties to create their own applications and services that access data in Facebook.

27. "Platform Opt Out" means the setting a User may access to choose that his or her Content and information is not accessed or obtained by any Apps or websites on Facebook's Platform.

28. "Privacy Controls" means the audience selectors that control what information in a User's profile can be viewed by other Users, and includes Profile Privacy Settings, Profile Privacy Controls, Publisher Privacy Controls, and the like.

29.   "Relating to," "relate to," "referring to," "refer to," "reflecting," "reflect,"

"concerning," or "concern" means all Documents which comprise, explicitly or implicitly refer

to, were reviewed in conjunction with, or were created, generated or maintained as a result of the

subject matter of the request, including, but not limited to, all Documents which reflect, record,

memorialize, embody, discuss, evaluate, consider, review or report on the subject matter of the

request.

30.   "Third Parties" include the following:

    a.   Apps, App Developers, Whitelisted Apps, and Business Partners, as those terms

       are used in the FAC;

    b.   Any person that develops an application, software experience, game, or website

       that accesses Content and Information from Facebook's API or other Facebook

       software; and

    c.   Any person with which Facebook has or had an integration partnership.

31.   "User(s)" means individuals who maintain a Facebook account and can generally

access the typical Facebook experience through website or mobile applications.

32.   Capitalized terms and acronyms not specifically defined herein have the same

definition as in the FAC.

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RELEVANT TIME PERIOD

</div>

The relevant time period for each Document Request is January 1, 2007 through the

present (the "Relevant Time Period"), unless otherwise specifically indicated. Each Document

Request shall be interpreted to include all documents and information that relate to the Relevant

Time Period or otherwise specified period, even if such documents or information were prepared

or published outside of the Relevant Time Period or otherwise specified period. If a document

prepared before or after this period is necessary for a correct or complete understanding of any

document covered by a request, you must produce the earlier or subsequent document as well. If any document is undated and the date of its preparation cannot be determined, the document shall be produced if otherwise responsive to the production request.

DOCUMENT REQUESTS

REQUEST FOR PRODUCTION NO. 6

All Documents provided to or received from any governmental entity or regulator in the United States and United Kingdom in response to any formal or informal inquiry or investigation relating to whether Users' Content and Information was accessed or obtained by any Third Parties without proper consent or authorization, including but not limited to all inquiries or investigations arising out of the Cambridge Analytica Scandal, the FTC Consent Order, and any inquiry or investigation related to the settlement agreement with the FTC announced on July 24, 2019.

REQUEST FOR PRODUCTION NO. 7

All organizational charts, personnel directories, or other documents sufficient to show Your organizational structure, including:

(a)   the identity of subsidiaries, affiliates, and joint ventures, and your ownership interest, control of, or participation in any subsidiary or affiliate or joint venture related to agreements, engineering, access, use, transmission, receipt, collection or analysis of Facebook Users' Content and Information by Third Parties;

(b)   the organization of any division, department, unit or subdivision of your company that has responsibilities relating to agreements, engineering, access, use, transmission, receipt, collection or analysis of Users' Content and Information by Third Parties; and

(c)   the names, titles, job descriptions, and employment periods for your present and former employees who has or had responsibilities relating to agreements, engineering, access,

use, transmission, receipt, collection or analysis of Users' Content and Information by Third

Parties; and

(d)   the names, titles, job descriptions, and employment periods of Your present or

former directors, officers, or senior managers, as well as any secretaries or administrative

assistants assigned to these directors, officers, or senior managers.

REQUEST FOR PRODUCTION NO. 8

All versions (including each updated or amended version thereof) of Facebook's

"Platform Policies," which have been called the "Developer Principles and Policies," the

"Platform Guidelines," or the "Developer Terms of Service" (collectively, the "Platform

Policies").

REQUEST FOR PRODUCTION NO. 9

All Documents relating to each of the Named Plaintiffs, including but not limited to all

Content and Information collected about each of them or gained from business relationships or

any other source.

REQUEST FOR PRODUCTION NO. 10

For each of the Named Plaintiffs, Documents sufficient to show the categories of Content

and Information Facebook collects, tracks, and maintains about them.

REQUEST FOR PRODUCTION NO. 11

Documents sufficient to identify all Third Parties to which Facebook granted access to

Named Plaintiffs' Content and Information, what categories of Content and Information

Facebook granted access to, how Facebook allowed these Third Parties to access the Named

Plaintiffs' Content and Information, and the business purpose of all such access.

REQUEST FOR PRODUCTION NO. 12

Documents relating to any partnerships or agreements Facebook entered into with Third

Parties for access to Named Plaintiffs' Content and Information.

REQUEST FOR PRODUCTION NO. 13

For all Third Parties to which Facebook granted access to Named Plaintiffs' Content and

Information, Documents sufficient to show any use by Third Parties of such Content and

Information not in connection with the User that granted the permission to the Third Party or

inconsistent with Facebook's agreement with that Third Party.

REQUEST FOR PRODUCTION NO. 14

Documents sufficient to show the monetary or retail value of each named Plaintiff's

Content and Information to Facebook, updated to reflect whenever Facebook's terms of service

changed, including the calculation of revenue earned by Facebook for each Named Plaintiff

based upon bartering or selling access to such Named Plaintiff's Content and Information.

REQUEST FOR PRODUCTION NO. 15

Documents sufficient to show the money or any other thing of value, including but not

limited to money or any other thing of value paid in exchange for targeted advertising, that

Facebook received in exchange for each Named Plaintiff's Content and Information, which

entities paid Facebook, and when such payments were made.

REQUEST FOR PRODUCTION NO. 16

Documents sufficient to show the monetary or retail value of Users' Content and

Information to Facebook, including all monthly, quarterly, and annual financial reporting

relating to same, and including but not limited to the calculation of average revenue per user,

any changes to such monetary or retail value relating to changes to Facebook's terms of service,

and any financial reporting of Content and Information as an asset.

REQUEST FOR PRODUCTION NO. 17

All Documents relating to Facebook's assessment of the monetary or retail value of

Users' Content and Information to Users (as distinct from value to Facebook), including

analyses for providing compensation to Users for their Content and Information, including but

not limited to Users compensated in connection with the Onavo or Research app.

REQUEST FOR PRODUCTION NO. 18

All Documents that have been transmitted to Users by Facebook relating to whether

Users' Content and Information was accessed or obtained by Third Parties.

REQUEST FOR PRODUCTION NO. 19

All Documents supporting the escalation of those Apps escalated to Phase Two of ADI

for Enhanced Examination and/or Phase Three of ADI for Enforcement and designated as

follows in the Chen Declaration ¶ 34:

> (d) each [A]pp to which a request for information was sent; (e) each [A]pp for
>
> which an interview was sought with the developer; (f) each [A]pp for which a
>
> remote or onsite audit was requested to be conducted; (g) each [A]pp for which
>
> actual misuse was found and identification of that misuse; (h) each [A]pp that was
>
> banned for actual misuse; and (i) each [A]pp that was banned for failing to
>
> cooperate with Facebook's investigation.

Facebook has described identification of these Apps as non-privileged and has

already produced it to the Massachusetts Attorney General's Office. *See* Chen

Declaration ¶ 35.

REQUEST FOR PRODUCTION NO. 20

The list of Apps that Facebook provided to the Massachusetts Attorney General's Office

and that the Chen Declaration ¶ 35 describes as "the subject of external actions or

communications with third parties, including the growing list of Apps Facebook has suspended as part of the [ADI], whether because of policy violations or because of their refusal to cooperate with Facebook's investigation."

REQUEST FOR PRODUCTION NO. 21

Communications between Facebook and Third Parties relating to the ADI, including but not limited to Communications that Facebook provided to the Massachusetts Attorney General's Office. *See* Chen Declaration ¶ 37.

REQUEST FOR PRODUCTION NO. 22

All "Privacy Risk Assessment[s]," and notes or agenda relating to Facebook's "focused subject-matter-specific meetings," "focused subject-matter-specific discussions," "weekly intra- and inter-team meetings," and "Privacy Summit[s]," as detailed in "Facebook's Privacy Program Overview" included in any PricewaterhouseCoopers LLP ("PwC") assessment report prepared pursuant to the FTC Consent Order.

REQUEST FOR PRODUCTION NO. 23

Unredacted versions and Documents in support of the assessment reports, including the Initial Assessment Report and Biennial Reports, prepared by PwC pursuant to the FTC Consent Order.

REQUEST FOR PRODUCTION NO. 24

Documents sufficient to identify all Third Parties to which Facebook granted access to Users' Content and Information not generally available through Platform pursuant to partnerships or agreements between Facebook and those Third Parties.

REQUEST FOR PRODUCTION NO. 25

All Documents relating to agreements or partnerships described in Request No. 24.

REQUEST FOR PRODUCTION NO. 26

For each of the Third Parties that Facebook entered into partnerships or agreements with as described in Request No. 24, Documents sufficient to identify:

- The fields, kinds, or categories of Content and Information that were accessed or obtained by such Third Parties;

- How each such Third Party accessed or obtained the Content and Information of Users;

- How each such Third Party used the Content and Information accessed or obtained;

- Where the Content and Information obtained by such Third Parties currently resides and who has access to it.

REQUEST FOR PRODUCTION NO. 27

Documents sufficient to show all forms and formats in which Facebook transmitted to Third Parties information concerning Users' liking, viewing, retrieving, or otherwise requesting or obtaining videos on, using, or by means of the Facebook Platform.

REQUEST FOR PRODUCTION NO. 28

All Documents relating to Internal Policies by Facebook on the monitoring of Third Parties' compliance with Facebook's Platform Policy, Data Policy, or SRR.

REQUEST FOR PRODUCTION NO. 29

All Documents relating to Internal Policies by Facebook on the enforcement of Facebook's Platform Policy, Data Policy, or SRR against Third Parties.

REQUEST FOR PRODUCTION NO. 30

All Documents relating to measures and controls, including proposed measures and controls, put in place by Facebook to prevent Third Parties from violating Facebook's Platform Policy, Data Policy, or SRR.

REQUEST FOR PRODUCTION NO. 31

All Documents relating to Facebook's audits, inquiries, and investigations of Third

Parties investigating compliance with any provisions of Facebook's Platform Policy, Data

Policy, or SRR regarding the access, use, transmission, receipt, collection and analysis of Users'

Content and Information on and off the Platform.

REQUEST FOR PRODUCTION NO. 32

All Documents Concerning Misuse of Data, including investigations, examinations,

inquiries, or audits—or Communications regarding such investigations, examinations, inquiries,

or audits—regarding Misuse of Data prior to the deprecation of Graph API v.1.0.

REQUEST FOR PRODUCTION NO. 33

Documents sufficient to show the notice that Facebook provided to Users regarding

modifications to Facebook's SRR or Data Policy, and all Communications related thereto.

REQUEST FOR PRODUCTION NO. 34

All Documents relating to the conditioning of Third Parties' access to Users' Content and

Information on the purchase of Mobile App Install Ads, payment of Content and Information in-

kind (referred internally as Reciprocity or Data Reciprocity), or other payment.

REQUEST FOR PRODUCTION NO. 35

Documents relating to the manner in which a Facebook User could control how his or her

data was shared through their Privacy Controls and App Settings throughout the Relevant Time

Period, including but not limited to screenshots of the Facebook website and the Facebook

mobile application.

REQUEST FOR PRODUCTION NO. 36

All Documents concerning User testing, evaluation and analysis of Facebook's Privacy

Controls and App Settings during the Relevant Time Period, including but not limited to design

documents, correspondence, analyses, and reports.

Dated: November 25, 2019

Respectfully submitted,

KELLER ROHRBACK L.L.P.

BLEICHMAR FONTI & AULD LLP

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Plaintiffs' Co-Lead Counsel

Exhibit B

Exhibit A

What info is available?	What is it?	Where can I find it?
About Me	Information you added to the **About** section of your timeline like relationships, work, education, where you live and more. It includes any updates or changes you made in the past and what is currently in the **About** section of your timeline.	Downloaded Info
Account Status History	The dates when your account was reactivated, deactivated, disabled or deleted.	Downloaded Info
Active Sessions	All stored active sessions, including date, time, device, IP address, machine cookie and browser information.	Downloaded Info
Address	Your current address or any past addresses you had on your account.	Downloaded Info
Ads	Ads you've recently viewed.	Downloaded Info
Ads Clicked	Dates, times and titles of ads clicked (limited retention period).	Downloaded Info
Ad Topics	A list of topics that you may be targeted against based on your stated likes, interests and other data you put in your timeline.	Downloaded Info
Advertising ID	The unique advertising identification numbers provided by your mobile device. These numbers are used to show you ads on the apps you use on your device.	Downloaded Info
Alternate Name	Any alternate names you have on your account (example: a maiden name or a nickname).	Downloaded Info
Apps	All of the apps you have added.	Downloaded Info
Articles	Articles you've recently read.	Downloaded Info
Autofill Information	Information you've provided, such as your address, that is used to pre-fill messages when you contact a business through Messenger.	Downloaded Info
Chat	A history of the conversations you've had on Facebook Chat (a complete history is available directly from your messages inbox).	Downloaded Info

Source: *What categories of my Facebook data are available to me?*, https://www.facebook.com/help/930396167085762, Table 2, *Information you can download using the Download Your Information tool* (last visited Sept. 18, 2020).

Chat Rules	Chat Rules you've accepted.	Downloaded Info
Check-ins	The places you've checked into.	Downloaded Info
Currency	Your preferred currency on Facebook. If you use Facebook Payments, this will be used to display prices and charge your credit cards.	Downloaded Info
Current City	The city you added to the **About** section of your timeline.	Downloaded Info
Date of Birth	The date you added to Birthday in the **About** section of your timeline.	Downloaded Info
Dating	The number of times you've recently visited the Dating section of Facebook.	Downloaded Info
Device ID	The unique identification numbers provided by the devices you use to log into Facebook.	Downloaded Info
Device Locale	The country and language from which you're accessing Facebook as determined by the devices you're using.	Downloaded Info
Education	Any information you added to Education field in the About section of your timeline.	Downloaded Info
Emails	Email addresses added to your account (even those you may have removed).	Downloaded Info
Email Address Verifications	A history of when you've verified your email address.	Downloaded Info
Events	Events you've joined or been invited to.	Downloaded Info
Event Contacts You've Blocked	People you've blocked from inviting you to events.	Downloaded Info
Event Interactions	The number of times you've recently visited the Events section of Facebook.	Downloaded Info
Events Visited	Event pages you've recently visited.	Downloaded Info
Facebook Live Videos	Live videos you've recently watched.	Downloaded Info
Facebook Watch Topics for Recommendations	A collection of topics that is used to show you relevant videos in the Facebook Watch tab. The topics are	Downloaded Info

	based on your previous interaction history with things like links, videos, photos and Pages you've liked.	
Facial Recognition Data	A unique number based on a comparison of the photos you're tagged in. We use this data to help others tag you in photos.	Downloaded Info
Family	Friends you've indicated are family members.	Downloaded Info
Favorite Quotes	Information you've added to the Favorite Quotes section of the **About** section of your timeline.	Downloaded Info
Followers	A list of people who follow you.	Downloaded Info
Friends	A list of your friends.	Downloaded Info
Friend Requests	Pending, sent and received friend requests.	Downloaded Info
Friends You See Less	Friends whose activity you've chosen to see less of on Facebook.	Downloaded Info
Fundraisers	Fundraisers you've recently viewed.	Downloaded Info
Gender	The gender you added to the **About** section of your timeline.	Downloaded Info
Groups	A list of groups you belong to on Facebook.	Downloaded Info
Group Interactions	The number of times you've interacted with Groups on Facebook.	Downloaded Info
Groups Visited	Groups you've recently visited.	Downloaded Info
Hometown	The place you added to hometown in the **About** section of your timeline.	Downloaded Info
ID	A copy of the ID you submitted to confirm your identity and to help improve our automated systems for detecting fake IDs and related abuse.	Personal Data Request
Instant Games	Instant Games you've played.	Downloaded Info
IP Address Activity	Your recent activity from specific IP addresses.	Downloaded Info

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IP Address Message Activity	Your recent message activity from specific IP addresses.	Downloaded Info
IP Address Payment Activity	Your recent payment activity from specific IP addresses.	Downloaded Info
Language Settings	Your preferred language settings.	Downloaded Info
Last Location	Your most recent location determined by your device.	Downloaded Info
Linked Accounts	Accounts you've linked to your Portal.	Downloaded Info
Live Video Subscriptions	Scheduled Live videos you've subscribed to.	Downloaded Info
Logins	IP address, date and time associated with logins to your Facebook account.	Downloaded Info
Logouts	IP address, date and time associated with logouts from your Facebook account.	Downloaded Info
Marketplace Categories	Categories you've recently viewed.	Downloaded Info
Marketplace Interactions	Your recent interactions on Marketplace.	Downloaded Info
Marketplace Items	Items you've recently viewed.	Downloaded Info
Marketplace Services	Services you've recently viewed.	Downloaded Info
Matched Contacts	Contact information that may be associated with your account.	Personal Data Request
Menu Items	Areas of Facebook you've recently accessed through the main menu.	Downloaded Info
Messages	Messages you've sent and received on Facebook. Note, if you've deleted a message it won't be included in your download as it has been deleted from your account.	Downloaded Info
Messenger Contacts You've Blocked	Contacts you've blocked on Messenger.	Downloaded Info
Milestone Notifications	Notifications about your activity milestones, such as the number of reactions on a post, you've received and dismissed.	Downloaded Info

Mobile Service Provider and Country Code	The service provider and country code associated with your phone number.	Downloaded Info
Name	The name on your Facebook account.	Downloaded Info
Name Changes	Any changes you've made to the original name you used when you signed up for Facebook.	Downloaded Info
News Feed Topics for Recommendations	A collection of topics that is used to show you relevant public posts in parts of your News Feed. The topics are based on your previous interaction history with things like links, videos, photos and Pages you've liked.	Downloaded Info
News Topics for Recommendations	A collection of topics that is used to show you relevant articles in the News tab. The topics are based on your previous interaction history with things like posts, videos, photos and Pages you've liked.	Downloaded Info
Notification ID	The identification numbers that we use to send you Facebook notifications on your device.	Downloaded Info
Page Notifications	Chat notifications you've dismissed from Pages you visit.	Downloaded Info
Page Visits	Pages you've recently visited.	Downloaded Info
Page Transparency Notices	A list of pages that you've received and dismissed notices from.	Downloaded Info
Pages You Admin	A list of pages you admin.	Downloaded Info
Pages You've Recommended	Pages you've recommended to others.	Downloaded Info
Pending Friend Requests	Pending, sent and received friend requests.	Downloaded Info
People	People and friends you've interacted with recently, including comments and reactions.	Downloaded Info
People Viewed	People you've recently viewed when new friends were suggested to you.	Downloaded Info
Phone Numbers	Mobile phone numbers you've added to your account, including verified mobile numbers you've added for security purposes.	Downloaded Info

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Photos	Photos you've uploaded to your account.	Downloaded Info
Photo Effects	A list of the photo effects you've used.	Downloaded Info
Photos Metadata	Any metadata that is transmitted with your uploaded photos.	Downloaded Info
Platforms	Platforms you've used to log into Facebook, such as the Facebook app or a browser.	Downloaded Info
Pokes	A list of who's poked you and who you've poked. Poke content from our mobile poke app is not included because it's only available for a brief period of time. After the recipient has viewed the content it's permanently deleted from our systems.	Downloaded Info
Political Views	Any information you added to Political Views in the About section of timeline.	Downloaded Info
Preferred Language for Videos	The preferred language for videos as determined by videos you've previously viewed.	Downloaded Info
Previously Removed Contacts	Friends you've recently removed but added back.	Downloaded Info
Primary Location	Your primary location is determined by information we use to support Facebook Products, such as the current city you entered on your profile and your device connection information.	Downloaded Info
Profile Visits	People whose profiles you've recently visited.	Downloaded Info
Recent Activities	Actions you've taken and interactions you've recently had.	Downloaded Info
Recently Visited	Videos and shows you've recently visited.	Downloaded Info
Record Details	Details included in some administrative records.	Downloaded Info
Registration Date	The date you joined Facebook.	Downloaded Info
Religious Views	The current information you added to Religious Views in the **About** section of your timeline.	Downloaded Info
Removed Friends	People you've removed as friends.	Downloaded Info

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Saved Post Reminders	Reminders you've received after you've saved a post.	Downloaded Info
Screen Names	The screen names you've added to your account, and the service they're associated with. You can also see if they're hidden or visible on your account.	Downloaded Info
Secret Conversations	A list of the times you've used Secret Conversations in Messenger.	Downloaded Info
Secret Conversations You've Reported	A list of the secret conversations you've reported to Facebook.	Downloaded Info
See First	Profiles and Pages you've recently chosen to see first in your News Feed.	Downloaded Info
See Less	Profiles and Pages you've recently chosen to see less of in your News Feed.	Downloaded Info
Selected Language	The language you've selected to use Facebook in.	Downloaded Info
Session Type	Your current active session types.	Downloaded Info
Show Pages	A list of the Show Pages you've viewed and the videos you've watched from them.	Downloaded Info
Shows	A list of the individual videos you've watched.	Downloaded Info
Spoken Languages	The languages you added to Spoken Languages in the **About** section of your timeline.	Downloaded Info
Status Updates	Any status updates you've posted.	Downloaded Info
Time Spent	The amount of time you've spent watching videos from a Show Page.	Downloaded Info
Time Viewed	The amount of an individual video you've watched.	Downloaded Info
Timezone	The timezone you've selected.	Downloaded Info
Work	Any current information you've added to Work in the **About** section of your timeline.	Downloaded Info
Videos	Videos you've posted to your timeline.	Downloaded Info

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Video Creator Pages	Video creator Pages you've recently viewed.	Downloaded Info
Videos You've Removed	Videos you've removed from your Watch list.	Downloaded Info
Your Facebook Activity	A history of when you've accessed Facebook.	Downloaded Info
Your Pinned Posts	Posts you've pinned on your timeline.	Downloaded Info

Exhibit C

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable Jacqueline Scott Corley, Magistrate Judge

IN RE FACEBOOK, INC. CONSUMER)
PRIVATE USER PROFILE)
LITIGATION.) **NO. 18-MD-02843 VC (JSC)**
_____)

San Francisco, California
Friday, August 14, 2020

TRANSCRIPT OF REMOTE VIDEOCONFERENCE PROCEEDINGS

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Reported Remotely By: Ana M. Dub, RDR, CRR, CCRR, CRG, CCG
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1	**Friday - August 14, 2020** **8:27 a.m.**
2	P R O C E E D I N G S
3	---o0o---

4   **THE CLERK:** We're a minute early, but court is now in

5 session. Let's see. Calling Civil Action 18-MD-2843, In Re

6 Facebook, Inc. Consumer Privacy User Profile Litigation.

7   Counsel, starting with plaintiff, can you please state

8 your appearance.

9   **MS. WEAVER:** Sure. This is Lesley Weaver of Blakemar

10 Fonti & Auld. With me is Anne Davis and Angelica Ornelas.

11   And I see that Matt Montgomery actually is not -- he

12 should be with us. So he should probably be elevated. I

13 apologize. I missed him before. Don't tell him.

14   **MR. LOESER:** Good morning. You have Derek Loeser from

15 Keller Rohrback.

16   **THE COURT:** Good morning.

17   **MR. KO:** Good morning, Your Honor. Nice to see you

18 again. David Ko, Keller Rohrback, also on behalf of

19 plaintiffs.

20   **THE COURT:** Good morning.

21   And here comes Mr. Montgomery. He's here.

22   All right. And for Facebook?

23   **MR. SNYDER:** Good morning, Judge. It's Orin Snyder

24 from Gibson Dunn with my colleagues, Deb Stein, Martie Kutscher

25 Clark, and Russ Falconer.

THE COURT: Good morning.

Okay. Thank you for your statement.

Let's see. It sounds like there are not too many things to discuss. Let's just start.

The search terms you're working on, I will just make this observation. I do think it would be unreasonable to insist that all terms apply to all custodians. That just can't be right. People have different positions. So I give you that guidance in working on that.

Now, with respect to the data about plaintiffs, let's go through. And why don't plaintiffs tell us what is the data that you're missing that you think is relevant. So one thing you've identified is the data about what data about the plaintiffs was shared with advertisers. Is that correct?

MS. WEAVER: That is correct in general terms, Your Honor. Basically, what has been produced to us is user-facing data through an Access Your Account tool, for the most part.

Now, I want you to know that we have reviewed all of the plaintiffs' data with more than one pass-through. We've done targeted searches. We've had 18 people, and more at times, going through the documents. So we're pretty familiar with what's there.

There are two problems that we have. The first is that Your Honor ordered us last -- two weeks ago to discuss

1 precisely what has been produced and precisely what is the data

2 that is being withheld.

3   And we -- in the course of our meet-and-confer sessions,

4 Facebook did not identify the examples that they put in their

5 statement. We didn't discuss those. So once again, we are

6 getting information the first time in the statement.

7   And it would have been better if we had discussed it,

8 because when we look at those documents -- we've looked at them

9 before -- they are not what we're seeking. And the reason that

10 they're not -- and if you look, there's an example of one of

11 them they gave us. The content is missing. So there's an

12 event that says one of the users went to a website, but the

13 content of what they did on the site is stripped away.

14   And our experts say, you know, what did you put in your

15 shopping cart? What did you access? How long were you on it?

16   And that data is also married to GPS data --

17   THE COURT: Okay. I have the statement --

18   MS. WEAVER: Yeah.

19   THE COURT: -- in front of me.

20   MS. WEAVER: Yes.

21   THE COURT: Can you put me to the page and the Bates

22 number?

23   MS. WEAVER: The Bates number of the document -- hang

24 on.

25   THE COURT: Well, first, the page of the statement so

1   I know where to go.

2   **MS. WEAVER:** That is going to be harder for me.

3   I think it's page 6. The Bates number -- and I'm going to

4   ask -- Anne, if you can help me, it's 01037245.

5   **THE COURT:** Don't see that. It's redacted

6   information?

7   **MS. WEAVER:** Some of the information was redacted,

8   yes. But this information we can discuss in the hearing, if

9   that is --

10   **THE COURT:** No, no. I understand. We can -- I'm not

11   worried --

12   **MS. WEAVER:** Yeah.

13   **THE COURT:** -- about that.

14   I'm just trying to find it. I don't see it.

15   **MS. WEAVER:** Yeah. Hang on just a moment.

16   **THE COURT:** Maybe the sentence at the first page of

17   the --

18   **MS. WEAVER:** Yeah, I'm actually looking -- I

19   apologize. I'm looking for the actual statement. I have too

20   many things open on my laptop.

21   But for all of the documents that they've identified,

22   Your Honor, these are PDFs that reflect some activity.

23   **THE COURT:** I just want to start with -- I want to

24   start with --

25   **MS. WEAVER:** Fine. Okay. So if you go to page 5 of

1   the statement and if we look at, for example, where it says

2   "Ms. Tutt reviewed content on Amtrak.com," it doesn't tell us

3   what the content is or it doesn't tell us --

4   **THE COURT:** Okay. Or the --

5   **MS. WEAVER:** -- what they did.

6   **THE COURT:** -- other one, that Ms. Tutt viewed content

7   on a news site and --

8   **MS. WEAVER:** Right. And it doesn't --

9   **THE COURT:** -- tell you what the content is.

10   **MS. WEAVER:** -- tell us what they do.

11   **THE COURT:** Let me ask Facebook.

12   Do you have that content?

13   **MR. SNYDER:** Mr. Falconer, I think, will address this.

14   **MR. FALCONER:** Good morning, Your Honor. Russ

15   Falconer for Facebook.

16   Our understanding is there is some machine-readable data

17   in some cases that might reflect the off-Facebook activity that

18   Ms. Weaver is describing in a kind of raw, disaggregated way.

19   That information is not associated with the plaintiff's account

20   in the way that the user-created, user-shared content and

21   information is associated with a user account.

22   And so I hear -- I don't know -- confusion and frustration

23   from Ms. Weaver that they feel like they don't understand what

24   we've produced.

25   The Court ordered us to, you know, be as clear as we can

1   on named plaintiffs' data, what has been produced and what has

2   been withheld. And what we've tried to do is say that we've

3   produced all content information that the plaintiffs share on

4   Facebook and then some of the other categories of information

5   that we identified in our statement; so device information,

6   geolocation information, certain other information that is

7   associated with their account. And we have been -- I think

8   we've tried to be clear; and if we failed in this, we

9   apologize.

10   There is other -- there's Facebook-generated information,

11   information generated by third parties, information received

12   from third parties. We have not represented that that is

13   comprehensively included in our production.

14   What we have produced are Facebook analytics, third-party

15   data, off-Facebook activity, anything like that that is

16   associated with a user's account.

17   And so that's -- I think the point of departure between

18   the parties right now is maybe the level of generality with

19   which we have described what we have not produced. But

20   that's -- we've tried to be as clear about the, sort of, large

21   buckets that are not included in the named plaintiff data we've

22   produced to date.

23   **THE COURT:** So, for example, when you say Ms. Weaver

24   said, as you said, that the plaintiff viewed content on

25   Amtrak.com, are you saying you don't have any way of

1 identifying what that content is that she viewed at that

2 particular time, even though you were able to say she viewed

3 that website at that time?

4   MR. FALCONER: I think for an individual plaintiff on

5 an individual website, if it was just that question -- could we

6 tell for one of the named plaintiffs what specific content she

7 viewed on the Amtrak website? -- if it was, you know, ten years

8 ago or seven years ago, probably not. If it was a year ago,

9 maybe. That data may or may not have been associated with --

10   THE COURT: Well, if it was this year --

11   MR. FALCONER: Yeah.

12   THE COURT: -- with that particular --

13   MR. FALCONER: Sure.

14   THE COURT: -- data this year.

15   MR. FALCONER: The answer is it's possible. There may

16 be some website-specific data about that named plaintiff; there

17 may not be. There's some --

18   THE COURT: Okay. And so you haven't searched for it,

19 or you're withholding it, or -- I guess, why hasn't it been

20 produced?

21   MR. FALCONER: So as we understood the Court's

22 mandate or, sort of, the Court's --

23   THE COURT: No, no, no. I'm just asking.

24   MR. FALCONER: Oh.

25   THE COURT: I'm just asking.

1   **MR. FALCONER:** Because the reason for that is that

2 just to find it for one named plaintiff would be like a

3 multiweek endeavor, if not longer. And the reason for that is

4 that -- let's take the Amtrak example.

5   With this off-Facebook activity data, the tables and the

6 database where the data is stored, you know, they've been

7 explained to us like each one of them is a book. And the book

8 is organized by topic. The topic that the book is organized by

9 is the advertiser. It's Amtrak; it's not the named plaintiff.

10   So for every Facebook advertiser there's a book. Right?

11 There's a table that has some data for advertisement, website

12 activity, that kind of thing.

13   So to gather the information for one named plaintiff on

14 Amtrak, that, we could probably do. To gather the data for one

15 named plaintiff on every advertiser on every off-Facebook

16 activity that has ever happened, just for one named plaintiff,

17 we have to go into each of those books individually and look

18 for that one named plaintiff, and then we'd have to do it for

19 each of the other 23 named plaintiffs.

20   So that's the reason why we have not undergone that to

21 date.

22   **THE COURT:** I understand that. So have you identified

23 every instance that you have that the plaintiff viewed content

24 on some website, whatever it is?

25   **MR. FALCONER:** Every instance where Facebook has been

1 able to associate that off-Facebook activity with a named

2 plaintiff's account. Sometimes they can't make the connection.

3 But where it's connected, we've identified it. That's included

4 in the production.

5   **THE COURT:** I assume that for this privacy case --

6 right? -- some content is obviously more private than other

7 content and the plaintiffs may not necessarily need or want.

8 They need exemplars. Right? And there is a standing argument

9 that you guys are maintaining that they have to defeat and

10 damages and all that. There are particular instances. Right?

11 So there may be particular instances where you then have to go

12 do that.

13   In other words, if it's the data that was shared, which is

14 sort of at the heart of the case, you're probably going to have

15 to do some work on that. Whether it's every instance, probably

16 not; but certainly certain instances.

17   Now, plaintiffs, it sounds like, have a template of where

18 to start. It may not be Amtrak, but it may be the next one

19 there. Right?

20   **MR. FALCONER:** Your Honor, could I be heard on that?

21   **MS. WEAVER:** Well, may I --

22   **MR. FALCONER:** Or, go ahead.

23   **MS. WEAVER:** I would like to respond.

24   So what we're talking about right now and what they've

25 produced is, there's a tool so users can download data. And

1   even in what they're downloading, there is content missing.

2   But there's another whole bucket of data that they haven't

3   identified to us that is responsive, and that's the first step.

4   We need the identification of the fields of the data that they

5   collect through their third-party relationships, whether it's

6   apps or websites, et cetera. And it is this database that

7   Facebook searches using algorithms to target the users.

8   What they've given us is sort of the window dressing of

9   the platform activity, and I've identified for you that

10   something is missing even from that.

11   But there is -- and, Your Honor, we've talked to our

12   experts; and maybe it's better to have experts talk or put in a

13   declaration because I can tell you, their position will be that

14   this is, quote/unquote, not associated with the users but that

15   doesn't make sense.

16   There is an event ID, because the reason Facebook is

17   collecting it in the first place is to target people with the

18   data. So there is a way to go back and find -- and I agree

19   with Mr. Falconer that this data set will be immense. And that

20   is the scope of the case. And that's why we said only for the

21   24 because --

22   **THE COURT:** I'm just going to --

23   **MS. WEAVER:** Yeah.

24   **THE COURT:** -- tell you guys, I think maybe you need

25   to think about a special master.

1   There's just no --

2   MS. WEAVER: Yes.

3   THE COURT: I don't have the time or the patience or

4   the expertise to wade through any of this, like the nuance that

5   you're getting into. So I don't know what to do.

6   MS. STEIN: Your Honor, may I be heard for a moment?

7   So I think the good news on, sort of, your reaction to

8   this is that this exercise was really about, sort of,

9   identifying categories so that we could have a conversation

10   about what's required in this case, because there is a whole

11   lot of information being sought here that has absolutely

12   nothing to do with the issues that are being litigated in this

13   case.

14   THE COURT: No. I understand that argument. I don't

15   even know how to figure out what it is that we're even talking

16   about.

17   MS. STEIN: Right.

18   MS. WEAVER: So Facebook --

19   MS. STEIN: So, Your Honor, what's being --

20   MS. WEAVER: Could I --

21   MS. STEIN: -- talked about right now is what's called

22   off-Facebook activity. And that off-Facebook activity has no

23   relationship to the issues that the dismissal order said are

24   viable right now and that are not stayed. The order of

25   dismissal --

1   **THE COURT:** No. I read that. I read it. I

2   understand.

3   **MS. STEIN:** Okay. Good.

4   **THE COURT:** So this --

5   **MS. STEIN:** And so the off-Facebook activity --

6   **THE COURT:** -- this has been previewed -- just, can I

7   finish?

8   **MS. STEIN:** I'm sorry, Your Honor.

9   **THE COURT:** Because I'm really losing patience with

10 this case.

11   This has been previewed for a while. So what I was hoping

12 to do is you guys could just tee up what that data is so I can

13 rule if it's discoverable or not.

14   I don't even know how to get to that point.

15   **MR. SNYDER:** Your Honor, I think there's a very

16 easy --

17   **MS. WEAVER:** If I could, I was waiting.

18   Your Honor, we would like them to identify what they're

19 withholding. That's it.

20   **THE COURT:** But that's a chicken-and-egg problem.

21 That's a chicken-and-egg problem. And I'm not sure -- and see,

22 this is the problem I'm having. You said you've now reviewed

23 it all. What is missing? You've identified --

24   **MS. WEAVER:** So I'll give you examples. There are no

25 examples --

1   THE COURT: You did.

2   MS. WEAVER: Okay.

3   THE COURT: No. I'm going to let Mr. Snyder talk.

4   MS. WEAVER: Fine.

5   MR. SNYDER: Your Honor, I share your frustration, and

6   I think this is very easy.

7   For example, on advertisement, we have gone, I think as

8   indicated in our statement, above and beyond the call of duty

9   because we didn't really want to just say, "We're not giving

10   you what advertisements you reviewed or ads that you've clicked

11   on, even though it's outside the scope of the case."

12   This case --

13   THE COURT: No, no. That's an argument. Please,

14   let's try not to argue.

15   MR. SNYDER: Right.

16   THE COURT: I'm going to decide that at some point.

17   MR. SNYDER: Okay. So what I would --

18   THE COURT: Just --

19   (Simultaneous cross-talk.)

20   THE COURT: -- that.

21   MR. SNYDER: What I would respectfully suggest is, we

22   can, Your Honor, tee it up for you in a very simple way,

23   because Judge Chhabria's order is very clear about what's in

24   and what's out. And then each side can succinctly,

25   efficiently, and clearly make their arguments about what is in

1   and what's out. And it's not going to be difficult,

2   Your Honor. I think it's pretty clear.

3   I agree, on this call, people using terminology --

4   "on-platform," "off-platform" -- it all sounds like

5   gobbledegook. I think there's a very clear, efficient, and

6   efficacious way for us to tee this up in a short statement to

7   Your Honor; and Your Honor can rule on it, if Your Honor wants

8   more argument on it, without us having these dueling

9   Zoom/Hollywood Squares, you know, arguments about what's in and

10 what's out that's not going to really lead to any fair ruling.

11   **THE COURT:** This is what I need to ask Ms. Weaver, is:

12 Do you know what it is that you want or that you believe exists

13 that you don't have?

14   **MS. WEAVER:** Yes.

15   **THE COURT:** You do. Okay.

16   **MS. WEAVER:** More or less. We don't know what form

17 they keep it in or how they keep it. It is this data set that

18 they mine, yes.

19   **THE COURT:** Okay. So is there any reason why, then,

20 we can't adjudicate that dispute as discoverability?

21   **MS. WEAVER:** We can --

22   **MR. SNYDER:** I think we can --

23   **MS. WEAVER:** -- adjudicate that, Your Honor.

24   **THE COURT:** We can? Okay.

25   **MR. SNYDER:** We can and we should.

1   THE COURT: All right.

2   MR. SNYDER: And I think we can do it very simply

3 without a lot of drama or complication.

4   THE COURT: So that's what --

5   MR. FALCONER: Your Honor --

6   THE COURT: -- I want you to do, then, on this,

7 I think.

8   And, I mean, it doesn't have to be the joint letter brief,

9 whatever. I mean, it's a big issue. It kind of goes to the

10 heart of the case. So I want you to have the ability. You're

11 going to probably need your experts to some extent -- at least

12 plaintiffs -- to be involved with it.

13   And I probably want four briefs. Right? Whoever goes

14 first, second, first, second, so that there's -- my guess is

15 it's not till we get to the second two briefs that we'll really

16 be able to meet there. That just seems to be the process that

17 we need to do.

18   So you guys work it out, how that's going to be presented.

19 I'm not giving you any limits at all. You only have the limit

20 of my time and attention span. So just keep that in mind.

21   (Laughter.)

22   MS. WEAVER: And how much time, Your Honor, would you

23 like between briefs and the hearing? What kind of timing --

24   THE COURT: We'll put a hearing. I'll figure it out.

25   MS. WEAVER: Okay.

1   **THE COURT:** I mean, to be honest, I'm just swamped at

2   the moment.

3   **MS. WEAVER:** I know.

4   **THE COURT:** So, but you get it to us. We'll get

5   through it. And we will set it for hearing. I think it's

6   important to have an oral --

7   **MR. LOESER:** And, Your Honor, if I could be heard for

8   one quick minute on one --

9   **THE COURT:** Yes.

10   **MR. LOESER:** This is Derek Loeser.

11   -- just, process point.

12   Where we stand right now, we generally think we know

13   what's missing, and we can describe it in our briefs.

14   Facebook obviously has specific knowledge about what's

15   missing. And so because they haven't identified specifically

16   what they're withholding, I really think it would be improper

17   for them to argue in their brief that we haven't been specific

18   enough with what we're seeking. If that is going to be their

19   argument in their brief, then they should comply with your last

20   order, which was to identify specifically what they're

21   withholding.

22   But that's the only --

23   **THE COURT:** Yeah. No, I understood. So that's why

24   I'm doing four briefs.

25   And in the meantime, you should be talking and really

1 trying to narrow. It is in both sides' interest to have it

2 teed up as accurately as possible for me to decide. Otherwise,

3 I'm going to make a wrong decision one way or the other because

4 I won't understand.

5   **MR. SNYDER:** And, Your Honor, it's in everyone's

6 interest to have you not be frustrated with us, which I

7 understand and I think your frustration is well-placed, one.

8   Two, we want Your Honor to continue to preside over

9 discovery; and we would, I think, lose a lot if we had to start

10 fresh with a special master.

11   And mindful of that, we're going to work to narrow the

12 issues. Maybe we can even eliminate them. And we have a lot

13 of other work to do in the meantime. So however long

14 Your Honor needs, we're going to obviously abide and respect

15 that, and we're not going to, you know, ask you to turn around

16 a ruling.

17   There's a lot we have to do on search terms and privilege

18 logs and ADI protocols. So there's a ton of work for us to do

19 while Your Honor takes -- you know, takes the time necessary to

20 adjudicate this issue, which is ripe now.

21   **THE COURT:** Yeah. Just don't put a hearing date.

22 I'll pick it. So that's not a problem.

23   **MR. LOESER:** The only thing I would add to that,

24 Your Honor, is that we would like you to be very frustrated

25 with Orin all the time, but not with us.

1   (Laughter.)

2   **THE COURT:** Well, this week has not been -- I've been

3   frustrated a lot, and I apologize for that.

4   **MR. SNYDER:** Don't apologize.

5   **MS. WEAVER:** It's tough times.

6   **THE COURT:** There's a lot. There's just a lot,

7   scheduling.

8   **MR. SNYDER:** Yes, Your Honor.

9   **THE COURT:** Okay. So, which leads me to my next

10 point, which is the joint statement -- okay? -- which is, you

11 all are extremely talented, experienced lawyers. If you can't

12 figure out a way, a process for this statement to work -- it's

13 really, actually, for you. Right? The statement is a great

14 way of assessing where we are, what our disputes are,

15 crystallizing it. It's for you more than me, quite honestly.

16 And if you guys can't figure out together a way to do that,

17 then we've got to go back to zero and start over. I mean, this

18 should be the easy part.

19   So I'm not going to tell you how to do that joint

20 statement. The only thing I'm going to tell you is I want it

21 however -- what is -- just even one day, I give you, right,

22 before this? I take it upon myself; I will make time to read

23 it the night before or early the morning before. That's my

24 only deadline. You guys work it out. Whatever works best for

25 you and gets it. But the point is, it should really try to

1   crystallize it.

2   My own view is -- and with other cases -- is that -- at

3   least with discovery disputes, is if you do time for a reply as

4   opposed to changing what you've already said, that tends to

5   work better. But I'm not ruling at all. I want you guys to

6   come up with it. It's, frankly, below my pay grade to have to

7   tell you how to do it.

8   (Laughter.)

9   **MR. LOESER:** We hear that loud and clear, Your Honor,

10   and we will keep talking to Facebook about it.

11   We just think that it would be really useful for everyone

12   here, including for you, if people talk about things that they

13   put in their statements before it's submitted to the Court.

14   And so that's our mission in trying to come up with a better

15   way to do this. That's what we're trying to accomplish.

16   **THE COURT:** Maybe you could do a statement, a draft,

17   and then you talk about what's in the draft. Right? So then

18   you know what's in there before you -- I don't know, but that

19   would --

20   **MR. LOESER:** Yeah. We'll figure it out.

21   **THE COURT:** Yes. I know you guys can figure it out

22   because you're all outstanding lawyers. That's why you're on

23   this case.

24   Okay. So then we need to pick our next date. How about

25   we push it out three weeks, to September 3rd?

1   MR. LOESER: I think that's the 749th day of March;

2 so, sounds great.

3   (Laughter.)

4   MS. WEAVER: That's fine, Your Honor.

5   MR. SNYDER: And two months before Election Day,

6 assuming the post offices --

7   MS. WEAVER: There is one.

8   MR. SNYDER: -- assuming the post offices and the

9 polling places aren't shut down permanently.

10   THE COURT: All right. Okay.

11   MR. LOESER: Don't depress us, Orin.

12   THE COURT: I apologize for having to lecture a little

13 bit, but to be honest, you guys can do better. I know you can.

14 I know you can. I have tremendous respect for all of you.

15   Okay. Great. I look forward to our next conference.

16 It'll be September 3rd at 8:30 a.m.

17   MR. SNYDER: Thank you, Judge.

18   MS. WEAVER: Thank you, Your Honor.

19   MR. SNYDER: Thank you for everything you're doing.

20 Appreciate it.

21   THE CLERK: Court's adjourned.

22   (Proceedings adjourned at 8:51 a.m.)

23   ---o0o---

24

25

1

2   __CERTIFICATE OF REPORTER__

3   I certify that the foregoing is a correct transcript

4   from the record of proceedings in the above-entitled matter.

5

6   DATE: Saturday, August 15, 2020

7

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9   _____

10   Ana M. Dub, CSR No. 7445, RDR, CRR, CCRR, CRG, CCG
              Official Reporter, U.S. District Court

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Exhibit D

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION	MDL No. 2843 Case No. 18-md-02843-VC
This document relates to: ALL ACTIONS	**PLAINTIFFS' OPPOSITION TO DEFENDANT FACEBOOK, INC.'S REQUEST TO ENFORCE THE PARTIAL STAY OF DISCOVERY IN PRETRIAL ORDER NO. 20 AND CROSS-MOTION TO COMPEL DISCOVERY RELATED TO REQUESTS FOR PRODUCTION NOS. 9 THROUGH 13** Judges: Hon. Vince Chhabria Hon. Jacqueline S. Corley Courtroom: 4, 17th Floor

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I.   INTRODUCTION

Facebook does not want Plaintiffs to obtain discovery showing the full breadth of its wrongful disclosure of its users' sensitive information. Accordingly, Facebook seeks to limit discovery in this case to a single category of improperly shared information: users' activity on the Facebook platform. The sensitive information that Facebook collects and shares with third parties is much more extensive than this. It collects users' sensitive information from a variety of sources—including from third parties—then pools the information with user-posted activity and generates additional information from the full data set it accumulates. It then shares this information about users and their friends with third parties. All of this information, including who has access to it and how it is used, is relevant to Plaintiffs' claims.

As a result, there are at least three compelling reasons that Facebook's motion should be denied and Plaintiffs' cross-motion to compel production of documents responsive to Requests for Production ("RFPs") Nos. 9 through 13[1] should be granted.

First, contrary to Facebook's tortured reading of Pretrial Order No. 20 ("Order" or "PTO 20"), Dkt. No. 298, the Court did not limit discovery in this case only to information regarding user activity on Facebook. While that information—and Facebook's subsequent disclosure of it—is of course relevant, that is not the only type of sensitive information relevant to Plaintiffs' claims or the four categories of wrongdoing recognized by the Order.

Second, the universe of data Facebook collects and shares about users is also not limited to user activity on Facebook, but instead consists of a sea of information obtained from a wide variety of sources, including from business partners, app developers, apps, and other third parties. Indeed, as Facebook's own documents show, it collects information about users far beyond what Facebook has produced in this case. And discovery produced to date further confirms that Facebook not only collects this information, but links it to users and shares it with third parties—putting to rest Facebook's nonsensical suggestions that Plaintiffs have failed to articulate what additional evidence exists or that Facebook cannot "associate" certain data with a

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[1] For details on these RFPs, see *infra* § II.B.

user.

Third, there is no justification for Facebook's claims of undue burden. Such an argument should be accorded minimal weight in a case of this size and complexity involving a company whose business model is premised upon the collection and production of electronic information about billions of users. Facebook has come nowhere near meeting its burden of demonstrating why data regarding solely Named Plaintiffs—relative to the hundreds of millions of potential class members whose information is ultimately at issue in this case—is not proportional to the needs of the case. In fact, pursuant to the Court's recent guidance regarding streamlining Plaintiffs' discovery, Plaintiffs have reduced the number of individuals who will be class representatives to ten, down from the twenty-three. Plaintiffs only seek the discovery at issue here related to these ten Plaintiffs (for purposes of this motion, the "Named Plaintiffs.")

II.   ARGUMENT

A.   The Order does not limit discovery to users' platform activity.

PTO 20 does not directly address the question raised by Facebook in its motion—whether this case is limited to user activity on the Facebook platform or includes all the sensitive information about users that Facebook improperly shared with third parties. But the Order nowhere expressly limits the case to user activity. *Cf.* Mot.[2] at 1. Nor does it make sense to read the Order that way. That sort of limitation would conflict not only with claims and theories that the Order upheld, but also with the grounds on which they were allowed to proceed to discovery.

Facebook, under the guise of enforcing a discovery stay that was never issued in the first place, spends many pages straining to read the Order to limit discovery to data relating only to users' on-platform activity. This provides a misleading picture of what the Order says and inaccurately ascribes to the Court a set of internally inconsistent views.

1. The Order. The Order summarizes its understanding of Plaintiffs' claims in a two-sentence précis near the beginning: "Broadly speaking, this case is about whether Facebook

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[2] Def. Facebook, Inc.,'s Opening Brief in Supp. of Its Req. to Enforce the Partial Stay of
    Discovery in Pretrial Order No. 20 ("Mot."), Dkt. No. 515.

acted unlawfully in making user information widely available to third parties. It's also about whether Facebook acted unlawfully in failing to do anything meaningful to prevent third parties from misusing the information they obtained." Order at 3. This description focuses on *Facebook's* unlawful disclosure of information about users and their friends to third parties—not on whether that information was originally posted, shared, or generated by users on the Facebook platform.

The Order then discusses the four categories of Facebook's wrongdoing. These categories are: (1) "[g]iving app developers access to sensitive user information"; (2) "[c]ontinued disclosure to whitelisted apps"; (3) "[s]haring sensitive user information with business partners"; and (4) "[f]ailure to restrict the use of sensitive information." Order at 6-9. These categories line up neatly with the earlier description of the action as alleging that "Facebook acted unlawfully in making user information widely available to third parties" (the first three categories) and that Facebook "fail[ed] to do anything meaningful to prevent third parties from misusing the information they obtained" (the fourth category). *Id.* at 3.

Using these four categories of wrongdoing as a framework, the Order analyzed whether Plaintiffs had standing to bring their claims and whether they stated valid claims. It ruled that Plaintiffs had standing because they alleged that their "sensitive information was disseminated to third parties in violation of their privacy." *Id.* at 14. It upheld nearly all of Plaintiffs' claims (e.g., three privacy-based tort claims under California law, a claim under the Stored Communications Act ("SCA"), a claim for breach of contract, and a claim for unjust enrichment) except to the extent they were based on the first category of wrongdoing, the disclosure of user information to app developers. *Id.* at 30-34, 38-41. It upheld in its entirety Plaintiffs' claim under the Video Privacy Protection Act ("VPPA"). *Id.* at 34-35. And it upheld Plaintiffs' claim for negligence, which was based on the fourth category of wrongdoing. *Id* at 35-36.

2. ***The Order's rationale.*** Why did the Order conclude that Plaintiffs had standing and had stated valid claims? On these points, the Order is clear. Plaintiffs had standing because "their "sensitive information was disseminated to third parties in violation of their privacy." *Id.* at 14.

This reasoning focuses not on *where* the user information was originally generated—whether on the Facebook platform or off it—but on its nature ("sensitive") and on what Facebook did with it ("disseminated" it "to third parties").

Similarly, when discussing the claims, the Order focused not on the original provenance of the information about users, but on its nature and on what Facebook did with it. So, for example, the Order ruled that:

- Plaintiffs had stated valid privacy torts because Facebook had disseminated information that was "sensitive" and as to which Plaintiffs had a reasonable expectation of privacy. *Id.* at 30-33.

- Plaintiffs had stated a claim under the Stored Communications Act because Facebook had disseminated the content of their electronic communications and had not gained their consent to do so. *Id.* at 33-34.

- Plaintiffs had stated a claim under the Video Privacy Protection Act because Facebook had disseminated "information which identifies a person as having requested or obtained specific video materials or services," *id.* at 34 (citation omitted), and Facebook qualified as a "video tape services provider" under the statute, *id.* at 35.

3. *"Sensitive information" is not defined by where Facebook collects that information.*

The Order repeatedly notes that Facebook shares "sensitive" user information without consent. Facebook pins its argument to this one word, maintaining that the Order "defined" sensitive user information to mean only information about what users post on Facebook, Mot. at 1, or users' platform activity, Mot. at 8. But the common-sense meaning of "sensitive information" encompasses more than just what users did on the platform. Consider, for example, a Facebook user's Amazon.com order for an over-the-counter contraceptive or another user's entry of "alcoholic support group in Tower District, Fresno" into a search engine. "Sensitive information" also includes information that Facebook can *infer* from on-platform information—a category of information it has not produced. (Think of the inferences that Facebook can draw from weekly photographs of a user taken at M.D. Anderson Cancer Center.) Facebook's objection that such information is categorically not "sensitive" is false.

It is true that when the Order gave examples of sensitive user information, the examples it

used concerned information generated on the Facebook platform. *E.g.*, Order at 1, 17. Nowhere, however, did the Order *define* or *limit* sensitive information to users' platform activity only. And the Order's reasoning certainly is not limited to such information. Rather, as noted above, Plaintiffs' standing to bring their claims, and the validity of many of those claims, depends on the nature rather than the provenance of the information, and on whether Facebook shared that information with third parties. And, as Plaintiffs have learned through discovery, the sensitive information about users that Facebook collects and shares with business partners and app developers includes both information originally generated outside the Facebook platform and information derived from on- and off-platform activity.

It also is farfetched for Facebook to argue that the Order rules that *all* of Plaintiffs' claims—including their federal statutory claims—rise or fall depending on whether the information that Facebook shared is "sensitive" in the sense of being embarrassing or deeply intimate. The validity of Plaintiffs' claim under the SCA, for example, does not turn on how embarrassing or intimate the information is that Facebook shared, but on whether the shared information includes the contents of an electronic communication. 18 U.S.C. § 2702(a)(1). Similarly, Plaintiffs VPPA claim turns on whether the information that Facebook shared includes "information which identifies a person as having requested or obtained specific video materials or services from a video tape service provider." *Id.* § 2710(a)(3). If, for example, Facebook collected and shared a user's video-watching queue from a different platform, that would constitute a VPPA violation.

In sum, while the Order does not explicitly address the issue posed by Facebook's motion, it certainly does not limit discovery in this case to on-platform user activity and reading it that way is inconsistent with the Court's reasoning. It is also inconsistent with statements by the Court during the motion to dismiss hearing about the breadth of user data that is relevant to Plaintiffs' claims:

> For example, if – I'm a Facebook user. And, you know, I'm trying to assess the likelihood that my sensitive information got into the hands of third parties and, if so, how many third parties and, if so, what kinds of third parties. If I have a full

understanding of the third parties that had access to the information, and a full understanding of what type of information they had access to, and a full understanding of who they were, and what they – and what restrictions were placed on them, we then have a better understanding of what was likely to have happened to me.

Nov. 4, 2019 Tr. at 15:20-16:4. It is the "full understanding" referred to by the Court that Plaintiffs seek, and that Facebook refuses to allow.

Finally, this reading prevents Named Plaintiffs from discovering even the general policies and practices of Facebook governing the sharing of their sensitive information, policies and practices that are critical for this case. *See* Pretrial Order No. 30 at 2, Dkt. No. 347 ("[T]he best way to assess the merits and to determine whether class certification is appropriate is almost certainly to conduct discovery on Facebook's general practices."). Plaintiffs submit that Facebook's exclusion of this information from discovery is not what the Order intended.

   4. The Order stayed claims, not discovery. Plaintiffs organized their claims into three categories: prioritized claims, prioritized consumer protection act claims alleged in the alternative, and non-prioritized claims. First Am. Consolidated Compl. ("FACC") at 317-411, Dkt. No. 257. The Order made the simple observation that "[a]ll other prioritized claims not addressed by this ruling will be stayed (effectively, relegated to non-prioritized status) and adjudicated, if necessary, at a later state in the proceedings with the other non-prioritized claims." Order at 6. Facebook's claim that this holding somehow imposed a stay of *discovery* is baffling. The Order does not, and does not purport to, stay discovery in any fashion.[3]

B.   **The discovery requests at issue and Facebook's response**

   The present dispute arises from five discovery requests, each of which asks for data that Facebook possesses about Named Plaintiffs, the third parties that Facebook disclosed this data to, and the types of information that was disclosed to them. *See* Ex. A, Def. Facebook, Inc.'s Resps. & Objs. to Pls.' Second Set of Reqs. for Produc. In particular, RFP No. 9 requests "[a]ll

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[3] Even if it were, the Order observed that "[o]f course, dismissal of a subset of claims with prejudice does not preclude a plaintiff from seeking revival if discovery reveals a factual basis that justifies reconsideration[.]" Order at 37 n.21 (citations omitted).

Documents relating to each of the Named Plaintiffs, including but not limited to all Content and Information collected about each of them or gained from business relationships or any other source."[4] *Id.* RFP No. 10 asks Facebook to produce, "[f]or each of the Named Plaintiffs, Documents sufficient to show the categories of Content and Information Facebook collects, tracks, and maintains about them." *Id.* RFP Nos. 11-13 then request documents requesting Facebook to identify the third parties that were able to access this information, including the categories of data that were disclosed to them and how they accessed it. *Id.* Plaintiffs propounded these requests nearly one year ago in November 2019.

In response to these requests, Facebook produced information collected by the DYI ("Download Your Information") tool. This limited tool allows downloads of some, but not all, information relating to users' activity on the platform. And Facebook freely acknowledges that Plaintiffs can access this information themselves. *Id.* ("[A]ll Facebook users are free to download their DYI file if they wish."). In addition to the DYI production, Facebook has produced an undefined category of "additional information associated with [users'] accounts" for each Plaintiff. Mot. at 6. But Facebook does not describe what the "additional information" is, likely because it is extremely limited—it consists solely of information users can access through their account in the form of their privacy settings and information reflecting user activity on Facebook. Critically, the form of production also obscures whether some of the activity was public or private. Thus, virtually all of Facebook's 850,000-page production relating to the original Named Plaintiffs in this case was already accessible to Plaintiffs and tells only part of the story.

C. **Relevant sensitive information is not limited to platform activity, but also includes sensitive information Facebook derives and collects from business partners, app developers, apps, and other sources.**

Facebook acknowledges that it collects and shares substantial amounts of additional sensitive information about users beyond their platform activity. *See, e.g.*, Aug. 14, 2020 Hr'g

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[4] The requests use the definition of "Content and Information" from Facebook's Statement of Rights of Responsibilities—a definition that is not limited to on-platform data.

Tr. 8:10-13 ("[T]here's Facebook-generated information, information generated by third parties, information received from third parties. We have not represented that that is comprehensively included in our production."); *see also* Mot. at 10-15 (describing off-platform activity and internal analytics it has not produced). However, Facebook contends that this other information is not relevant to this case. This is false.

      1.   **User data includes, in Facebook's words, "native, appended and behavioral data" that Facebook collects from business partners, apps and other activity.**

Facebook identifies three general categories of information it possesses about Facebook users: Native Data, Appended Data, and Behavioral Data. *See* Ex. B, FB-CA-MDL-00213424-439. Native Data includes public and private information Facebook collects from a user's activity on Facebook such as a user's profile info, posts, likes, shares, and location and device information. *Id.* Native Data also includes a small subset of information it can infer from user activity on and off Facebook, such as user interests and behaviors. *Id.* Appended and Behavioral Data, on the other hand, consists of information inferred from user activity on and off Facebook. Specifically, Appended Data is user information obtained from third parties, including advertisers and data brokers, about a user's activities—*e.g.*, auto registration, retail and credit card purchase histories, as well as other "enhanced" customer databases. *Id.* Behavioral Data consists of substantial information related to users including their activity within third-party applications—e.g., website browsing behavior, app installations, and purchases they make off the Facebook platform. *Id.* These three categories of information, and how Facebook obtains this information, are illustrated as follows:
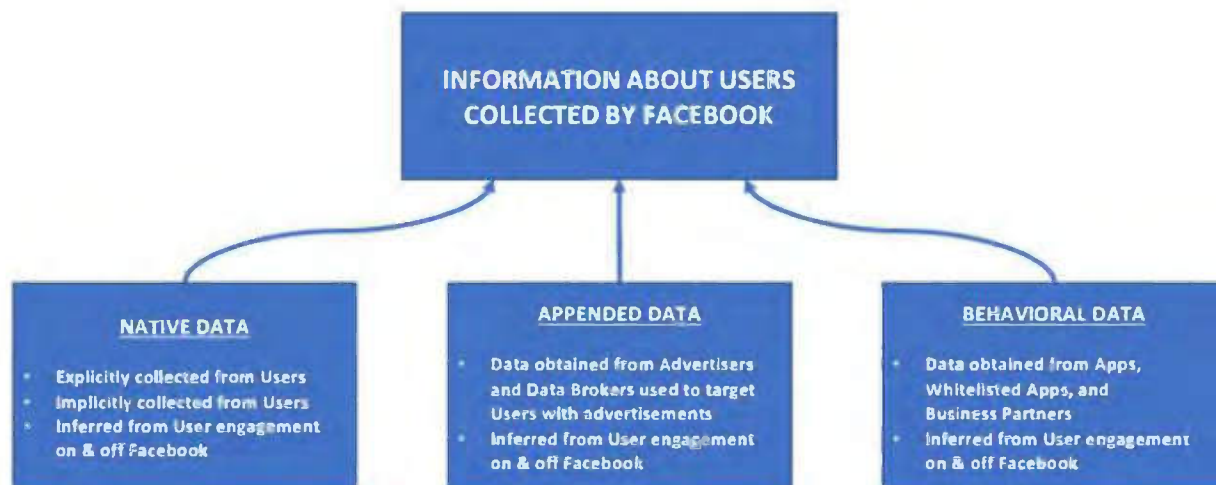
While Native Data—the only type of data Facebook has partially produced about users so far—is important for this case, so too is Appended and Behavioral Data obtained from user "engagement" on and off the platform. Moreover, Facebook connects and integrates Native, Appended and Behavioral Data generated from on-platform activity with data obtained from third parties. *See* Ex. B, FB-CA-MDL-00213424-439 (identifying Facebook's matching of data it receives directly from users with Appended Data and Behavioral Data received from third parties through "█████████████████"); *id.* at FB-CA-MDL-00213424 (describing Facebook's ████ ███████ process as instances where ████████████████████████████ ██████████████████████).

Critically—and contrary to Facebook's suggestion that this data is irrelevant and duplicative of information it has already produced (Mot. at 14)—discovery confirms that Facebook shares this data with third parties. For example, a 2012 internal email between senior team members explains that "Facebook has information about users which can be helpful to applications, and *which we provide to applications when we deem appropriate*[.]" Ex. C, Email from Sam Lessin to Douglas Purdy (Aug. 30, 2012), at 3 (emphasis added), NBCNews (Nov. 6, 2019), https://dataviz.nbcnews.com/projects/20191104-facebook-leaked-documents/assets/facebook-sealed-exhibits.pdf at 716. The email also identifies the kind of data

that Facebook shares, including (1) "[a]ggregate data about the tastes, properties, etc. of a user's friends," (2) "[d]erived data about a user/facebook's data/opinion of a user (probably location, account trust score, account age, etc.)," and (3) "[d]ata provided by third parties – information which third parties have contributed to the graph on behalf of a user." *Id.*.

Another internal document, ███ ██ ██ ██ ██ These documents make clear that Facebook collects sensitive user information in a variety of different ways and discloses it to third parties.

Facebook's insistence that it need only produce on-platform Native Data makes even less sense when considering Plaintiffs' claims. Plaintiffs' statutory and common law claims are not limited to information generated from users' activities on Facebook. For example, under the VPPA, Plaintiffs must prove that Facebook disclosed "personally identifiable information concerning any consumer" to "any person" absent written or informed consent. 18 U.S.C. § 2710(b)(2). Under the SCA, Plaintiffs must prove that Facebook "knowingly divulge[d] to any person or entity the contents of any communication" users did not intend for Facebook to divulge. 18 U.S.C. § 2702(a). The source of the information—that is, whether it was the result of on- or off- platform activity, gleaned directly from users' posts, or inferred from them—is irrelevant. Disclosure of any of this information without consent is actionable.

Similarly, Plaintiffs' Public Disclosure of Private Acts claim requires Plaintiffs to prove that Facebook disclosed a private fact about the plaintiff that is objectionable and offensive to a reasonable person. *Doe v. Gangland Prods., Inc.*, 730 F.3d 946, 958 (9th Cir. 2013). Likewise, Plaintiffs' Intrusion into Private Affairs claim requires Plaintiffs to prove an intrusion by Facebook into a private matter that is highly offensive to a reasonable person. *Shulman v. Grp. W. Prods., Inc.*, 18 Cal.4th 200, 231 (1998). In order to prove these claims, Plaintiffs must

ascertain the private facts about them that Facebook is collecting and disclosing, whether they originate from platform activity or not.

Across many claims, the Order sustained Plaintiffs' allegations about Facebook's undisclosed data reciprocity programs with business partners. Plaintiffs are thus entitled to know what sensitive user data, of any type or source, Facebook shared with its business partners. Plaintiffs are further entitled to any data that Facebook received from its business partners in return, since the value of that data constitutes the benefit Facebook received in the transaction, a benefit that Plaintiffs are entitled to recover under, *inter alia*, the unjust enrichment claim that the Court sustained. Order at 41;[5] *see also* Order at 8 (noting the allegation that "Facebook and its [business] partners agreed to exchange information about users' activities with each other").

Facebook notes repeatedly that targeted advertising and psychographic marketing are not part of this case. *See, e.g.*, Mot. at 9. This argument misses the point. The question is not whether Facebook should or should not have engaged in targeted advertising and psychographic marketing. The question is whether, when doing so, Facebook shared sensitive user and friend information without consent. Plaintiffs are entitled to obtain the discovery necessary to substantiate the allegation that improper sharing has occurred in the context of these activities.

2.   Internal documents confirm that Facebook's description of data "associated" with users is misleading.

Facebook claims it has produced all data it possesses that is "associated" with Named Plaintiffs. That is, while it generated and collected reams of data about Named Plaintiffs, Facebook claims that most of that data, including Appended and Behavioral Data, is anonymized and cannot be connected to Named Plaintiffs. This is false.

Facebook explains that Appended and Behavioral Data cannot be associated with Plaintiffs' Facebook accounts because such data is "disassociated from the user's ID within 90

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[5] Facebook's position blocking discovery of what it possesses and shares is in tension with Facebook's own discovery requests to Named Plaintiffs. Facebook's Interrogatory No. 8 asks Plaintiffs to "Identify all entities other than Cambridge Analytica that You believe have "misused sensitive information from Your Facebook Account." But Facebook itself will not identify with whom it shared that sensitive information, let alone what information it possesses.

days" (Mot. at 15). But, as confirmed by internal documents, what actually happens is that Facebook replaces the User ID, or "UID," with a Random ID, or "Replacement ID" or "RID"— and ***stores the connection between a UID and an RID*** until users delete their accounts.[6] In other words, Facebook replaces the User ID with another identifier, yet the data is still directly linked to and associated with a given user. Indeed, the very purpose of collecting all of this data in the first place is to use it to target users and their friends. Facebook can readily connect any active user with Appended Data and Behavioral Data containing that user's RID[7] and, thus, it can be easily searched for, identified, and copied, without "multiple operations . . . to try to determine whether any data in the analysis originated from a Named Plaintiff." *Cf.* Mot. at 15.

Similarly, Appended Data without a RID can be connected to active users through "[h]ashed data matching." *See* Ex. B. "Hashed data matching" is the process of matching different data sets through the hash values of unique identifiers. For instance, when an advertiser uploads a spreadsheet of Custom Audience data including hashed email addresses, Facebook can match this data to its users through the hashed email address field.

Thus, it simply is untrue that it would be "nearly impossible" to produce the "disassociated" data in this case for Named Plaintiffs. Mot. at 15. Facebook clearly has the ability to connect Named Plaintiffs' user information through RIDs and hashed data matching, and should be ordered to do so in response to RFP Nos. 9-13.

D.   **Facebook has not established that the burden of producing the data relating to ten Plaintiffs is disproportional to the needs of this case.**

Facebook also suggests that "the burdens of locating the additional information Plaintiffs seek would far exceed the needs of the case." Mot. at 12. But the burden associated with producing the requested information is not undue; it is proportional to the needs of this complex

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[6] Ex. E, PwC_CPUP_FB00030737-738.
[7] *Id.* at PwC_CPUP_FB00030738 ███.

case. In assessing proportionality, Federal Rule of Civil Procedure 26 directs consideration of "the importance of the issues at stake in the action, the amount in controversy, the parties' relative access to relevant information, the parties' resources, the importance of the discovery in resolving the issues, and whether the burden or expense of the proposed discovery outweighs its likely benefit." Fed. R. Civ. P. 26(b)(1). Helpfully, Judge Chhabria provided further guidance at the March 5, 2020 Case Management Conference, stating:

> I am concerned that Facebook has, you know, often made statements reflecting an unduly narrow view of what should be turned over to the Plaintiffs. And, you know, this is a big case. I mean, there is often a lot of talk about proportionality and whatnot. This is a big case. It is a significant issue. You know, and there is -- this is not the type of case where we are going to be saying: Well, that might end up -- that effort might end up uncovering some relevant information; but, you know, it is just too expensive or difficult, and so we are not going to make Facebook do it. This is really not one of those cases where that is very -- that type of argument is likely to carry the day. You know, and, as I have said a number of times, you know, the best way to figure out what happened as it relates to the claims that are going forward now is to -- for Facebook to produce all information, all documents about the practices associated with giving third parties access to friends' information and friends' of friends information.

Tr. at 28:25-29:18. Judge Chhabria's observations regarding the size of this case remain on point. The proposed class period extends from 2007 to the present, the potential class members number in the hundreds of millions, and the third parties with whom Facebook shared user data appear to number in the tens of thousands. In that context, Plaintiffs' request for the data concerning ten individual users seems not only proportional to the needs of the case but modest.

Furthermore, Facebook's claims of burden are unsupported. "[T]he party opposing discovery has the burden of showing that discovery should not be allowed, and also has the burden of clarifying, explaining and supporting its objections with competent evidence." *Harris v. Best Buy Stores, L.P.*, No. 3:15-cv-00657-HSG (KAW), 2016 WL 6024556, at *1 (N.D. Cal. Oct. 14, 2016) (quoting *La. Pac. Corp. v. Money Mkt. 1 Institutional Inv. Dealer*, 285 F.R.D. 481, 485 (N.D. Cal. 2012)). A party claiming undue burden or expense "ordinarily has far better information—perhaps the only information—with respect to that part of the determination." Fed. R. Civ. P. 26(b)(1) advisory committee's note (2015). Therefore, the "party claiming that

discovery imposes an undue burden must 'allege specific facts which indicate the nature and extent of the burden, usually by affidavit or other reliable evidence.'" *Sullivan v. Personalized Media Commc'ns, LLC*, No. 16-MC-80183-MEJ, 2016 WL 5109994, at *3 (N.D. Cal. Sept. 21, 2016) (quoting *Nationstar Mortg., LLC v. Flamingo Trails No. 7 Landscape Maint. Ass'n*, No. 2:15-cv-01268-RFB-NJK, 2016 WL 4071988, at *4 (D. Nev. July 28, 2016)).[8] Facebook has furnished no evidentiary support for its objections of undue burden and its objections should be overruled.

Plaintiffs emphasize that they are seeking discovery about *ten Named Plaintjfs*—not millions, not thousands, and not hundreds of users. Based on the information Plaintiffs obtain about themselves, and about Facebook's general practices and procedures, they will seek to prove their class claims. Facebook's contention that Plaintiffs are not even entitled to obtain in discovery the evidence necessary to show what Facebook collects about them, and with whom it shares the information is impossible to square with Facebook's basic discovery obligations under the Federal Rules.

III.   CONCLUSION

For the reasons set forth above, Plaintiffs respectfully request that the Court deny Facebook's motion to impose a discovery stay and grant Plaintiffs' motion to compel discovery responsive to Requests for Production Nos. 9 through 13.

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[8] *See also SPS Techs., LLC v. Briles Aerospace, Inc.*, No. CV 18-9536 MWF (ASx), 2020 WL 4341717, at *2-3 (C.D. Cal. June 25, 2020) (overruling objection to requests for production of documents and noting that the party resisting discovery must describe "in specific detail, how each Request is overly broad and unduly burdensome by submitting affidavits or other evidence describing the nature of the burden"); *Polaris Innovations Ltd. v. Kingston Tech. Co.*, No. CV1600300CJCRAOX, 2017 WL 3275615, at *6 (C.D. Cal. Feb. 14, 2017) (court grants motion to compel production of documents by defendant Kingston in part because "[r]egarding its assertion that the requests are overly burdensome, Kingston has not submitted any evidentiary declaration to support this objection.").

Dated: September 28, 2020

Respectfully submitted,

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ATTESTATION PURSUANT TO CIVIL LOCAL RULE 5-1(i)(3)

I, Derek W. Loeser, attest that concurrence in the filing of this document has been obtained from the other signatory. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 28th day of September, 2020, at Seattle, Washington.

/s/ Derek W. Loeser
Derek W. Loeser

CERTIFICATE OF SERVICE

I, Sarah Skaggs, hereby certify that on September 28, 2020, I electronically filed the foregoing with the Clerk of the United States District Court for the Northern District of California using the CM/ECF system, which shall send electronic notification to all counsel of record.

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION, This document relates to: ALL ACTIONS	CASE NO. 3:18-MD-02843-VC **DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE PARTIAL STAY OF DISCOVERY IN PRETRIAL ORDER NO. 20** Judge: Hons. Vince Chhabria and Jacqueline Scott Corley Courtroom 4, 17th Floor

Gibson, Dunn &
Crutcher LLP

DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE
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INTRODUCTION

The lawsuit Plaintiffs describe is not this case. This case is about ***information sharing***. Specifically, it concerns sensitive information ***that users shared with their Facebook friends*** and that third parties allegedly accessed as a result of friend sharing, whitelisting, and integration partner agreements. Pretrial Order 20 is clear on this point, and Plaintiffs do not identify a single line in Judge Chhabria's comprehensive order, much less in their own allegations, that supports their description of the case that survived dismissal.

The Order explains on its first page: "This lawsuit . . . is about Facebook's practice of ***sharing*** its users' personal information with third parties." Dkt. 298 ("Order") at 1 (emphasis added). It then says that each of the four live theories concerns "***substantive and revealing content that users intended only for a limited audience*** [*i.e.*, their Facebook friends], such as their photographs, videos they made, videos they watched, their religious and political views, their relationship information, and the actual words contained in their messages." *Id.*; *see also id.* at 7, 13, 17. The user data relevant to those theories consists of "***information [users] make available to their friends on [Facebook]***. *Id.* at 1.

Plaintiffs do not dispute that Facebook produced all of the information the Named Plaintiffs ever shared on Facebook. These productions consist of ***more than one million pages of data*** and necessarily include any data Facebook shared under the live theories. But, Plaintiffs insist they are entitled to any other data that has ever crossed Facebook's servers that relates in any way to any Named Plaintiff and all derivative materials drawing on this data. Plaintiffs seek these materials even if the underlying data is not associated with any user and even if they were never shared with any third party. Plaintiffs do not even attempt to explain why they would need such data in a case concerning information ***they shared on the Facebook platform*** and that Facebook allegedly shared beyond the audience Plaintiffs intended. Instead, Plaintiffs openly admit that they seek these extraneous materials not to pursue live claims, but to resuscitate stayed and dismissed theories or to search for new ones.

Plaintiffs largely avoid the Court's instruction to brief "what the scope of discovery is based on the claims in Judge Chhabria's ruling [Pretrial Order 20]." 9/4/2020 Hr'g Tr. at 5:8-10. Instead, Plaintiffs devote the majority of their brief to side issues and seek to compel Facebook to produce all documents responsive to five RFPs that are not before the Court. The Court should disregard these diversions, conform discovery to the four operative theories, and deny Plaintiffs' motion to compel.

DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE PARTIAL STAY OF DISCOVERY IN PRETRIAL ORDER NO. 20

ARGUMENT

I.   The stay imposed by Pretrial Order 20 includes a discovery stay.

Plaintiffs take the surprising position that Pretrial Order 20 sets virtually no bounds on the scope of discovery in this case and allows them to explore theories Judge Chhabria stayed or dismissed.[1]

Plaintiffs' position makes no sense. When a stay is in place, it "include[s] a stay of discovery." *Meyers v. Cty. of Sacramento*, 2020 WL 207213, at *1 (E.D. Cal. Jan. 14, 2020). Judge Chhabria stayed all but Plaintiffs' core theories because Plaintiffs filed a 1,440-paragraph pleading. As he explained, "it seems the plaintiffs sought to identify anything Facebook has ever been reported to have done wrong . . . [and] the presence of so many disparate and vague allegations ma[de] it nearly impossible for Facebook to meaningfully respond to all of them, much less for the Court to effectively address them." Order at 5-6. In order to avoid "bogging the case down at the pleading stage for years," *id.* at 6, Judge Chhabria therefore issued an opinion regarding Plaintiffs' core allegations, without addressing most of their improperly pleaded theories, which he stayed, *id.* Judge Chhabria surely did not intend to allow discovery on hundreds of "disparate and vague allegations" that did not satisfy Rule 8. The very point of the stay was to focus this case—not to allow Plaintiffs to explore "anything Facebook has ever been reported to have done wrong" without stating cognizable claims.

Plaintiffs even suggest Pretrial Order 20 allows discovery to "reviv[e]" claims dismissed with prejudice. Opp'n at 6 n.3. To support this curious position, Plaintiffs cite a footnote in Judge Chhabria's analysis of Plaintiffs' deceit by concealment claim. *Id.* (citing Order at 37 n.21). Judge Chhabria held that Plaintiffs stated a plausible claim arising from Facebook's alleged practices concerning whitelisting and integration partners. But he held the claim did not satisfy Rule 9(b)'s heightened pleading standard with respect to friend sharing and Facebook's enforcement measures. He then said in a footnote that dismissal of a subset of the claim would not "preclude . . . plaintiff[s] from seeking revival if discovery reveals a factual basis that justified reconsideration." Order at 37 n.21. Judge Chhabria cited *WPP Luxembourg Gamma Three Sarl v. Spot Runner, Inc.*, 655 F.3d 1039, 1059 (9th Cir. 2011), which holds a plaintiff who fails to satisfy the PLRA's heightened pleading standard may potentially seek revival if other case-related discovery later allows the plaintiff to satisfy the

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[1]   In addition to the discovery Plaintiffs seek from Facebook, Plaintiffs have served overbroad subpoenas on 27 third parties. These parties also require clear guidance as to the scope of discovery.

DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE
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PLRA's heightened pleading standard. Judge Chhabria certainly did not intend this footnote to create a gaping hole allowing discovery on hundreds of allegations that did not survive dismissal. *See Mujica v. AirScan Inc.*, 771 F.3d 580, 593 n.7 (9th Cir. 2014) ("To the extent [earlier cases] suggest[] that courts retain discretion to permit discovery whenever a plaintiff has failed to satisfy Rule 8's plausibility standard, it is simply incompatible with *Iqbal* and *Twombly*.").

Pretrial Order 20 plainly defines the scope of discovery in defining the scope of the case.

II.   This case is about information users share with their friends on Facebook.

A plain reading of Pretrial Order 20 explains the scope of the case Judge Chhabria allowed to move forward.[2] Plaintiffs say the Order describes this case as concerning any data Facebook receives or infers about users and how that data may be used to target them. To support this position Plaintiffs quote vague passages from the Order stating the case concerns "sensitive information." Plaintiffs then say Judge Chhabria did not define "sensitive" and ask the Court to interpret the term to include any data Plaintiffs believe to be personal—including information they provide to third parties, information third parties collect through cookies, public records, and even inferences Facebook draws. Opp'n at 4.

Plaintiffs disregard what Pretrial Order 20 actually says. It describes "sensitive information" to be "substantive and revealing content that users intended only for a limited audience," and clarifies that this data is "**information [users] make available to their friends on [Facebook]**." Order at 1. To read the ruling otherwise would expand the case far beyond what Judge Chhabria considered and would also raise a host of thorny legal questions his Order does not address.

A.   The four live theories all concern data users shared with their Facebook friends.

As discussed, Pretrial Order 20 allows four theories of relief to move forward. Each theory concerns information users shared with their Facebook friends.

Friend sharing. Friend sharing was a capability through which users could share with apps information their friends posted and made available to their Facebook friends. Plaintiffs do not dispute

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2   Plaintiffs disingenuously argue that Facebook takes an "unduly narrow" view of discovery, citing a comment Judge Chhabria made before discovery began advising Facebook to produce materials regarding "friends' information and friends' of friends information." Opp'n at 13. Facebook has now produced nearly 1.5 million pages of documents, before the parties have even reached a search term agreement, including all information the Named Plaintiffs shared with their friends and friends of their friends. Those productions also include all of the Facebook documents produced to the FTC in response to its document requests in two related investigations. They also include documents produced to a host of other government actors in related actions responsive to Plaintiffs' RFPs. In addition to these materials, Facebook proposed search terms hitting on millions of additional documents.

DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE PARTIAL STAY OF DISCOVERY IN PRETRIAL ORDER NO. 20

this. Friend sharing underlies the Cambridge Analytica events, it has been hotly litigated, and there is no dispute as to what it is about. The Order explains: "[W]hen users accessed apps on the Facebook Platform, the app developers were not merely able to obtain information about the users they were interacting with; [but] were also able to obtain any information about the users' Facebook friends that the users themselves had access to," "such as photographs, videos they watched, religious preferences, posts, and even sometimes private one-on-one messages sent through Facebook." *Id*. at 6-7.

Whitelisting. Whitelisting is an extension of friend sharing and is about the same data. *Id*. at 8.

Integration Partner Agreements. Facebook allegedly "[s]har[ed] sensitive user information with business partners," through a list of "integration partnerships," to integrate Facebook with devices, websites, and social-media platforms. *Id*. at 8-9. As with the other theories, the "sensitive user information" at issue is "substantive and revealing content that users intended only for a limited audience [i.e. their Facebook friends]." *Id*. at 1. The purpose of these agreements was to allow users to integrate their Facebook activities *that they shared* on Facebook with other platforms and sites.

Plaintiffs say the Order allows claims relating to integration partners to proceed as to some broader set of "sensitive information" that they find personal in nature. Opp'n at 7. Plaintiffs provide no support for this assertion; the Order describes this theory as involving the same "sensitive user data" underlying the other theories of relief. And it must. As discussed below, the Order holds that Plaintiffs demonstrated standing, a reasonable expectation of privacy, and a lack of consent only with respect to Facebook's alleged practice of sharing information users shared with their Facebook friends.

Enforcement. This theory relates to how Facebook enforced its data-use policies with respect to data third parties obtained through friend sharing, whitelisting, and integration partner agreements, and it concerns the same data that users shared with their Facebook friends. Order at 9.

B.   The threshold "global issues" addressed in the Order show that the actionable claims relate only to information users shared on Facebook.

Pretrial Order 20 addressed various "global issues" and holds Plaintiffs demonstrated a reasonable expectation of privacy, standing, and lack of consent only with respect to Facebook's alleged practice of sharing with third parties information users shared with their friends on Facebook.

Expectation of privacy. Pretrial Order 20 addresses Facebook's argument that Plaintiffs were not injured, and therefore lack standing, because they did not have a reasonable expectation of privacy

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Gibson, Dunn & Crutcher LLP

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over information they share with their Facebook friends. *Id.* at 1 ("Facebook argues that people have no legitimate privacy interest in information they make available to their friends on social media."). With respect to users' privacy expectations, Pretrial Order 20 holds: "the issue of whether users have a reasonable expectation of privacy *in information they share with their social media friends* is best understood as relating to the merits, not standing." *Id.* at 10-11 n.2 (emphasis added). On the merits, the Order holds that "[w]hen you share sensitive information with a limited audience . . . you retain privacy rights and can sue someone for violating them." *Id.* at 2. It then analyzes whether users retain a reasonable expectation of privacy over information *they share with their friends*, *see id.* at 10-12, and concludes: "social media users can have their privacy invaded if sensitive information *meant only for a few dozen friends* is shared more widely," *id.* at 11.

Pretrial Order 20 is so clear that this case concerns information that users shared with their Facebook friends that it goes out of its way to say *sua sponte*: "It seems quite possible that a user whose settings allow information to be shared not only with their friends, but friends of friends, loses any expectation of privacy." *Id.* at 11 n.3. Nowhere does Pretrial Order 20 consider whether users maintain a reasonable expectation of privacy over information beyond what users share on Facebook (as Plaintiffs wrongly suggest) such as information users provide third parties, public records, information third parties obtain through cookies, or information Facebook "infers" about users.

Standing. With respect to standing, Pretrial Order 20 holds: "The alleged injury is 'concrete' largely for the reasons already discussed – if you use a company's social media platform *to share sensitive information with only your friends*, then you suffer a concrete injury when the company disseminates that information widely." *Id.* at 17. The Order goes on to say that Plaintiffs' injuries are sufficiently particularized with respect to which third parties allegedly received their data because, "[i]f, as alleged in the complaint, *Facebook made users' 'friends only' information readily available* to such a broad swath of companies . . . it is virtually inevitable that some of these companies obtained information on the named plaintiffs." *Id.* at 18. The Order did not hold—or even consider—whether Plaintiffs have standing to sue Facebook with respect to information users did not share on Facebook.

Consent. On the issue of consent, the Court addressed whether Plaintiffs consented to the conduct underlying their claims because they "agreed, when they signed up for their accounts, that

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Facebook could disseminate their 'friends only' information in the way it has done." *Id.* at 18. Pretrial Order 20 holds that judicially noticeable materials demonstrate that a subset of users consented to sharing their "friends only" information through friend sharing, but do not establish at the pleading stage that all users consented to sharing friends-only information through friend sharing, whitelisting, and integration agreements. *Id.* at 18-29. The Order did not consider whether Plaintiffs consented to sharing information they did not share on Facebook.

The Order is clear that this case is about sensitive information users made available to their friends on Facebook and third parties allegedly accessed. Discovery must conform to these theories.

III.   Facebook produced all data Plaintiffs shared on Facebook; no other user data is relevant.

Facebook produced ***more than one million pages of content and information*** related to the Named Plaintiffs.[3] ***Those materials include everything each Named Plaintiff ever shared on Facebook*** (unless they deleted it). This includes, but is not limited to, the "Download Your Information" ("DYI") file that Facebook makes available to users,[4] plus *additional* information.

Plaintiffs do not dispute that the produced materials include any data users shared with their Facebook friends (sensitive or otherwise). Yet, Plaintiffs demand that Facebook search *millions* of disaggregated data sets for any data to have ever crossed Facebook's systems relating to a Named Plaintiff and any derivative materials drawing on that data—such as data sets tracking hours of peak user activity to monitor strains on Facebook's system. They demand such materials without regard for whether they were ***shared*** with any third party, much less under a live theory. To support this position, Plaintiffs misinterpret a handful of Facebook documents,[5] but their argument boils down to the following: Facebook has documents drawing on data relating to users; therefore, Facebook must search

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[3]   Since filing its opening brief, Facebook produced approximately 250,000 additional pages of information related to Named Plaintiffs who were added to the case in August.

[4]   Plaintiffs assert that the DYI data is not useful because it does not display on an item-by-item basis the audience that Plaintiffs set for each of their posts. Facebook agreed to investigate whether it could produce this data for relevant posts—bearing in mind that the request involves granular data for *more than a million pages* of activity. Facebook also reminded Plaintiffs that their accounts display this information. If Plaintiffs believe the audience set to a particular post is critical evidence for their case, they could screen-shot that information from their accounts and produce it. They could also identify particular posts to Facebook so that Facebook can produce the relevant information.

[5]   Because the Court ordered the parties not to submit declarations or evidence, 9/4/2020 Hr'g Tr. at 5:8-10, 18-22, Facebook does not here submit declarations or documents to dispute Plaintiffs' characterization of the materials they cite. If the Court is inclined to issue a ruling relying on the exhibits Plaintiffs submitted, Facebook respectfully requests permission to do so.

for and produce any materials drawing upon any data it has ever collected or created that relates in any way to a Named Plaintiff. The Court should reject this position, which largely asks Facebook to search for materials that are out of scope and consist largely of data already produced in other formats.

Data the Named Plaintiffs did not share on Facebook is out of scope, including public records, data Plaintiffs shared with third parties, and information created by Facebook. Facebook produced all of the information the Named Plaintiffs shared on Facebook (sensitive or otherwise). These productions necessarily include any information shared under the live theories.[6]

Plaintiffs say the case is about data Facebook creates and that third parties share with Facebook that is used to draw "inferences" about users. For instance, Plaintiffs may allow websites to collect data about their shopping habits through cookies. Those sites then might share this data with other parties (including Facebook) to better place the site's advertisements. As discussed above, nothing in Pretrial Order 20 supports Plaintiffs' argument that this type of data is part of this lawsuit. This would be a very different case if—as Plaintiffs say—it were about Facebook sharing information that third parties passed on to Facebook. To establish this sort of "third party data" claim, Plaintiffs would have had to allege (and prove) the nature of each of their relationships with the specific third parties at issue, the circumstances under which those third parties obtained their data, whether each individual user consented to that third party sharing data with Facebook, the circumstances under which the data was provided to Facebook, and so on. None of that is at issue here and nothing in Pretrial Order 20 suggests it is. Nor could Plaintiffs conceivably establish facts of this nature on a class-wide basis.

Plaintiffs seem to concede they demand these materials because "the very purpose of collecting all of this data . . . is to use it to target users." Opp'n at 12. As Plaintiffs admit, Pretrial Order 20 dismisses their targeted advertising theory.[7] To the extent any advertisers received sensitive user data through friend sharing, whitelisting, or integration agreements, that user data was already produced.

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[6] To describe the data Plaintiffs believe Facebook maintains, Plaintiffs cite their Exhibit B at page 9, which was prepared by an employee in 2014 and regards Facebook's ads platform. The document does not reflect Facebook's standard terminology, nor does Facebook agree with Plaintiffs' characterization of the document. In any case, Facebook does not dispute that it receives data from third parties in connection with its ads platform and maintains internal analyses which rely on user data.

[7] Plaintiffs walk back their position that they need discovery to pursue their dismissed "targeted advertising" and "psychographic marketing" theories. Opp'n at 11. But Plaintiffs have been arguing for a year that these theories justify their demands for every piece of information Facebook collects and infers about users and took this position in the recent joint status updates that prompted this briefing. *See* 8/13/2020 Status Update at 2-3, 9, Dkt. 495; 7/30/2020 Status Update at 3, Dkt. 484.

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In any case, as discussed in its opening brief and below, Facebook actually produced the majority of data it receives from third parties in the off-Facebook Activity portion of the DYI materials.

Data not shared through one of the four theories is out of scope. Plaintiffs say they provide evidence that Facebook shares data beyond what users share on Facebook. Opp'n at 9-10. Even if that were true, it is not relevant to this lawsuit. The live theories concern data users shared with their Facebook friends that third parties accessed via friend sharing, whitelisting, or integration agreements.

In any case, the documents Plaintiffs cite describe Facebook's data *sources*; they say nothing about whether or how Facebook *shares* information. Of note, Plaintiffs claim their Exhibit C "confirms that Facebook shares [the data they seek] with third parties." Opp'n at 9. Exhibit C is an email outlining *hypothetical* platform capabilities—it does not discuss what data Facebook actually shared.

The integration partner theory does not entitle Plaintiffs to all data from third parties. Plaintiffs suggest Facebook must locate and produce all data points it has ever received from any third party regarding a Named Plaintiff because Facebook's integration partner agreements were built in part on "data reciprocity." Opp'n at 11. This argument is a red herring and misrepresents what "data reciprocity" means. Facebook did not, as Plaintiffs suggest, have agreements with integration partners to trade user data. Data reciprocity arrangements allowed users to post their Facebook activities to third-party platforms if the third-party platform also allowed its users to post their activities to Facebook. Plaintiffs acknowledge this. *See* SACC ¶ 657(g) ("'Reciprocity' agreements . . . requir[ed] Apps that used data from Facebook to <u>allow their users</u> to share their data back to Facebook"); *see also id.* ¶¶ 239, 745. Any user data relating to that type of sharing was produced. Again, Facebook produced everything the Plaintiffs shared on Facebook. This includes any Facebook activities Plaintiffs *elected* to share on other platforms and any off-Facebook activities Plaintiffs *elected* to share on Facebook. In any event, even if some other data from integration partners existed, only data received from *those partners* could even possibly be relevant—not data from thousands of other third parties.[8]

Plaintiffs' SCA and VPPA claims do not require additional data. Plaintiffs contend this case concerns data beyond what they shared on Facebook because Pretrial Order 20 did not dismiss

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[8]   Plaintiffs concede they seek any such data to prove damages. If the Court is inclined to require broad discovery to support damages, Facebook respectfully requests the opportunity to submit brief-ing regarding why any such discovery should be bifurcated from liability-related discovery.

DEFENDANT FACEBOOK, INC.'S REPLY BRIEF IN SUPPORT OF ITS REQUEST TO ENFORCE THE
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their claims under the Stored Communications Act ("SCA") and Video Privacy Protection Act ("VPPA"). Opp'n at 4-5. Plaintiffs highlight that their SCA claim turns, in part, on "whether the shared information includes the contents of an electronic communication." *Id.* at 5. But the sensitive data at issue includes "private one-on-one messages" sent on Facebook. Order at 17; *see id.* at 1, 32. Similarly, Plaintiffs' VPPA claim survived dismissal on the basis that Facebook shared "information about the videos that users received in their private [Facebook] messages and about videos they 'liked.'" *Id.* at 34. Plaintiffs' messages and any videos they shared or liked were produced.

The additional data Plaintiffs seek cannot even be reasonably collected.[9] Facebook understands Plaintiffs seek two forms of data: (i) any additional data regarding users' off-Facebook Activity provided by third parties, and (ii) any derivative materials that draw from user data. Again, these materials are not relevant to any live theory. Facebook also cannot reasonably identify them.

With respect to off-Facebook Activity, as Facebook explained in its opening brief, the produced DYI materials include the vast majority of data Facebook receives from third parties. It is not clear what else Plaintiffs seek or how it could be relevant. Any off-Facebook Activity provided by third parties that is *not* included in the DYI materials is data Facebook has not linked to a particular user or data that is so granular that it is preserved only temporarily. There is no centralized way to search for either type of data. To the extent it exists, it is organized by the third parties who provided it. Facebook would therefore need to review every data set it has received from thousands of third parties and then attempt to link to the Named Plaintiffs data points it previously did not associate with any user. Such an exercise is unlikely to be fruitful or at all useful, particularly on a class-wide basis.

Facebook also explained that, within 90 days, any user data not included in the DYI materials is disassociated from the user's ID, anonymized entirely, or deleted (depending on the nature of the data and any business reasons for retaining it). Plaintiffs argue that Facebook should *still* be able to find any derivative materials drawing from data relating to any Named Plaintiff because data disassociated from a user's ID can sometimes be linked back to the user's account. Plaintiffs' explanation of this process is oversimplified, incorrect, and ignores that much of the data they demand

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[9]   Plaintiffs say Facebook did not prove undue burden because it did not submit declarations or evidence. The Court instructed the parties not to submit such materials. 9/4/2020 Tr. at 5:8-10, 18-22.

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is fully anonymized or not retained at all.[10] The argument also misses the point. There is no way for Facebook to run a centralized search for a user's ID, random ID, or any "hashed data" identifiers across millions of data sets, which are largely used for business analytics (like scoping infrastructure needs). The only way to search these tables is to open all of them and search each to find any data relating to a particular user, whether by user ID or otherwise. The issue is opening and searching each table.[11]

To be clear, Facebook is not—as Plaintiffs suggest—urging the Court to issue a ruling regarding the scope of discovery based on undue burden. Facebook is highlighting that this is not a situation in which there are marginally relevant materials that are easy to sweep into an ongoing collection. The user data Plaintiffs seek has nothing to do with the four operative theories, most of it was actually produced, and any additional data would be virtually impossible to locate. If Plaintiffs are able to identify some specific type of data about user activity that is relevant to the case, Facebook will search for that data. But Plaintiffs' position that Facebook must search the entire company for every document including any data relating to a Named Plaintiff is simply not reasonable.

IV.   The Court should deny Plaintiffs' "Cross-Motion to Compel."

Plaintiffs style their brief as a "cross-motion to compel" compliance with five RFPs and criticize Facebook for not submitting declarations and evidence about these requests. The Court should disregard this diversion, which puts the cart before the horse. The Court directed the parties to submit "no declarations," as this briefing is "just a legal question as to what the scope of discovery is based on the claims in Judge Chhabria's ruling." 9/4/2020 Tr. at 5:8-10, 18-22. Facebook told Plaintiffs it will produce materials responsive to the RFPs they identify that are in Facebook's possession and relate to the operative theories. The Court must resolve this threshold legal issue before it can consider (on a full evidentiary record) whether Facebook produced the relevant evidence responsive to specific RFPs.

CONCLUSION

The Court should enforce the stay Judge Chhabria imposed, allow discovery only on the four operative theories of relief detailed in Pretrial Order 20, and deny Plaintiffs' cross-motion to compel.

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[10] Plaintiffs' Exhibit B, which they cite on page 12 of their brief, describes the ability to reidentify data points that remain live on a user's Facebook page. This live data has already been produced.

[11] Plaintiffs did not ease the burden of searching millions of data sets by identifying 10 Named Plaintiffs they *intend* to identify as class representatives. In any case, the other 14 Named Plaintiffs have not withdrawn their claims and have reserved their rights to proceed as class representatives.

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DATE: October 8, 2020

Respectfully submitted,

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Exhibit F

1

2   UNITED STATES DISTRICT COURT

3   NORTHERN DISTRICT OF CALIFORNIA

4

5   IN RE: FACEBOOK, INC. CONSUMER   MDL No. 2843
     PRIVACY USER PROFILE LITIGATION   Case No. 18-md-02843-VC (JSC)
6

7   **DISCOVERY ORDER NO. 9**

8   (Dkt. Nos. 515, 526, 537, 548)

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11   This MDL matter has been assigned to the undersigned for management of discovery.

12   Now pending before the Court are the Parties' briefs concerning the proper scope of discovery

13   related to the data Facebook accumulates about the named Plaintiffs. (Dkt. Nos. 515, 526, 537,

14   548.)   In brief, Facebook contends that the district court's order specifically defined the data at

15   issue as "substantive and revealing content that users intended only for a limited audience." (Dkt.

16   No. 298.) Based on this definition, Facebook argues that for any named Plaintiff data to be

17   relevant and discoverable, it must meet two criteria. First, the discoverable data must have arisen

18   from user activity occurring on the Facebook platform, such as Facebook posts and sent messages.

19   Second, the named Plaintiff must have then overtly shared such data with a limited audience, such

20   as their friends. Facebook submits that this is the only plausible reading of the district court's

21   order limiting Plaintiffs to four actionable categories of potential liability. Plaintiffs respond that

22   the universe of discoverable data Facebook collects for each user is much larger and necessarily

23   includes: (1) user activity occurring off the Facebook platform; and (2) user data that can be

24   inferred from user activity occurring on or off the Facebook platform. A second question

25   presented by the briefs is whether discovery may proceed on the claims the district court stayed.

26   After carefully considering the papers submitted by the Parties, and consulting with the

27   district court, the Court rules that discovery is not as limited as Facebook contends. Plaintiffs

28   correctly argue that Facebook's restrictive view of relevant discovery would exclude an enormous

United States District Court
Northern District of California

amount of information that Facebook collects and shares with third parties about Facebook's users. The district court's order (Dkt. No. 298) did not limit Plaintiffs' claims to only challenging the sharing of data Facebook collects from a user's on-platform activity; the claims also challenge Facebook's sharing of user data and alleged failure to monitor how third parties used such shared information.

Accordingly, the Court rules the discoverable user data at issue includes:

- Data collected from a user's on-platform activity;
- Data obtained from third parties regarding a user's off-platform activities; and
- Data inferred from a user's on or off-platform activity.

As for the stayed claims, and again after consulting with the district court, the Court rules that discovery is stayed as to the stayed claims. Of course, if a particular discovery request is relevant to both a stayed and non-stayed claim, then discovery is not stayed merely because the discovery request is also relevant to a stayed claim.

IT IS SO ORDERED.

Dated: October 29, 2020

JACQUELINE SCOTT CORLEY
United States Magistrate Judge

United States District Court
Northern District of California

2

Exhibit G

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION, This document relates to: ALL ACTIONS	**MDL NO. 2843** CASE NO. 3:18-MD-02843-VC-JSC HON. VINCE CHHABRIA COURTROOM 4 – 17TH FLOOR SPECIAL MASTER, DANIEL GARRIE, ESQ. **ORDER RE: PLAINTIFFS' MOTION TO COMPEL PRODUCTION OF PLAINTIFF DATA**

INTRODUCTION

1.   Pending before Special Master Garrie is Plaintiffs' Motion to Compel Production of Named Plaintiffs' Content and Information.

BACKGROUND

2.   On November 25, 2019, Plaintiffs' served Requests for Production Nos. 9-13, which seek documents relating to the named Plaintiffs in this matter ("Named Plaintiffs").[1] See Exhibit A. In brief, Request No. 9 seeks all documents relating to each of the Named Plaintiffs; Request No. 10 seeks documents sufficient to show the categories of content and information Facebook collects, tracks, and maintains about them; and Requests Nos. 11-13 seek documents identifying third parties that were able to access information about the Named Plaintiffs. Id.

3.   In response to Requests for Production Nos. 9-13, Facebook produced more than one million pages of individual user data it maintained relating to the Named Plaintiffs, most of which was obtained from the "Download Your Information" tool ("DYI Tool").[2] The data obtained from the DYI Tool is mostly limited to information pertaining to users' on platform Facebook activity. See Exhibit B (List of DYI Tool Data Fields).

4.   Statements by Facebook's counsel during an August 14, 2020 discovery hearing indicated that Facebook maintained additional data related to the Named Plaintiffs that was not produced. See Exhibit C (8/14/2020 Discovery Hearing Transcript) at 8:10-13 ("There is other – there's Facebook-generated information, information generated by third parties, information

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[1] There were originally 30 named Plaintiffs, but this has been reduced to nine named Plaintiffs.

[2] The DYI Tool is a tool by which Facebook users can download certain pieces of information related to the user's Facebook activity and related data. A list of the types of information that can be downloaded via the DYI Tool is provided in Exhibit B.

received from third parties. We have not represented that that is comprehensively included in our production.").

5. Plaintiffs filed a motion last September to compel additional discovery related to Requests for Production Nos. 9-13. See Exhibit D (9/28/2020 Motion to Compel). Plaintiffs asked the Court to compel production of sensitive information Facebook derives and collects from business partners, app developers, apps, and other sources. This request included "native, appended and behavioral data" and purportedly anonymized data that could be connected to the Named Plaintiffs. Id. at 7-11.

6. On October 8, 2020, Facebook responded to Plaintiffs' motion to compel. See Exhibit E (Facebook Opposition to Plaintiffs' 9/28/2020 Motion to Compel). Facebook contended that all information related to the Named Plaintiffs that they did not themselves share on Facebook was outside the scope of the case; that all information not shared through one of the four theories of the case was not within the scope of the case; that Plaintiffs were not entitled to all data collected from third parties about the Named Plaintiffs; that the Stored Communications Act and Video Protection Privacy Act claims did not require the production of additional data Facebook had collected about the Named Plaintiffs; and that Facebook could not reasonably collect any of the additional information Plaintiffs sought. Id. at 6-10.

7. On October 29, 2020, Judge Corley issued Discovery Order No. 9, ruling "that discovery is not as limited as Facebook contends" and "the discoverable user data at issue includes: [1] Data collected from a user's on-platform activity; [2] Data obtained from third parties regarding a user's off-platform activities; and [3] Data inferred from a user's on or off-platform activity." See Exhibit F (Discovery Order No. 9) at 2.

ORDER RE: PLAINTIFFS' MOTION TO COMPEL PRODUCTION OF PLAINTIFF DATA

8.	In Discovery Order No. 11, Judge Corley provided further clarification on the discoverable user data intended to be included under Discovery Order No. 9:

> It also contended that Plaintiffs conceded that user data not shared with or accessible to third parties is not relevant, (Dkt.No. 548 at 10), and because Facebook does not share inferred user data, the inferred user data Facebook maintains is not relevant. Facebook both collects and uses data about its users as part of its business model, including data derived from third parties. How it specifically uses this data is an open question, but if the Court were to accept Facebook's arguments about the scope of production, it would eliminate Discovery Order No. 9's third category of discovery: data inferred from a user's on or off-platform activity. What is needed now is more detail about Facebook's collection and use of user data so future discovery requests can be tailored to Plaintiffs' better understanding of the internal operations of Facebook as well the terminology it uses for describing data that is potentially responsive to Plaintiffs' discovery requests. See Exhibit G (Discovery Order No. 11) at 1.

9.	Following Judge Corley's orders, Facebook did not produce additional documents in response to Requests for Production Nos. 9-13.

10.	On October 6, 2021, Special Master Garrie and Judge Andler declared impasse on the issue of whether Facebook should be compelled to produce additional documents related to the Named Plaintiffs pursuant to Discovery Order No. 9.

11.	On October 18, 2021, Plaintiffs submitted their opening brief to Special Master Garrie on this issue. See Exhibit H. Plaintiffs argue that (a) the court has already determined the information Plaintiffs seek is relevant—whether or not Facebook claims that it has been shared; (b) whether the Named Plaintiffs' information was shared is a contested question on which Plaintiffs are entitled to evidence; (c) Facebook has failed to substantiate a disproportionate burden in identifying the data it possesses relating to nine people; and (d) Plaintiffs have made proposals to reduce the burden of production on Facebook. Id.

12.	On October 28, 2021, Facebook submitted its Opposition to Plaintiffs' Motion to Compel Production of Named Plaintiffs' Content and Information. See Exhibit I. Facebook argues,

among other things, that (a) the scope of discovery is limited to information Facebook shared with third parties; (b) Plaintiffs are judicially estopped from seeking information that was not shared; and (c) the information Plaintiffs now seek is nonresponsive and otherwise unavailable. Id.

13.   On November 2, 2021, Plaintiffs submitted their Reply in which they argue, among other things, (a) Judge Corley's orders entitle Plaintiffs to the discovery they seek; (b) Plaintiffs are entitled to probe Facebook's assertion that it has already produced all the content and information it has shared or made accessible to third parties; (c) Plaintiffs are entitled to answers to Interrogatories 16 and 17; and (d) the relief Plaintiffs are requesting is intended to lighten Facebook's burden. See Exhibit J.

14.   Facebook subsequently objected to Plaintiffs reply claiming that Plaintiffs introduced new arguments and evidence for the first time, in violation of the Discovery Protocol. See Exhibit K (Facebook's Response to Plaintiffs' Objection Regarding Named Plaintiffs' Data Briefing) ("Plaintiffs sought **new relief** and introduced **twelve new documents** that Plaintiffs suddenly claim show gaps in Facebook's productions.").

FINDINGS

15.   Special Master Garrie finds that Discovery Order No. 9 does not limit the scope of discoverable data related to the Named Plaintiffs to data that was shared with third parties, as Facebook contends, because Judge Corley's ruling contains no language indicating such a limitation: "Accordingly, the court rules the discoverable user data at issue includes: [1] Data collected from a user's on-platform activity; [2] Data obtained from third parties regarding a user's off-platform activities; and [3] Data inferred from a user's on or off-platform activity." See Exhibit F at 2.

16.   Moreover, Judge Corley clarified that Facebook's interpretation of Discovery Order No. 9 is not what Judge Corley intended: "How [Facebook] specifically uses this data is an open question, but if the Court were to accept Facebook's arguments about the scope of production, it would eliminate Discovery Order No. 9's third category of discovery: data inferred from a user's on or off-platform activity." See Exhibit G at 1.

17.   Special Master Garrie finds that Facebook appears to maintain data related to the Named Plaintiffs that was not produced in response Requests for Production Nos. 9-13. See Exhibit C at 8:10-13 ("There is other – there's Facebook-generated information, information generated by third parties, information received from third parties. We have not represented that that is comprehensively included in our production."). For example, documents produced by Facebook indicate that Facebook collects data referred to as "Appended Data," including public records, auto registration data, retail purchases, and credit card purchases, all of which fall into the second category of data from Discovery Order No. 9. See Exhibit L (FB-CA-MDL-00213424). However, Facebook has not produced this data as it is not available via the DYI Tool. See Exhibit B.[3]

18.   Special Master Garrie finds that Plaintiffs requested new relief (answers to Interrogatories 16-17) and introduced new evidence (exhibits C, D, E, F, H, I, and J to Plaintiffs' Reply) in their Reply brief in violation of the Discovery Protocol. Accordingly, Special Master Garrie did not consider this request for new relief or the new evidence items in reaching the findings herein.

//

_____

[3] Facebook also appears to maintain data relating to the Named Plaintiffs' on-platform activity that has not been provided, such as inferred interest and behavior data. See Exhibit L.

ORDER

19.   No later than December 3, 2021, Facebook is to provide a list of data sources that may contain information related to the Named Plaintiffs pursuant to Discovery Order No. 9. The list of data sources is to include: (1) the name of the database or data log; (2) a description of the data source's purpose and function; and (3) a description of the types of Named Plaintiff data contained in the data source.

20.   No later than December 10, 2021, the parties are to meet and confer and each submit to Special Master Garrie a proposed protocol for the production of Named Plaintiffs' data from the data sources identified by Facebook.

IT IS SO ORDERED.

Monday, November 29, 2021

Daniel Garrie
Discovery Special Master

Exhibit H

Exhibit A to Pope Declaration

Data Systems That May Store or Interact With User Data

Exhibit I

1   UNITED STATES DISTRICT COURT

2   NORTHERN DISTRICT OF CALIFORNIA

3

4

5   IN RE:) MDL No. 2843

)

6   FACEBOOK, INC. CONSUMER) Case No. 18-md-02843-

     PRIVACY USER PROFILE   )   VC-JSC

7   LITIGATION   )

     _____)

8

9

                    HIGHLY CONFIDENTIAL

10

                  ATTORNEYS' EYES ONLY

11

             SPECIAL MASTER: DANIEL GARRIE

12

13   REMOTE HEARING

14   (Via Zoom Videoconference)

15   Friday, January 14, 2022

16

17

18   REPORTED BY: Michelle Milan Fulmer

                   CSR No. 6942, RPR, CRR, CRC

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 1              UNITED STATES DISTRICT COURT

 2            NORTHERN DISTRICT OF CALIFORNIA

 3

 4

 5    IN RE:                   )  MDL No. 2843

                               )

 6    FACEBOOK, INC. CONSUMER )  Case No. 18-md-02843-

      PRIVACY USER PROFILE     )          VC-JSC

 7    LITIGATION               )

      _____)

 8

 9

10        Remote hearing taken before Michelle Milan

11    Fulmer, a Certified Shorthand Reporter for the

12    State of California, commencing at 12:08 p.m.,

13    Pacific Standard Time, Friday, January 14, 2022.

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5

6   ALSO PRESENT:

7   Michael Mann

          (Via Zoom Videoconference)

8

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1   I N D E X

2   WITNESS   EXAMINATION

3   DAVID POPE

4   PAGE

5   BY MR. GARRIE   6

6

7

8   E X H I B I T S

9   Page

10   Exhibit   Description   Identified

11   Exhibit A   Spreadsheet   71

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 1                    Friday, January 14, 2022

 2                     12:08 p.m. - 3:21 p.m.

 3                            ***

 4          MR. GARRIE:  We're going on the record and

 5    we'll get started.

 6          Court reporter, Ms. Milan Fulmer.

 7

 8                         DAVID POPE,

 9    called as a witness, having been first duly sworn by

10    the Certified Shorthand Reporter, was examined and

11    testified as follows:

12

13                        EXAMINATION

14    BY MR. GARRIE:

15       Q    Okay.  Good afternoon, good morning,

16    wherever you are in the world, Mr. Pope.  Thank you

17    for taking time out of your busy day to answer some

18    questions.

19          I have a declaration that was submitted in

20    this case regarding -- I'm sure you're aware of it,

21    but just to make sure.

22          Did you submit a declaration on

23    December 10th of 2021 in connection with the

24    Facebook -- In Re:  Facebook dispute?

25       A    Yes.
```

1   Q   Okay. And maybe counsel for Facebook, or I

2 can share my screen, but do you have that

3 declaration in front of you? If not, I can share it

4 just to make sure.

5   A   Yeah. I do have the declaration on my

6 computer.

7   Q   Okay. All right. Sounds good.

8   If you can just look at the declaration.

9 Or here, I'll share my screen so everybody can see

10 what I'm looking at.

11   So if you see here the declaration, in this

12 declaration it says "My team," in Paragraph 3 right

13 here, to inventory all data systems within Facebook

14 and understand which of them retain user data and

15 you spent a year working.

16   Do you see where I am?

17   A   Yes. I see that.

18   Q   Okay. And then you provided a list

19 attached as Exhibit A.

20   A   Uh-huh.

21   Q   Okay. All you see right now is the pdf;

22 right?

23   A   That's correct.

24   Q   Okay. So I have a high-level question

25 before we --

1   Over the course of the year, right, you

2 collect -- what exactly -- because I don't want to

3 ask you for things that you don't have or that I

4 don't understand.

5   So if you could just tell me sort of at a

6 high level, particularly, you said working with --

7 like what did you actually collect and identify when

8 you got these data systems? So that way I'm not

9 asking you questions for things that you're, like,

10 "I didn't do"?

11   A   Yeah. Yeah.

12   So, well, the way the program operated was

13 ██

  ██

  ████████████████████████████ we basically asked, you

16 know, some simple questions about ██████████████

  ██

  ██

  ████████

20   And then from that point ████████████████

  ████████████████████████████████████

  ██████████████████████████████   ████████████████

  ████████████████████████   ██████████████████████

  ██

  ████████████████████████████

1   So let's say █████████████████████

██ █████████████████████████████ ████████████

██ █████████████████████ █████████████████████

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██ ████████████████████████████████

██ ████████████████████████████████

██ ██████████████████

9   Q   When you asked --

10   A   And --

11   Yeah. Go ahead.

12   Q   I guess when you asked them questions, so

13   like -- because if you look here, right, in

14   Exhibit A, and we'll go through it in a lot more

15   detail, there's 149 of these systems.

16   So you would email somebody and they would

17   send you -- did you -- what kind of questions did

18   you ask them? Like what -- because I don't want to

19   ask you to do work you haven't done or for

20   information you don't have. I think if I understand

21   what you have, it may streamline the questions

22   process for the systems.

23   A   Yeah. It would be basically, you know, a

24   simple description of their system. █████████████

██ ██

1 ██

2 ██████████████████████   Things of this nature.

3   You know, I don't have -- it's been some

4 time since I've directly worked with that. I

5 started the program and the team, you know, took it

6 forward and I haven't been reviewing the current

7 ██

8 ████████ but they're of that nature. Fairly

9 high-level questions.

10   Q   So then ████████████████████████ So,

11 you know, what you -- like does it -- so for each of

12 these systems, you -- I'm just trying to understand,

13 like, ████████████████████████

14 ████████████ like, what in- -- like, for example, so

15 for all of -- I'll give you an example.

16   For the systems, and we'll start with one

17 of them just as an example, right, and I'll scroll

18 down here to -- and I received a spreadsheet with a

19 letter that broke down what they were.

20   A   Uh-huh.

21   Q   And so if you look at ████ it says ████ it

22 says files with salted and hashed Facebook users'

23 PII are stored in this data store. The data store

24 is used by the ████████████████████████

   ██

1 ███████████████████████████████

2   My first basic question, you may not know

3 the answer to this, would you know if this user data

4 is already contained in the social graph?

5   To me it seems like it's already there.

6 It's redundant.

7   Is that -- would you know the answer to

8 that question?

9   A   No. I wouldn't know.

10   Q   Okay. Would you be able to tell me like

11 why was this system identified, the ███ for having

12 user data? Like, is it --

13   A   ████████████████████████████

██ ███████████████████████ ████████████

██ █████████

16   Q   Well, before we --

17   A   Yeah. Go ahead.

18   Q   No. Go ahead. Sorry.

19   A   No. I was just going to say, you know, a

20 ██████████████████████████████

██ ████████████████████████████████

██ █████████████████████████████████

██   █████████████████████████████████

██ ███████████████████████████████████████

██ ████████████████████████

Page 11

1   Q   I mean, did you find out if any of the data

2   in these systems, the user data you identify is

3   actually -- is it shared with -- because, I mean,

4   for some of these, you know, is the data being

5   shared with third parties or -- and, I mean, whether

6   it's readable or not readable, I don't care.

7   What I want to know is, is the data in the

8   system shared with third parties, like █████

9   A   Yeah. I don't know.

10   Q   For all of them or just that one?

11   A   So for some I will know because I have more

12   familiarity with them.

13   This one I'm not familiar with directly;

14   but some that I have worked with, I would be able

15   to -- I have a little more depth of knowledge and I

16   could.

17   Q   All right. And then my other question is,

18   is the data -- and these are the two real questions.

19   Is the data that's collected and the user

20   data, being very clear, the user data collected made

21   accessible to other parts of Facebook that then put

22   it into a product?

23   And I'm not saying for a particular -- I'm

24   just going to give you an illustrative example, and

25   I'm not saying this actually happened for the

1   record. It's just to illustrate an idea; okay? I

2   have no personal knowledge.

3   A   All right.

4   Q   But this data falls -- goes into your

5   system, then it outputs to another system at

6   Facebook that then uses some of that output and

7   provides it to an off-platform ad network or

8   something; right? Is the data being made accessible

9   to another platform offering or solution that

10   Facebook shared off, you know, with a third party,

11   whether it's an ad network, whether it's with

12   whoever? I mean, maybe ad network is a very touchy

13   subject. Probably shouldn't use that one.

14   But the idea is that it's shared off

15   platform, but the data goes into the system and then

16   that data is processed or something's done with it

17   and then shared with another entity maybe likely on

18   this list, I would assume, that then outputs it.

19   A   ████ ████████████████████████

     ██

     ██

     ████████████████████████████████████

     ████████████████████████████

24   Q   Okay.

25   A   ██████████████████████████████████

1   ████████████████████████

2   ██

██   ██████████████████████████████████████

██   ███████

5   Q   Okay. Fine.

6   So I guess for the systems we do know,

7   right, so we'll go through the list fairly quickly.

8   I mean, for ██████ you know, the

9   description is the delivery flow, which I have no --

10   Do you have any idea what that means?

11   A   This is used in the delivery flow for

12   targeting, ranking features.

13   Q   Is that to customers? Is that an internal

14   tool that you're using to manage in the ad network?

15   A   Yeah. I don't know, actually. I'm not

16   familiar with this system or kind of like the

17   relationship that they're describing between

18   ██████ and so forth. Yeah, I haven't worked in

19   this area to know what that means more than what's

20   written.

21   Q   Just so I understand, when it says "the

22   social system," is that the ██████ system?

23   A   I don't know. Yeah. Sorry.

24   Q   Okay. So do you know who --

25   But you have ██████████████████████

```
 1   these systems that could theoretically -- if I

 2   think -- and that's a big if, in caps -- if I think

 3   it's necessary or appropriate to get the additional

 4   information if this is used or shared.

 5             And just so I'm clear here, their user data

 6   would go into this system that -- and I'm not sure.

 7   Would this system then share the data off platform?

 8        A    I don't know.

 9        Q    You don't know?

10        A    Yeah.  I'm not sure how the data is

11   processed.

12             Just, again, kind of ████████████████████

     █████████████████████████████████████████████████

     ████████████████████████████████████████████████

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     █████████████████████████████████████████████████

     █████████████

21        Q    Very good.

22        A    █████████████████████████████████

23        Q    Yeah.  █████████████████████  ███

     █████████████████████████████████████████

     █████████████████████████████████████████
```

1   A   Right.

2   Q   -- ████████████████████████████████

3   A   Right.

4   Q   In this list, we'll go through each of

5   them, but if there are specific ones you know more

6   about, please tell me. Because I read about

7   ██████████ and let's be clear. All I'm interested in

8   is really if the data is shared off of the platform

9   or made accessible off of the platform. And when I

10   read the description of ████████ it says it's a

11   real-time service that performs a join, which I

12   assume you mean a database join, between different

13   event streams, which I interpret to be I'm not sure

14   what, and features. And it says the core -- but the

15   part of that that's kind of confusing, it says core

16   of the training data preparation flow, which to me

17   says is this an internal tool that you're just using

18   to optimize for the ad network that you then

19   aggregate out?

20   A   Yeah. You know, I can -- I don't want to

21   speculate. I don't actually know the details.

22   I think there are some hints there when

23   they say like feature and so forth, but I don't want

24   to infer because I -- I don't actually work with

25   that system and don't have knowledge of it.

1   Q   Okay. I appreciate it.

2   But you, again, have the spreadsheet

3   response or the form response you got for that

4   because --

5   A   Right. We do have the point of contact, as

6   you mentioned, for that system.

7   Q   Yeah. All right.

8   Then for ████████ database, I think this is

9   a MySQL database, it's an internal system, but is

10   that correct? I mean, what is it doing because --

11   A   I mean, again, you know, unfortunately, I

12   guess, my knowledge is --

13   Q   No. It's okay. I much -- as crazy as this

14   may sound, I much appreciate your repeating yourself

15   and you can just say, "Same answer as last time," if

16   you want to streamline it and it won't offend or

17   upset me at all.

18   A   Yeah.

19   Q   All I'm trying to do is figure out. You

20   submitted the declaration. So I wanted to check

21   with you.

22   You don't have any further information

23   available, right, that you could reference to check

24   and give answers?

25   A   Yeah. Not at hand. Certainly, you know,

1   this knowledge exists within the company, but it's

2   not essentially, you know, a part of the work that I

3   did or that I have access to.

4   Q   I got it.

5   A   Yeah.

6   Q   Because it says -- and the reason why I

7   ask, it says but also other critical consumers of

8   the ███████████████████████.

9   So, again, is this user data being shared

10   or aggregated out of the Facebook platform into

11   third parties or is this just Facebook's internal

12   systems that it's using?

13   A   Yeah.

14   Q   Well, maybe --

15   A   I don't --

16   Q   Well, have you had a chance to look at all

17   149 systems?

18   A   Yeah. I mean, I do -- like, if you want me

19   to call out a particular one, ███ is the one that

20   I probably have the most knowledge of and

21   understanding.

22   Q   And ███ is?

23   A   Yeah. It's the ████████████████████████████

24   Q   I'm just trying to scroll down.

25   A   I think you passed it. I think I saw it go

1   by.

2   Q   Sorry. I was using my finger. One sec.

3   Where would it be?

4   A   It's a little bit higher.

5   Q   █████

6   A   █████

7   Q   There it is.

8   A   There it is above.

9   Q   There it is. Okay.

10   A   Kinda on the fold of the page. Yeah. It's

11 on the list, yeah.

12   Q   So the ████ says ████ is a team within

13 ████████ dedicated to the performance and delivery of

14 media content of all Facebook products.

15   How does user data play into that?

16   A   So the way this ███ works is ████████████

██ ██

██ ██

██ ██

██ ██

██ ██

22   Q   Yeah.

23   A   ████████████████████████████████████

██ ████████████████████████████████

25   Q   Yeah. It ████████████████████████████████

1 ███████

2   A   Yeah. Exactly.

3   So, you know, ████████████████████

██████████████████████████   ███████████

██████████████████   ████████████████

████████████████████████████████

███████████████████████████   ██████

███████████████████████████████

██████████

10   Q   Right. And then --

11   A   And so when --

12   Q   Go ahead. Keep going.

13   A   So then ███████████████████████

███████████████████████████████████

█████████████████████████████████

████████████████████

17   Q   And so then ███████████████████

███████████████████████████████

███████████████████████████████

██████████████████████████████

███████████████   My question is, do you know

22 what my -- what's it called? Download. I forget

23 what the tool is called.

24   A   Download your information.

25   Q   DYI. Sorry. Yeah.

1   Is all of the information in a DYI the same

2   information that's available in the ▇ because

3   those are my pictures and the DYI, as I understand

4   it, has those photos? Is that correct?

5   A   I don't know. I don't know. I don't

6   actually know how DYI operates or the systems that

7   it covers.

8   But for the ▇ again, ▇▇▇▇▇▇▇▇

▇ ▇▇▇▇▇▇▇▇▇▇▇ ▇▇▇▇▇▇▇

▇ ▇▇ ▇▇▇▇▇▇▇▇▇

11   Q   Yeah. Yeah.

12   A   That --

13   Q   It's --

14   A   -- is deleted.

15   Q   ▇▇▇▇▇▇▇▇▇▇▇▇▇▇

▇ ▇▇▇▇▇▇▇▇. It's

17 not --

18   A   Yeah.

19   Q   -- user data, per se, that's being shared

20 off platform to a third party. It's being made

21 accessible to my friend in Tel Aviv so that they can

22 access the picture.

23   A   Right.

24   Q   Does any other third parties have access to

25 the ▇ data or is it just end users?

1   A   Well --

2   Q   Like does Facebook make ███ data --

3   A   Yeah. No. It's available publicly. So,

4 you know, I guess there's not a special channel that

5 I'm aware of that would be for that. But this is

6 really, again, kind of outside of my area of

7 expertise. The knowledge I have of ███ is the

8 public-facing --

9   Q   Okay.

10   A   -- use --

11   Q   But it's used --

12   A   -- like in Tel Aviv as you described.

13   Q   ██

   ██

   ████████████████████████████ --

16   A   Uh-huh.

17   Q   -- ████████████████████████████████

   ████████████████████████████ ████████████████████████

   ██

   ██

   ██   ████████████

22   Q   All right. So then how about ██████████

23 Nothing? Same as before?

24   A   Yeah. Same as before.

25   Q   When they said user data comes into it,

1 nobody -- the problem is is the plan is --

2   So this looks like a new system. Is that

3 an accurate --

4   A   I don't know the age of the system.

5   Q   Because it says ███████████████████

███████████   ███████████████████████

███

██████████████████████████████████

9   All right. And then ██████████ you know,

10 again, was created -- the part I'm interested in, it

11 says it was created -- and I guess this was provided

12 to you, so you're sure. But it says it was created

13 in order to migrate from ████████████ which I'm

14 pretty sure I know what they're talking about, but

15 let's just assume on the MySQL with ████████ storage

16 platform that Facebook uses.

17   A   Yeah. I know a little bit --

18   Q   That's an internal.

19   A   -- about that one. Yeah.

20   Q   So that's an internal system; right?

21   A   It ██████████████████████████████ ████

███

███

██████████████████████

25   Q   So if it's just --

1   A   That application.

2   Q   Yeah.   So only Facebook internal services

3   have access to the application layer or do

4   third-party applications have access to it as well?

5   A   No.   That one is actually --

6   Q   Which one is right?

7   A   So only internal applications and products

8   have access to this system.

9   Q   All right.

10   A   And what I just want to be clear about

11   that.

12   So ████████████████████████████

     ████████████████████████████████████

     ██████████████████████████████████

15   Q   Yeah.

16   A   That does not -- that has access to this.

17   But beyond that, you know, ████████████████████████

     ████████████████████████████████████

19   Q   Got it.

20   And then for ███████ what user data is

21   going in through ████████

22   A   Yeah.   I have a little bit of knowledge

23   there.

24   So ████████ is, you know, a scheduler.   The

25   reason that it has been identified as can store user

1   data is that you could schedule a job with user data

2   in the description.

3   Q   But that's, again, for operations internal

4   to Facebook --

5   A   It's completely internal.

6   Q   -- or is it --

7   A   No. It's completely internal.

8   Q   All right. So then ███████ --

9   So you're talking about you could schedule

10 an internal job for whatever on a database cleanup.

11 The ███████ will run on the database and then it

12 will report -- you'll schedule a database cleanup.

13 Whatever the activity is, that runs only internal to

14 Facebook; right?

15   A   That's correct.

16   Q   Yeah.

17   A   I do have knowledge of ███████ to that

18 degree. That's the -- pretty much the depth that I

19 have.

20   Q   That's all I need to know, honestly. So

21 that's perfect.

22   ███████

23   A   Yeah. I'm not aware of that.

24   Q   Again, inventory estimation. I assume

25 that's an internal tool, but I guess you're not the

1   right person to ask, but I didn't -- because it says

2   it's mainly used by advertisers trying to target

3   their ads to the right audience. So I didn't get

4   how user data fed into that and if it's being

5   made access- --

6   Is ███████ being made accessible to third

7   parties, the data in there? It's user data really

8   what I'm interested in being made accessible, but I

9   guess you may not be the right person for that one.

10   A   Yeah.

11   Q   For ███████████   I heard a lot about

12   ███████████ actually very recently. But

13   ████████████ does that have user data?

14   A   By the fact that it's on this list, ████

█   ███

16   And just to make a qualification there,

17   this is where ████████████████████████████

█   ██

█   ███

█   ██████████████████████████████

21   Q   That would have been a good thing to put in

22   your declaration, ████████████████████████████

█   ███████████████████████

24   So you ████████████████████████████

█   ██

1   A   ███   ████████████████████

██   ████████████████████████████████████

██   ██████████████████████████

4   Q   I got it. I get the policy driving piece

5   of it.

6   And then for ███ -- and then just to go

7   back up really quickly just to run through the As.

8   I had a couple questions.

9   Again, ███████████ it says it's the

10   backbone for the Core Ads system.

11   That is not exposed to third parties or

12   made accessible to third parties or is it?

13   A   I don't know. I don't know much about the

14   ads system.

15   Q   All right. And then so I won't ask

16   about it.

17   I assume same answer for ██████████████

18   A   Yeah.

19   Q   Okay.

20   A   No, I don't recall anything more on that.

21   Q   All right. For Akkio locality.

22   A   I do have a little bit more knowledge of

23   that one.

24   Q   What can you tell me about this one?

25   A   So Akkio is -- the purpose of this is to --

1   if you have data that really only you are accessing,

2   right, through our products, this --

3   Q   When you say "you," do you mean a user or

4   do you mean a Facebook employee?

5   A   A user.

6   Q   I don't want to --

7   A   An outside -- yeah. An outside non-Meta

8   employee who is using our product; right?

9   So, you know, my mother using the Facebook

10   app, there's certain information or certain data

11   that might only be for, like, her configuration

12   settings; right? It's not like publicly available.

13   She is the only person that would look at that data.

14   And so what would happen is it determines,

15   it detects where in the world she's accessing

16   the prod- -- you know, the product is accessing the

17   data from and it will relocate that data to a data

18   center closer to her. So if she's on the East Coast

19   and moves to the West Coast, after some time it

20   figures out, oh, we should move her data.

21   Q   I got it.

22   And, again, it's moving her data, which is

23   what --

24   When you say "the user's data," that's the

25   data available through the social graph or the data

1   is broader than that? Like is it all of their data?

2   A   ████ ██████████████████████████████
███
███████████████   ███████████████████████████████████
███████████████████████████

6   So that's about -- that's the depth that I

7   have knowledge of is what it's -- the feature is

8   providing, but I don't really have the use cases or,

9   you know, other information.

10   Q   Did they provide ██████████ when they

11   submitted it to you? Did they give you ██████████ in

12   their submission?

13   A   Yeah. I'm sure it was discussed. I don't

14   think we -- you know, this is -- ███████████████████████
███████████████████████████████████   But when we

16   actually meet to understand what they're doing, most

17   likely, they would have described, you know, a

18   scenario.

19   Q   You have some description of what -- for

20   each of these systems, just so I get the process,

21   you guys would send ██████████████████████████████
███
██████████████████████   talk to whomever, make a decision

24   and then schedule a follow-up meeting, if deemed

25   appropriate, to understand the ██████████ for the

1   systems and that your team did -- not you, per se,

2   but when I say "you," I mean the royal you -- the

3   team that you were working with would go and

4   interview and get ███████ or whatever for that

5   particular system and that's how that was handled.

6   Is that accurate?

7   A   So it would be that it's possible that ███

█   ████████would come up and I think in this particular

9   case I was involved with it. It's been some time.

10 So my memory isn't fresh about the details. But I

11 can imagine that we did just talk about ████████.

12   It's not a part of the process, though.

13 It's not like we go and say explicitly as part of

14 the engagement, "Okay, let's discuss ██████████." It

15 would be an extension of discussing, "Okay, ████████

█   ██

█   ████████████████████████████████████" And that

18 could lead to, but is not required to lead to a

19 discussion on ████████████

20   Q   Okay. And so for ██████████████████,

21 that's only available or made accessible to internal

22 Facebook or external as well?

23   A   I don't know on that one.

24   Q   You don't know on that one. Okay.

25   Okay. ████████████

1   A   I have a little knowledge --

2   Q   ███████████████████

3   A   -- on this.

4   Yeah. This would be internal only.

5 It's --

6   Q   Got it. Okay. Great.

7   A   -- for providing storage.

8   Q   That's all I need. Internal only. We're

9 good.

10   A   Okay.

11   Q   █████████████████   So it's not -- yeah.

12   ██████████   is that how I should say it?

13   A   ██████████   yeah.

14   Q   Is that a development tool or --

15   A   It's -- yeah. I actually don't have more

16 knowledge than what's kinda written in that

17 description.

18   Q   Okay. But, again, is it only available to

19 Facebook internally, the tool set?

20   A   I don't --

21   Q   Because it can be read maybe as a tool set

22 available to app developers or is it a tool set only

23 internal to Facebook?

24   A   I don't know. Actually, I'm not sure.

25   Q   But in your system of the data you

1   collected, it would have more information about the

2   system at some level than these three lines or five

3   lines here?

4   A   It will have more information, but again,

5   oriented around the ███████████████████████████████

    █ ███████████████████████████ when initiated by a

7   user, not necessarily how the █████████████ or,

8   you know, what the actual data is.

9   Q   Right.

10   A   And we just took kind of like that binary

11 yes/no user data. Not anything beyond that.

12   Q   And ████████████████████, is that -- first

13 question, is that available or accessible to

14 external parties, third parties, that data?

15   A   I don't -- I don't know actually on this

16 one.

17   Q   All right. And then, I assume, █████ is

18 like ███████ but I didn't want to -- can you

19 confirm that or no?

20   A   Yeah. So I do have a little bit more

21 knowledge of ██████

22   ██████ is a system that runs █████████████

    █ █████████████████████████████████████ ████████

    █ ██████████████████████████████ --

25   Q   I get it.

1   But it's not available to anybody off

2   platform?

3   A   Correct. It's just -- yeah. It's just a

4   way -- it executes code that is running on our

5   platform.

6   Q   I got it.

7   It's got user data that's used for your

8   web-based applications for Meta and you use it

9   internally. So you identified it as a user system

10   because it has user data for purposes of the other

11   issue you were addressing; but at a functional

12   level, that data stays on Facebook, isn't shared

13   with anybody. It's used internally at Facebook for

14   those jobs?

15   A   Yeah. Just to clarify, I think what you're

16   saying is correct, but just to clarify.

17   It is like -- ███████████████, it is the

18   same as that. It's just that for like, let's say,

19   you make a request external to ████ user of the

20   Facebook product, and if you make a selection of

21   some option that doesn't have to ██████

██   ███████████ and the ████████████████████

██   ████████████████████████████ would be

24   able to take that and then make -- you know, kind of

25   █████████████████████████

1   ███████████ like where --

2   Q   Right.

3   But that's used by Facebook, that's used by

4   you guys internally ████████████; right?

5   A   Yeah. Yeah. Yeah. But I just want to

6   make sure that's not --

7   Q   We can go on.

8   A   Yeah.

9   Q   But it's used to ████████████ right?

10   A   Yeah.

11   Q   It's used for -- it's for --

12   Okay. And then, again, ██████ I don't mean

13   to sound ignorant. I didn't know what the ████ app

14   even was.

15   A   Yeah. I -- so I can't -- I don't know the

16   ████ app.

17   But what I can tell you from this is that

18   ████ is ████████████. So this would have

19   been a ████████████████████

20   probably. But that's where, you know, a ████████████

█   ████████████████, expand the acronym.

22   Q   Got it.

23   And ████████████████ in the last

24   year, two years?

25   A   I don't know any kind of the -- so

1   basically what we would have with that is if it is a

2   viable application, then it would move to more

3   formal production. Like it would actually become

4   internally, you know, outside of that system or

5   the -- it would move out of the new product

6   experience to a more formal development team for

7   long-term development.

8   Does that make sense?

9   Q   Yeah. Of course.

10   So then ███████████████████████████

11   ████████████ are those internal tools? Because when

12   I read it, it's not clear to me. Is that made

13   accessible to third parties or is this internal tool

14   sets that then you use to aggregate through the

15   Facebook platform?

16   A   I believe this was an acquisition of a

17   gaming system or gaming --

18   Q   Okay.

19   A   -- for virtual, virtual reality.

20   Q   Oh, okay. So you're not sure, one way or

21   the other, if that made -- the data there is made

22   accessible off Facebook's platform?

23   A   Right. I don't know.

24   Q   Like if I have my high score, users can get

25   it or it's made available.

1   A   Okay. What I explained, I mean, that's the

2 depth of understanding I have.

3   Q   Okay. So then ████████████████████████.

4   A   Those are internal.

5   Q   That's completely internal?

6   A   Yeah.

7   Q   And then ████████████

8   A   It's also an internal tool.

9   Q   And the results of that tool, it says "and

10 share them with others." That's to share internal

11 to Facebook, right --

12   A   To other --

13   Q   -- or is that to share with others?

14   A   To other employees of Facebook. Basically

15 you can write these kind of data processing scripts

16 to generate reports and so forth.

17   Q   Got it.

18   And ████████████   It says "M & A." I'm

19 assuming --

20   A   That's an indication --

21   Q   Well --

22   A   The M & A tag would indicate that it was

23 through our mergers and acquisitions. So this was

24 an acquired company that we then, you know, do the

25 same process; right?

1   Q   But it's not part -- it is part of the VR

2   AR system or not the Facebook web platform?

3   A   Yeah. This would be -- the VR indicates to

4   me that this was a part of the virtual reality

5   services.

6   Q   Yeah. Right.

7   So that it's not the Facebook website or

8   social experience or mobile app as we understand it?

9   A   Right.

10   Q   All right. We covered ▮▮▮▮ and

11 ▮▮▮▮▮ We covered ▮▮ and ▮▮▮▮ I asked you

12 about ▮▮▮ ▮▮▮▮

13   ▮▮▮ It says powers the ▮▮▮

14 application. It says ▮▮▮ is a standalone app for

15 creating music video content collaboratively. The

16 data stored on our system is mostly user data.

17   Do you have any idea if that user data is

18 accessible to third parties off platform?

19   A   I do not know.

20   Q   ▮▮▮▮ I don't know if that's a

21 play on words or ▮▮▮▮

22   A   It's got two pronunciations, which one

23 you've got correct. ▮▮▮▮ and the other is

24 called ▮▮▮▮ It's an internal configuration

25 for applications and so forth. So it's internal.

1   Q   Got it.

2   And then ███████████████████████,

3   that's hardware. So I assume that's not related to

4   the social piece, but is that correct, that

5   assumption?

6   A   I don't know. Yeah. Yeah. I would be

7   speculating, but it does seem a reasonable

8   inference.

9   Q   All right. And then ████████████████, aka

10   █████████ is used to store contributors. I didn't know

11   how you define what's a contributor.

12   A   Yeah.

13   Q   Do you know, by chance?

14   A   I don't know.

15   Q   And then my question is --

16   A   And just for --

17   Q   My real --

18   A   Yeah. Sorry. Go ahead.

19   Q   No. I was just going to ask, does this

20   data go off the system anyways or is this all

21   internal?

22   A   Yeah. I don't know that.

23   Just to clarify the use of parens here. So

24   this is indicating that ████████████████████████

       ████████████████████████████████████

1 ███████████████████████████████

███████████████████████████████

███████

4   Q   Okay. So didn't know that's how it's

5   connected. I was wondering because that's in a

6   couple places, which makes a lot more sense then.

7   It's like, Why are you repeating systems? But now I

8   get it.

9   Okay. ████████ a digital asset management

10 tool or referred to as DAM.

11   Is that an internal tool or an external

12 tool here? Like can a user -- is this data, is it

13 accessible off Facebook's platform or shared off the

14 platform?

15   A   Yeah. I don't know.

16   MR. GARRIE: Did we lose the court

17 reporter?

18   THE COURT REPORTER: No. I'm here.

19 BY MR. GARRIE:

20   Q   So returning back.

21   ████████ again, I --

22   A   A digital asset management system.

23   Q   Yeah. Okay. All right.

24   ██████   I assume this is an internal tool

25 accessible only in user data, but it's only user

1   data for the operations of Facebook.

2   Is that an accurate assumption?

3   A   Yeah. My knowledge of the system is that

4   it is for internal reporting and, again, it's kinda

5   like ██ in a way for internal tools. ████████

     █ ██

     █ ██

     █ █████████████████████████████

9   Q   That's what I thought.

10   And ████████ is the same sort of genre or is

11   it different in that it's memory in real time, but

12   same idea, internal?

13   A   That's -- to the best of my knowledge,

14   that's correct.

15   Q   This is a big terabyte. 10-terabyte tables

16   are, like, some big old tables.

17   That's what it means; right? Up to 10-plus

18   terabytes; right? That's for the tables, queries on

19   those tables; right?

20   A   Yeah.

21   MR. GARRIE: Oh, and this transcript needs

22   to be marked confidential for the court reporter.

23   THE COURT REPORTER: Okay.

24   MR. GARRIE: And then we'll work it out

25   from there with the parties afterwards just for

1 purposes of keeping it all flowing.

2   Q   ███████████████████████. Again, can

3 you confirm, is this internal data or is this made

4 accessible to third parties?

5   A   Yeah. If I remember correctly, this is

6 actually a backing component of ██████

7   Q   All right.

8   A   So, again, kind of like that internal

9 workflow management.

10   Q   Yeah.

11   The reason why I'm asking is, right,

12 because it says it's designed to let people and I

13 just didn't know if those people were the third

14 parties or --

15   A   No.

16   Q   -- they're Facebook employees.

17   A   Those would be Facebook employees.

18   Q   And then the ████████ I'm not sure how to

19 pronounce that one.

20   A   Yeah.

21   Q   So I'm not even going to try.

22   A   Yeah. That's just -- it's a UI tool for

23 running queries on back-end databases used

24 internally.

25   Q   Internally.

1   All right. It's actually much more

2 productive than I thought it was going to be. So

3 we're doing well.

4   ████████████ it says it's a back-end

5 platform to build audience segments.

6   My question is, is that accessible to third

7 parties or when you say "back-end," is it only back

8 end to Facebook?

9   A   I'm not familiar with that system.

10   Q   And we'll just say ████   It says ████

██ ████████

12   I assume that's an internal tool, but can

13 you confirm that?

14   A   Yes. That's ████████████████████████

██ ████████

16   Q   And so Gluster FS, Dataswarm is built on

17 Gluster FS.

18   A   That's correct. It's, yeah, the Dataswarm

19 instance on Gluster FS. Yeah.

20   Q   And is this an internal tool set that's

21 used? Because I wasn't --

22   A   That's correct.

23   Q   -- exactly sure who has access to it.

24   A   Yeah. This is an internal-only tool.

25 Yeah.

1   Q   And then ████ ████   I don't know to --

2   A   ████ is how they refer to it.

3   Q   ████   Thank you.

4   Is ███ a --

5   A   I do have some -- yeah. I can tell you a

6   little bit about this one. I do have some knowledge

7   about it.

8   It's basically the deletion technology for

9   WhatsApp. So when the user deletes data on

10   WhatsApp, this is the system that then deletes that

11   from the underlying storage.

12   Q   Yeah. But the user has no direct access to

13   this; right? It's not --

14   A   No. No. They don't have direct access to

15   this. The access would be through -- it's the same

16   as if Facebook -- you know, the -- the Facebook

17   product, someone deletes, and then it goes through

18   deletion.

19   Q   All right.

20   A   This is specific to WhatsApp.

21   Q   Yeah. Okay.

22   A   And you don't have -- you don't have access

23   to it. It runs on the back end.

24   Q   And then ██████████████████.

25   A   Yeah. So that's our --

1   Q   What's this www?

2   A   So that's for ███████ ███████

███ ████████████████ And this is the

4 central ████████████ that may have been

5 discussed in other conversations that will delete

6 data when someone requests it to be deleted through

7 our application.

8   Q   Got it.

9   But, again, it's only available -- this is

10 data -- the data in the platform --

11   A   It's only internal.

12   Q   -- is only --

13   A   It's only internal.

14   Q   Got it.

15   And ██████████████. I didn't know what

16 signals meant. So...

17   A   Yeah. I'm not -- I'm not familiar with how

18 this data is used.

19   Q   Because I wasn't sure if that means that

20 they're taking --

21   Do you know what kind of user data? Is

22 that individual user data going into this system or

23 anonymized user data? Did they tell you what kind

24 of user data they're collecting for these systems,

25 by chance?

1 A I don't know. No. I didn't work with

2 ███████████████

3 Q And is this Facebook ████████████████?

4 Facebook, not the virtual. Not, you know, virtual.

5 It's specific to -- do you have any idea?

6 A No. I don't have any idea.

7 Q ██████████████████████. I thought it

8 was only internal, but I just want -- it's only

9 internal access. The data never goes off platform

10 here, user data?

11 A Yeah. I can't really answer that. I'd be

12 speculating on that one. I'm not familiar with it.

13 Q █████ is --

14 A Yeah. I am familiar with ████ and it is

15 internal only.

16 Q And the data in there -- okay.

17   And it says ████████████████████

█ ███████

19   Is it built on ████ or is it called

20 ████████████████████ in this case?

21 A Yeah. I think this is just its, you know,

22 acronym.

23 Q Got it.

24   This is available only internally? Because

25 what does SEV stand for?

1   A   Site event and we refer -- we internally

2   call this SEV. So this would be when, you know,

3   something breaks in production. So there's a site

4   event, and then from this description this is what

5   the DevOps teams use to investigate.

6   Q   But it's only available and accessible to

7   the DevOps team?

8   A   Right. I -- I don't know if I see there

9   that explicitly stated. So I don't -- I can't

10   confirm, but it is an internal tool. Site events

11   are internal, you know.

12   Q   We can leave it there.

13   A   Yeah.

14   Q   What's a ███████

15   A   So just going by the description,

16   ████████████████████████ is a compute engine for

17   large-scale graph analytics.

18   Yeah. You know, I'd be speculating and

19   just kind of inferring from what's written there. I

20   don't have experience or knowledge of that system.

21   Q   And, more importantly, is it available or

22   is it open to third parties or not?

23   A   Yeah. I'm not sure.

24   Q   And then Downpour Interactive, that's

25   through M & A?

1   A   Yeah.

2   Q   Is this a game on Facebook's platform or is

3   it separate from Facebook's platform?

4   A   I don't know, actually, but I imagine it's

5   actually our reality lab. That's where most of

6   these M & As are. It's for games that are acquired

7   for --

8   Q   All right.

9   A   -- this.

10   Q   Okay. Got it. That's very helpful. I

11   kinda Googled it. I just couldn't figure out if it

12   was integrated into the larger platform.

13   Okay. So then ███████ --

14   A   Uh-huh.

15   Q   -- like the elephant. Is that internal?

16   A   It's internal storage. Like a backup

17   system.

18   Q   And no third parties have access to that

19   and the data stays there; right?

20   A   That's correct.

21   Q   Okay. Then we have ███████████████████.

22   A   Yeah. Yeah. So I don't have knowledge of

23   this, but I can tell -- like I can tell you what

24   Novi is referring to. That's the cryptocurrency

25   solution we're developing. So this would be part of

1   that system.

2   Q   Okay. But that's done in the crypto space

3   and not in the Facebook platform itself?

4   A   That's correct.

5   Q   So when it says -- because the reason I'm

6   even -- it says "risk and compliance assessments."

7   That's available only internal to Facebook.

8   Is that an accurate assumption?

9   A   I can't confirm that.

10   Q   I wasn't exactly sure how user data fit

11   into that. So I was hoping you could clear it up.

12   All right. ███████████.

13   A   Well, just to offer. You know, Novi being

14   a cryptocurrency wallet service. That would be

15   where customers or, you know, external people using

16   the Novi cryptocurrency services would be user data.

17   Q   So then this is a system that sits on top

18   of the cryptocurrency wallet. So it's used for

19   compliance and risk assessments as an internal tool

20   for regulatory reporting maybe. Okay. But it's

21   solely related to the crypto platform?

22   A   That's correct. That's the -- the Novi is

23   the indicator for that, yeah.

24   Q   Okay. And ███████████?

25   A   Uh-huh. This is an internal only.

1   Basically it operates like shared -- on a shared

2   network drive.

3   Q   Okay. And ████████████?

4   A   Yeah. So I can't really speak to the use

5   of that and accessibility.

6   Q   Sorry. I thought I had -- one of my kid's

7   teachers might have had Omicron. So I was just

8   getting an update.

9   All right. ████████████ Oh, sorry.

10   ████████████ is internal. I had a

11   question about ████████████ and I -- ████████████

12   and some of these internal tools, they get data,

13   right, and they process it. The output from that

14   tool doesn't ever leave. Is it output to a

15   different Facebook system?

16   A   I don't know.

17   Q   You don't know. Okay.

18   ████████████ What's DR compliant. Is that

19   disaster recovery compliant?

20   A   That's correct. That's correct. ████████████

█   ████████████ So this is where the photos and

22   videos primarily are stored.

23   Q   And that's an internal tool. So that's

24   user data, Facebook. This is where Facebook

25   internally stores user data?

1   A   Right.   That's where we -- internal and

2   accessible only by the applications that run within

3   Facebook infrastructure.

4   Q   F3.   Facebook Feature Framework.

5   A   Yeah.   This is referring to machine

6   learning features.

7   Beyond that, I don't have --

8   Q   How does user data relate to this?

9   A   So I -- the machine learning will operate

10 on, you know, the history of user data.

11   Q   But it's only machine learning internal.

12   What I'm basically saying is Facebook, I'm

13 a user of Facebook.   I give you my data and it's

14 only -- does the F, the feature framework, involve

15 the user data being available to third parties or

16 people off platform?

17   A   No.   That would not be.   Yeah.

18   This case I have some familiarity with and

19 it's used internally by the machine learning systems

20 that then -- you know, an example of machine

21 learning would be making recommendation on what

22 groups you want to join or something like that based

23 on --

24   Q   So then the output --

25   A   -- your behavior on the system.   Yeah.

1   Q   Well, where is it? Does that output then

2 feed into another system?

3   A   It would, yes. This is the -- the feature

4 framework, this is providing a way of managing the

5 machine learning features. So the machine learning

6 system would use this. Internal only.

7   Q   Internal only. Okay. I think I get that.

8   All right. ████████████

9   A   This one actually is externally accessible.

10 I do have --

11   Q   Okay.

12   A   It's a message for when you're sending

13 messages by messenger, and so it's temporary. You

14 know, it's a receiving queue that then would

15 interface with a back-end system like the ones we --

16 ████████████ what have you.

17   Q   So my question is --

18   A   This --

19   Q   Go ahead. Keep going.

20   A   I was just going to say that this is the

21 messaging interface exposed to the outside.

22   Q   And then when you say "exposed to the

23 outside," can you be more clear?

24   So if I -- let's say I write an app that

25 uses messaging functionality. Is that even

1   possible? Is that where --

2   A   No.

3   Q   Because this says queue, persistent queue.

4   A   Yeah. Yeah. I do -- again, I actually

5   have a little bit more depth of knowledge on this

6   one. I did some work with this as a messenger user,

7   the application, the messenger application.

8   So it's directly coupled with use of

9   Facebook products, messenger. ████████████████████

██

████████████████████████████████ ████████████████████

███

████████████

██   ██ ██████████████████████████

15   A   What's that?

16   Q   So there's no data --

17   How old is the data in the system?

18   24 hours? Instantaneous? Like how old would user

19   data actually be in the system?

20   A   Yeah. I don't know, but it would -- you

21   know, specifically, but it would be, I think, in

22   line with what you're describing. Very short term.

23   Q   So it's internal tool management,

24   basically.

25   So when you say it's exposed to the

1   outside, just so I understand, that means it's

2   exposed to Facebook messaging, like a consumer using

3   Facebook messaging. I mean, it's not exposed to,

4   like, a third-party app developer that builds

5   something. They can't -- a third-party app

6   developer doesn't have the ability to access this

7   information or does it?

8   A   For the -- what I worked on with this

9   product or, you know, where I was involved with this

10   and through the deletion program that we're mainly

11   discussing now where the inventory came from, the

12   messenger application, yeah, is the one running on

13   your phone or your laptop would be the one that

14   interfaces with this. It's not like a general --

15   Q   Just that?

16   A   -- queue for external developers to access.

17   It's only for that messenger application.

18   Q   Okay. So it's an internal tool Facebook

19   messaging uses to facilitate messaging for an

20   individual user using some data structure --

21   A   Yeah.

22   Q   -- to manage tools?

23   A   I think that that's a fair description. I

24   just want to make sure I'm not misrepresenting it in

25   terms of, like, the internal tool part.

1   Q   I said "tool." When I mean internal tool,

2 I mean internal to Facebook, meaning that only

3 Facebook messaging is the tool. Only Facebook

4 messaging application can access this database,

5 ██████████████

6   If I build a Daniel Garrie data messaging

7 tool, I can't access this database; right?

8   A   That's correct.

9   Q   Okay. And if I build an app, I can't

10 access it as well. Only Facebook messaging can

11 access this dataset; right?

12   A   That is -- to the best of my knowledge,

13 that is correct.

14   Q   Okay. ████████ I assume, is just a ██████

   ███████████████████████ and it has nothing to do with

16 users.

17   I didn't get how user data, again, fits

18 into this.

19   A   Yeah. So this is a case where it is not --

20 you know, ██████████████████████████████████████

   ███████████████████ ██████████████████████

   ███

   ███

   ███████████████████████████████ -- what's the word?

25 I'm losing the term.

1   Q   ████████████

2   A   Yeah, but it's actually a different term

3 that I was looking for.

4   But basically, you know, ████████████████

█ ████████████████████████ ████████████████████████,

6 as you're describing, used by -- only for internal

7 use.

8   Q   So I guess my question is, no off-platform

9 developers have access to this repository?

10   A   Correct. And user data is -- should not be

11 stored there.

12   Q   Yeah. The bottom line is, it's only for

13 you guys?

14   A   Yeah. That's correct.

15   Q   Okay. FBLearner.

16   A   Uh-huh. I don't have a lot of knowledge,

17 other than to say that this is a part of the machine

18 learning artificial intelligence systems.

19   Q   And the reason I'm even asking, it says all

20 Facebook engineers. Is that limited just to that

21 subset or can other engineers off platform gain

22 access to the AI platform?

23   A   I actually don't know the answer to that.

24   Q   All right. And, again, ████████████████

25   A   Yeah.

1   Q   This isn't available to a third party --

2   A   That's correct.

3   Q   -- or is it?

4   A   It's not, no. This is -- it is not. I do

5   have familiarity with this system as well a little

6   bit.

7   So this is users sending notifications to

8   devices. So it provides those mappings of your

9   account to device IDs and like, you know, being able

10   to get to your phone to push a notification to your

11   phone. So it's only used internally for that

12   purpose of delivering notifications generated by our

13   applications.

14   Q   Okay. Got it.

15   And then ██████████ .

16   A   Yeah. That's just --

17   Q   That's just binary?

18   A   Yeah. Exactly.

19   Q   How does user data -- well, I don't need to

20   know.

21   The point is that this is only on platform.

22   Never goes anywhere. Is that accurate?

23   A   That's correct.

24   Q   And it's never made accessible to anybody,

25   but Facebook individuals?

1   A   That's correct.

2   Q   So FOQS.

3   A   Yeah. This is another part of the █████

4 system.

5   Q   My only question is, it's only made

6 accessible -- so it has user data, but is it made

7 accessible to third parties, whether shared or off

8 platform?

9   A   Yeah. No. This is internal.

10   Q   And then ██████████ that's a new product;

11 right? █████

12   A   Yeah. Yeah.

13   Q   And I actually went and looked at that and

14 I don't fully get the user data piece there.

15   A   Yeah. I don't. I think actually you

16 probably have more knowledge of it than I do, of

17 that particular one.

18   Q   All right. Now, ████████ or ██████████

19   A   Yeah.

20   Q   I didn't understand this one.

21   My first question is, is it accessible off

22 platform, the data in the system --

23   A   No.

24   Q   -- the user data in here?

25   A   No. Not -- but, to clarify, I want to make

1 sure I'm not misrepresenting this.

2   Yeah. There is no external access to that

3 system. So it would only be through applications

4 running on Facebook infrastructure that could access

5 that data.

6   Q   Internal. But let's say a Facebook mobile

7 app, that has access to this data infrastructure.

8 But Daniel's Facebook mobile app, would I have

9 access to that infrastructure?

10   A   No. No. And this would be -- this is

11 running behind the WhatsApp application.

12   Q   Oh, okay. Then it makes a little more

13 sense.

14   All right. Again, I didn't understand this

15 ████ or ██████████████ running on ████ and this is

16 external research initiatives.

17   A   Yeah. I don't know.

18   Q   Is the user data made --

19   You don't know?

20   A   Yeah. I'm not familiar with that system.

21   Q   And do you know what Jupyter --

22   I don't even know how to say that.

23 Jupyter.

24   A   Jupyter.

25   Q   Jupyter, with a Y. JupyterHub deployment,

1   what is that?

2   A   My knowledge of Jupyter is, this is a

3   public -- like, this is not a Facebook technology.

4   It's for writing code in Python, I believe is the

5   framework.

6   Q   Yeah.

7   A   Python notebooks.

8   Q   Okay. Then ███████████ is that internal HR

9   or is that like people that have life goals?

10   It says for teams to track goals

11 information. I didn't know if that was Facebook app

12 has goals or I didn't know.

13   Is this an internal tool?

14   A   I don't know, actually. It sounds like it,

15 but I don't know.

16   Q   Okay. I'm going to agree with you on that

17 one. Sounds like it.

18   The Hive. I've heard lots about the Hive,

19 but maybe you can explain to me the Hive a little

20 from your perspective.

21   A   Yeah. ████████████████   ████████████

    ████████████████████████████████████

23   Q   Who has access to the Hive?

24   A   Internal only.

25   Q   Do third parties?

1   A   Yeah.   This would not be directly

2   accessible to third parties.

3   Q   Can a third-party app developer, though,

4   access data stored in the Hive?

5   A   Not to my knowledge.

6   Q   Because it says an engine that executes

7   queries written in FB-HiveQL and the Hive Query

8   Language.   So I didn't know who was actually --

9   because it looked to me -- but you're not sure or

10   you're sure?

11   A   These -- I cannot definitively confirm, but

12   my knowledge of these, ██████████████████████

█   ███████████████████████ and it -- the large

14   number of use cases are related to ███████████

█   █████████

16   Q   Okay.   And you don't know with any

17   specificity what user data sits in any of these

18   systems, right, just like you stated --

19   A   That's right.

20   Q   -- at the beginning?

21   A   That's correct.

22   Q   ███████, I assume, is a -- it's only made

23   accessible internally, the user data?

24   A   I can't confirm that.   I'm not familiar

25   with that system.

1   Q   All right. ███████████████. What's it

2   mean when there's a slash? Does that mean anything?

3   A   Nothing in terms of how we've been tracking

4   it. That was how it was given to us. So it must

5   mean something within a team.

6   Q   Got it.

7   Is this, you know -- is any of the data in

8   this system discoverable off Facebook's platform or

9   available or accessible?

10   A   I do not know.

11   Q   ██████████

12   A   I am not familiar with this.

13   Q   Didn't think you were, but it likely

14   wouldn't be accessible? Facebook doesn't share any

15   of the data in the ███████ or make it accessible;

16   right?

17   A   I don't know. I actually am not familiar

18   with this system.

19   Q   You don't know?

20   A   Yeah.

21   Q   ██████ Is that the chat tool?

22   A   That's correct. It's an internal instance

23   of that. So it's used internal only.

24   Q   ████████ World AR. Is this augmented

25   reality? I just wasn't sure.

1   A   That would be my understanding. I'm not

2 familiar with the system, though, or World AR

3 directly.

4   Q   All right. And then Laser.

5   A   Uh-huh. I don't know on Laser to the

6 questions that you've been asking.

7   Q   Is it accessible or available to third

8 parties or shared?

9   A   I do not know.

10   Q   All right. ███   I thought it was internal

11 operations, but I wasn't sure. So any --

12   A   I don't know.

13   Q   Oh, okay.

14   ██████

15   A   Yeah. I don't know how to pronounce that

16 either.

17   Q   All right. Again, I thought it was, again,

18 an internal tool since it says "always be allocated

19 in different racks."

20   Is that a physical rack, like server rack?

21   A   Yeah. That would be my understanding.

22   Q   Okay. So it's likely -- most likely, it's

23 an internal tool.

24   ██████ and particularly the part I'm

25 interested in is stores action metadata on actor

 1   ID.

 2   I didn't understand exactly how user data

 3   is used here or if it's made accessible or shared

 4   with third parties with this.

 5   A   I don't know. I'm not familiar with the

 6   ███████████████ .

 7   Q   Okay. ███████ seems like it's an internal

 8   tool or no?

 9   A   Yeah. I don't -- I don't know about ████████

10   either, other than what's written there.

11   Q   When it says in-memory cache for actions

12   and objects, though, that is -- it says it doesn't

13   actually store any physical objects such as photos

14   or posts.

15   So I wasn't sure exactly what user data --

16   is user data just temporarily stored in that system?

17   A   Yeah. I'm not sure.

18   Q   Okay. ███████████████████████████████ .

19   A   Yeah. I'm not sure.

20   So I have familiarity with the function of

21   this system and, you know, as well as what's

22   described there, but I don't know beyond that.

23   Q   But it's not likely; right? I assume it

24   wouldn't be likely that Facebook would be making the

25   system -- sharing any of the data in there or making

1   it accessible to third parties, but --

2   A   I think that's a fair -- you know, a fair

3   assumption, but I don't know. I can't confirm.

4   Q   All right. Live streaming data or, sorry,

5   ████

6   A   I'm not familiar with that system either.

7   Q   All right. Okay. ███████████████████, is

8   that accessible to third parties or shared or would

9   you know?

10   A   I don't know beyond what's written in that

11   description.

12   Q   Okay. And ██████████████████, is that

13   user video? Can you just explain to me how user

14   data fits into that one and ████████████████████?

15   A   Yeah. So live video would be our -- kind

16   of our -- a product feature to be able to stream

17   videos through our products. And as described here,

18   the ██████████████████, I can't -- you know,

19   aside from what's written here, I can't confirm

20   whether or not there's any external third-party

21   access to this.

22   Q   Or if it's shared or made accessible. All

23   right.

24   A   I'm not sure.

25   Q   What about for ████████████████████? It

1 says "internally at Facebook." I assume that means

2 it's not available or made accessible to third

3 parties, but can you confirm that?

4   A   I'm not familiar with this system. So I

5 can't confidently confirm.

6   Q   This system ███████ how is user data

7 again captured in here?

8   A   So, you know, by that description of

9 unstructured logging data generated by all

10 applications across Facebook, what I understand

11 there is that it is within the application's

12 determination of what gets logged, which could be

13 user data.

14   Q   When you say "application," is that

15 third-party applications or Facebook applications?

16   A   Let's see what it says there. Yeah. I'm

17 not -- I'm not familiar enough with it to

18 definitively say.

19   Q   And then would this service be available or

20 made available or accessible off -- you know, or

21 made discoverable off Facebook's platform, like

22 meaning to third parties?

23   A   I would find that highly unlikely, but I

24 can't definitively say.

25   Q   Okay. ███████ I interpret that to be an

```
 1   internal-only tool for managing operations.  Is that

 2   accurate?

 3        A    That's accurate.  I am familiar with

 4   ███████████████

 5        Q    And ██████████████████████████████████, same?

 6   I wasn't sure how user data got involved in this.

 7   So that's why I'm asking.

 8        A    Yeah.  I don't -- I don't have -- I don't

 9   have familiarity with that.

10        Q    Okay.  All right.  I don't have a clock.  I

11   don't know how long we've been going.  I apologize.

12        A    It's 1:26 West Coast time.

13        Q    We could finish this page, and if you want

14   to take a break for a few minutes and use the

15   facilities, the parties can go to their respective

16   rooms when we finish this, and I think we'll

17   probably, pending no surprises, finish in hopefully

18   an hour or less.

19             Does that work, Mr. Pope?

20        A    That's fine.

21        Q    If you have time today, I'd love to get it

22   all done today, if possible.

23        A    Sure.  Yeah.  I'm happy to work with you on

24   that.

25        Q    All right.  And then ███████████████
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1   A   So this is not --

2   Well, maybe if you can ask the question

3 again.

4   Q   So ███████ the reason why I'm asking is

5 it says it's ██████████████████████████

██████████████████████████   ██████████████████

███████████

8   A   Yes.

9   Q   It is analogous to Amazon S3.

10   A   That's correct.

11   Q   I didn't understand, A, how user data was

12 stored in it; and if it's accessible -- you know, if

13 you know if Facebook either makes it accessible or

14 shares that user data in that system.

15   A   Yeah. You can -- you can think of this the

16 same as ████████ It runs on top of ████████ and

17 ██████ where it provides additional, like, S3-type

18 features to the data stored that -- ████████████████

████████████████   ████████████████████

██████████████████████████

21   Q   Has ██████ -- I got it.

22   And just to be clear, ██████████ is --

23 Facebook doesn't, you know, share or make the data

24 in ██████████ accessible to third parties or off

25 platform or does it?

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1   A   It does not. It's similar, it's the same

2 answer there as ████████

3   Q   Got it.

4   And then Memcache.

5   A   Yeah. That would be used internal only to

6 accelerate performance of applications and products.

7   Q   Facebook applications, not third-party

8 applications; correct?

9   A   That's right.

10   MR. GARRIE: Okay. We'll take -- we'll go

11 off the record.

12   (Recess taken.)

13   (Off the record at 1:29 p.m. Back on the

14 record at 1:46 p.m.)

15   MR. GARRIE: Okay.

16   Q   ████████ managing metadata for the Data

17 Warehouse.

18   Any idea here, Mr. Pope?

19   A   No. I'm not familiar with that system.

20   Q   Okay. And ████████

21   A   ████████ yeah. Yeah. I'm not -- I just

22 know that this is basically what's written there,

23 version control server.

24   Q   How would user data be involved? Just to

25 understand it for myself, like, any idea how user

1 data is involved in that?

2   A   Yeah. That would be the -- this is

3 actually comparable to the ████ one we covered

4 earlier as being a version control system. So it

5 wouldn't be a common case; but it's possible to, you

6 know, submit maybe like a test, the unit test that

7 would have some user data. That would be the case.

8   Q   I get it.

9   When you say "submit," it would be from

10 Facebook developers, not third-party developers?

11   A   That's right.

12   Q ████████████████ Any ideas, Mr. Pope?

13   A   No. I'm not familiar with this system

14 either.

15   Q   I'm fairly familiar with MySQL, but --

16   A   Uh-huh.

17   Q   -- is it accessible to third parties? I

18 mean, it can be.

19   A   So this is the general category that

20 covers, I believe, multiple instances of the

21 database and I'm not familiar with the specifics.

22   Q   Got it.

23   ████████████████████. I just assume --

24 well, any -- is this internal new product? Like it

25 says "small entrepreneurial teams." Is that

1   Facebook teams?

2   A   Right. Yeah. This is the ██ referenced

3   earlier. This is kind of the team-level view of

4   that where they have some ████████████████████████

█   ████████████████████████████████████.

6   Q   But it's Facebook internal teams that are

7   accessing data, not third-party developers that are

8   building ████████████████████ and accessing the

9   data there?

10   A   Yeah. I don't actually know that level. I

11   can't really confirm that.

12   Q   Okay. And Novi ████████████████████████

█   ████████████

14   A   Yeah. Aside from what's written there is

15   what I know.

16   Q   Okay. So we don't know if that data in

17   there is being -- because it says a queueing system

18   storing user data.

19   So you don't know if Facebook is making

20   that accessible or sharing that with others outside

21   of Facebook?

22   A   That's correct. I don't know how it's

23   used.

24   MR. GARRIE: Okay. So, Facebook, can you

25   send the letter to the court reporter so she has it

1 to enter as an Exhibit A to the proceeding, just the

2 letter with the exhibit rather than the entire

3 declaration?

4   MS. CLARK: You're just saying the

5 Exhibit A to the declaration, or are you asking for

6 the separate file name that had the details of the

7 system?

8   MR. GARRIE: The spreadsheet. Ideally, the

9 spreadsheet so she can have the spellings of the

10 different terms. The document we're looking at

11 right now.

12   MS. CLARK: Okay. Absolutely.

13   MR. GARRIE: All right.

14   MS. CLARK: Is her email address in the

15 chat?

16   THE COURT REPORTER: Yes. And also,

17 counsel on the line, if you can go ahead and put

18 your email addresses in the chat so I can follow up

19 later to find out your appearance information.

20   MS. CLARK: And we're sending this to you

21 right now.

22   MR. GARRIE: So we'll go back on the

23 record.

24   Q   The Oculus ████████████████, I assume

25 that's the Oculus system and that's not the Facebook

1   platform or are they combined?

2   A   I don't know the answer to that in terms of

3   the last part of being combined. But this is

4   referring to Oculus, the reality labs product.

5   Q   Okay. And ██████   This is kind of a very

6   generic description, storing off-line messages.

7   Is that for users, employees? Who can

8   access it? Do you have any idea, Mr. Pope?

9   A   No. I'm not familiar with that system.

10   Q   Okay. ██████   Any idea, Mr. Pope?

11   A   I'm familiar with the service, but I don't

12   actually know really more than what's written there.

13   Q   Is the service available to third parties?

14   A   I don't know.

15   Q   And the reason I ask, it says it provides

16   the user writing the data with the flexibility to

17   store the bytes on the storage systems of their

18   choice, while solving the reader's "where do I get

19   that data" problem.

20   A   Uh-huh.

21   Q   So I didn't know if this was a service you

22   were making available to third-party app developers

23   or if this was a service that was only available and

24   accessible -- to where the user's data is only

25   accessible and shared for Facebook, if that makes

1   sense.

2   A   Yeah.   No.   That makes sense.

3   Yeah.   Yeah.   I just don't have enough

4   knowledge of that system to say.

5   Q   Okay.   ███████████   Any idea here?

6   A   No.   I just have a very -- really, the

7   level of knowledge that's written there is the limit

8   of what I know about it.

9   Q   And the way I read it is that it's only

10   data storage and sync services to support Facebook's

11   products.

12   My question is, is the data store also

13   available or made accessible to third parties?   I

14   couldn't tell from the description.

15   A   Yeah.   Yeah.   I'm not familiar enough with

16   it to know, to be honest.

17   Q   And the reason I ask is it says "messenger

18   contacts."   So that could obviously go one way or

19   the other.

20   A   Uh-huh.   Uh-huh.   Yeah.   I just haven't

21   worked with it to know.

22   Q   That's all right.   "I don't know" is

23   perfectly acceptable.   I will follow up with

24   Facebook, as appropriate.

25   ████████████████████, which sits on ████████

1   What's Lift?

2   A   Yeah.   I'm trying to remember if I know

3   anything about this one.   Yeah.   I don't recall.

4   I -- I recognize the name, but this was -- it's been

5   some time since I worked with it.   So I don't recall

6   the details of it --

7   Q   This is certainly --

8   A   -- nor do I remember.

9   Q   But this does have user data that is in --

10   the user data relates to, is it, ad impressions and

11   clicks?

12   A   Yeah.

13   Q   Conversions?

14   A   I'm not sure.   I think.   Again, yeah, I do

15   think that that's a reasonable interpretation, but I

16   can't confirm.

17   Q   Got it.

18   But it's not clear if it's an internal tool

19   that then -- or if it's available to advertisers or

20   third-party app developers?

21   A   Right.   Right.

22   Q   So you're not sure.

23   ██████████   What's historical transaction

24   data?

25   A   So I do know that this is related to the

1 payment system. But beyond that I don't know, you

2 know, more than what's written there. But I can

3 share that the context would be related to the

4 payment system.

5   Q   And at the time the system was being used,

6 was the data in it --

7   I guess you may not know the answer, but

8 I'll ask it anyways.

9   Was the transactional data available or

10 made accessible to third parties or app developers

11 or people off the platform, the user transactional

12 data?

13   A   Yeah. I'm not sure on that one. I don't

14 know.

15   Q   And then ██████████ That's built on the

16 MySQL. So the above MySQL, this is what -- a system

17 that's running on that. Is that how I should read

18 that?

19   A   Yeah. That's actually correct.

20   Q   Now, do you know if this is made accessible

21 or shared, the data in this system, with third

22 parties, the user data?

23   A   Yeah. I don't know.

24   Q   Do you know if this went into effect after

25 2014?

1   A   I don't know that one either.

2   Q   ███████   Is that how I say that?

3   A   ██████ yeah.

4   Q   ██████   I don't even know what a

5 ███████ user is. So maybe you can tell me. What's

6 a ███████ user?

7   A   The ██████ that I think they're referring

8 to here is another kind of version control system,

9 and I don't -- but I don't know beyond that.

10   Q   But a ██████ user is not a consumer user.

11 It's a Facebook developer or -- the point is that

12 the ██████ users are a subset of a Facebook

13 employee?

14   A   Right. Right. And kind of as stated

15 there, you know, ██████ users throughout the

16 company. So it's supporting those internal

17 employees is my best understanding of it.

18   Q   All right. And ████████   How is user data

19 involved in the cache for the news feed data?

20   A   I have -- I have some recollection of

21 working with this one, but, yeah, aside from just,

22 you know, inferring that this is the cache for news

23 feed, news feed would contain, you know, user data

24 posts and so forth, but I don't know beyond that.

25   Q   But is it temporary cache or is it --

1 A   I don't know. Yeah. That would be my

2 assumption, but I can't say definitively.

3 Q   And then ██████████ looks like it's an

4 internal tool for infrastructure support team. Is

5 that accurate?

6 A   I'm not familiar with this, this system.

7 Q   Well, "Why did Facebook DAP go down between

8 today and seven days ago?"

9 A   Yeah.

10 Q   Is there any reason, as far as you can

11 think of, that a third party or somebody --

12   Is there any reason Facebook would make

13 this accessible, the user data in this system

14 accessible to a third party?

15 A   I don't know of any, but I'm not really

16 qualified to confirm.

17 Q   But when it says "metric movements," what's

18 that mean? Do you have any idea?

19 A   Yeah. So for that specific example, you

20 know, why did DAP. So that would be daily active

21 people. You know, we moved away from using the term

22 "daily active users," for whatever reason. So why

23 did the Facebook daily active people go down between

24 today and seven days ago? So analyzing the usage

25 patterns of our products is what that's referring

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1 to.

2   Q   Got it. So all right.

3   So maybe Facebook would make it available

4 to -- but is it anonymized? Do you know if the

5 data -- is this -- when we have user data, is this

6 de-anonymized user data or is this anonymized user

7 data? Just generally when people say, "We have user

8 data," is it specific individual users, like

9 Joe Smith?

10   A   Yes. We don't actually have that, yeah,

11 level of. Like that wasn't a part of kind of when

12 we asked what type of data is stored there. I think

13 you'll have a great deal of variance across the use

14 cases.

15   So given an application's purpose, it could

16 very well be storing anonymized data, ██████████████

   ██   ████████   ██████████████████████████████████████

   ██   ████████

19   Q   Well, ████████████████████████████████████

   ██ ██ no?

21   A   Uh-huh. Yes. We provided examples and

22 references for them to confirm.

23   Q   Can you provide a copy of ████████████████

   ██ ██

   ██ ██████████████████████████████?

1   Because I'm assuming that the user data

2   isn't anonymized data. This is actual user data and

3   not anonymized data because you wouldn't have to

4   delete anonymized data from a system, no?

5   A   Correct. This would be, you know, data we

6   collect about users using our products like through,

7   you know, them uploading or other things that we

8   understand by their use of our products.

9   Q   Yeah. Through the use of apps or whatever

10   it is. But the point is is that it's user data,

11   meaning that it's identifiable to a user --

12   A   Right.

13   Q   -- or people or however you --

14   A   Yeah.

15   Q   I just want to make sure. This entire --

16   A   Go ahead. Sorry.

17   Q   No. No. I just wanted to make sure

18   because when I say "user data," right, I mean

19   identifiable information to an individual or a

20   person.

21   A   Uh-huh.

22   Q   So I'm assuming for all of these systems,

23   they have identifiable user, meaning identifiable to

24   an individual like person in the system.

25   A   Our definition of user data is a little

1   more broad, I think, in that it might -- you know,

2   it may be things that we collect by the use of our

3   products and I can't say necessarily if it meets

4   your -- that more specific criteria of being

5   identifiable to a specific person.

6   Q   Well, identifiable to a Facebook ID or you

7   have a universal ID; right? Identifiable at some

8   level back to an individual.

9   Well, ███████████████████████████

10   I'll be able to see to make sure we're looking at

11   apples to apples because it could be, Counsel

12   Kutscher Clark, just to make sure that this is

13   actual user data so we're not wasting everybody's

14   time looking at it.

15   MS. CLARK: So I'm not sure if Mr. Pope

16   understood the question, but this is what I

17   understood you to be asking, Mr. Garrie.

18   You're trying to figure out if all of the

19   data in these sources have called user data would be

20   data linkable to a specific person or whether it

21   might also be data that's aggregated with data about

22   other people or data that's been anonymized so it

23   can't be linked back. Is that what you're trying to

24   get at?

25   MR. GARRIE: Yeah. Because when you

1   submitted the declaration, right, it said that for

2   user data, and I just -- I've been assuming just --

3   I just thought I'd dot my i's and cross my t's.

4   When I say "user data," I'm talking about

5   whether there's some entity that has a first name

6   and last name or a Facebook account. We'll just

7   leave it at that. Has a Facebook account credential

8   that is hopefully a human breathing entity, but

9   whatever.

10   The bottom line is is that when you say

11   "user data," that that type of data, in some

12   fashion, exists. So, for example, cache or news

13   feed data is the cache for a particular user's news

14   feed. Now, it may only be available internally,

15   never shared and accessible. I just want to make

16   sure, because if it's anonymized or genomized or

17   tokenized or anything like that.

18   So maybe when you send the survey, if you

19   could just send the -- to counsel the survey and

20   read it over, but it would be very informative for

21   me to make sure we're actually looking at user data.

22   THE WITNESS: Yeah. So just to clarify on

23   that request.

24   So we do have a standard definition. The

25   actual forms that were sent would be ███████████

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1   ███████   So how ███████ actually did this versus,

2   you know, ███████ or what have you may be

3   different; right? So there's multiple. It's not

4   like a uniform form, you know, one single form that

5   ██

█ ███████ .

7   I can, you know, share some examples of

8   user data that might help.

9   One is, you know, data provided by our

10   users, like user-generated content, posts, so forth;

11   data we observe about a user, such as location data,

12   network data; the data we infer about our users',

13   like, interests. These are all things that we would

14   consider user data.

15   BY MR. GARRIE:

16   Q   But that's all associated with the user?

17   A   Right.

18   Q   So that can infer data about people

19   anonymi- -- like the key part of it is that it goes

20   back to an individual user, an individual discrete

21   entity?

22   A   Right. Right. So where I'm kind of

23   pausing on this and I'll maybe have to take this

24   question back to give you a more vetted answer;

25   right?

1   Q   Okay.

2   A   Yeah. Is that these will tie to something

3 specific. I'm not sure that it would be

4 specifically a user or maybe it's tied to their

5 photo. But I don't want -- yeah. I don't want to

6 speculate here kind of the distinction like maybe

7 what's covered when I answer this question. It

8 might be a little bit more broad than the way that

9 you're thinking of specifically.

10   Q   I mean, that's what's occurring to me as

11 we're going through, that may be how you define user

12 data. So let me think about it.

13   We'll revisit it at the end, but yeah.

14 Because the reason why I asked is where it says

15 "root cause analysis for metric movement," that's

16 what really got me thinking how user data, is that

17 individual users, you know, active pool and you have

18 all their IDs in there? I mean, how you identify

19 them is different, right, whether you use a hash, a

20 UID or a string of numbers, letters, gibberish.

21 Whatever, however it is, right, the key point being

22 is that it's a user; right? And that's why --

23 that's really why I asked the follow-on question,

24 but we can revisit it at the end because we're

25 close, and the finish line is there. So we'll

1   revisit it in a second.

2   A   Yeah. Yeah. But just in terms of what we

3   provide to you, I'm not sure what that process is in

4   terms of making a request and going through whatever

5   the legal channels are. So I don't want to misstep

6   or go out of protocol.

7   Q   No. So let me help you out.

8   Facebook has an internal process working

9   with Ms. Kutscher Clark, who is very familiar,

10   fantastic outside counsel. She will help you and

11   your client. I believe you actually have in-house

12   counsel still on. There's a lot of people. But

13   Counsel Chen is also very competent counsel. They

14   will advise you exactly on the process.

15   You're just -- I'm asking you questions.

16   If you don't know the answer, say you don't know.

17   If you need to get back to me with information, say,

18   "I want to confer with counsel," and we'll get back

19   to you with clarity of an answer. There's nothing

20   wrong with that.

21   A   Yeah. Sounds good.

22   Q   The reason why I'm asking is I just want to

23   make sure we're talking apples to apples for the

24   follow-on.

25   ████████ ████████   sits on top of ████

1   and it's designed to store user side features.

2   Do you have any idea if that's --

3   A   No.

4   Q   -- accessible or made available?

5   A   Yeah. I'm not -- I'm not familiar enough

6   with that system.

7   Q   Because an API could have access to a

8   storage service or third-party app developer or --

9   or not. So okay.

10   A   Yeah. I'm not --

11   Q   ████████████████████████, green dot. I

12   didn't know what that meant.

13   A   Yeah. I'm not -- I'm not sure what is

14   meant by "green dot" either. I think it's --

15   Q   Do you know what a power user is? Is that

16   an internal user?

17   A   I don't know. I'm not sure what they mean

18   by that.

19   Q   ██████ I assume this is only available

20   internally or is it made available or accessible or

21   shared with third parties?

22   A   Yeah. I'm not -- I'm not -- I'm not sure

23   on that one either.

24   Q   Okay. Do you know why they capitalize

25   Stream Processing?

1   A   I don't know, actually. Yeah. I'm not

2 sure.

3   Q   Okay. But fully managed general purpose

4 Stream Processing, I couldn't figure out what that

5 meant. For me to figure it out --

6   A   So --

7   Q   I mean, any thoughts, ideas?

8   A   No. I can't -- yeah. I'd just be

9 speculating. I don't have contextual knowledge on

10 why they phrase it that way.

11   Q   Okay. PYMK ███████████. What's a leaf

12 machine?

13   A   Yeah. I'm not familiar with this

14 technology either or the leaf machines.

15   Q   But you are sure that it has user data in

16 it somehow?

17   A   That it could have user data.

18   Q   That it could have use data?

19   A   Yeah. So that's, again, kind of going back

20 to where you pointed out something that should have

21 been in that declaration is that the questions asked

22 was, is it possible to store, you know, or something

23 along these lines, is it possible that an

24 application of products using your data system could

25 store user data?

1   Q   Okay. Fair enough.

2   ███████████ So I get what this is doing.

3   My question is, is this available to third

4   parties or accessible or made available?

5   A   Yeah. I'm not sure about this system. I

6   don't know the answer to your question for

7   ███████████

8   Q   And, again, but you have a point of contact

9   in your effort through the year that this is -- you

10   know, or even before we even get to that, you have

11   some response from them that would explain at some

12   level more detail what ███████████ is?

13   A   Yeah. And just to kinda clarify that path

14   and why this, you know, has been a pretty cumbersome

15   effort is we do have the initial point of contact

16   that support the data systems themselves; but the

17   products and applications and infrastructure systems

18   that use those data systems, each one of them have

19   their knowledge of what data. You know, the actual

20   point of contact for ███████████ might not know what

21   data is actually stored there. You would have to

22   then go to the next order of contacting the

23   application the product's using.

24   Q   Yeah. But they would be able to provide --

25   but they can provide a general idea. Your point of

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1   contact is responsible for the system at some level,

2   no?

3   A   They're responsible for the storage

4   capabilities and the deletion configuration. So

5   they would have --

6   Q   Are they technical?

7   A   What do you mean by that?

8   Q   Well, you say they're responsible for it.

9   So they would know what data is being written to

10   ██████████   I mean, I assume you had to ask the

11   person that actually runs the data system at some

12   level. Whether or not they know what's put in there

13   is different, but they would need to know what it

14   does and how it works, no? To answer your question.

15   A   Yeah. Yeah. No. I think so.

16   What they will know, and this is where, you

17   know, the solution of how they do this will vary

18   across the different data systems based on the

19   technologies.

20   So I don't know ████████ or ████████ to

21   be able to say how they do it, if they have that

22   knowledge. But for a data system that provides

23   storage services like ████ key value store, the

24   customer's external, but the actual applications and

25   product that store data in ████ will be an

1 admission control process that asks is it user data

2 and they'll check -- and if they check yes, they

3 have to select the configuration options to delete

4 the data according to our policies.

5   That's the extent that they know. So they

6 should be able to --

7   Q   Yeah. But there's more than -- yeah. But

8 they'll know if there's user data in there and what

9 it looks like. Whether it's accessible or not is

10 downstream from that; right?

11   A   My --

12   Q   Yeah. That's downstream.

13   First I need to figure out if the user data

14 is stored in it and then if it's available only

15 to -- the first step in the analysis is, is this

16 data, the user data, accessible or shared with third

17 parties or off Facebook's internal platform or is it

18 aggregated and shared with another Facebook

19 application that then is shared with third parties;

20 right?

21   So, but the first step is just figuring out

22 like -- like the call logs, if I'm building a

23 third-party app and I'm making function call logs --

24 I'm making function calls and you're restoring

25 because the aggregation of call logs is ambiguous.

1   Like is it aggregating all of a particular call in a

2   particular function going back to 2007 or is it, you

3   know, understanding -- and then --

4   But the first simple question is, does

5   it -- is it available to third parties or accessible

6   to the outside, and then going from there?

7   A   Right. Okay.

8   Q   ██████████   When you say "the feed," is

9   that the user feed, the friend feed? What's a feed?

10   A   What's a feed? All the stories user has

11   seen.

12   So it seems to be referring to stories

13   through the news feed.

14   Q   And do you know if this is -- is this

15   available to third parties or off-platform or shared

16   or accessible?

17   A   I don't know. Yeah. I'm not sure about

18   that.

19   Q   Ready At Dawn I looked up. It's a game

20   studio.

21   A   Uh-huh.

22   Q   What user data is this -- is this Facebook?

23   I mean, can you clarify when you say a --

24   A   Yeah. I do have some familiarity with

25   Ready at Dawn.

1   So it was an acquired company, a gaming

2   studio for our reality labs division, and this would

3   be data -- the data that we talked about there was

4   the users of that game. Like so you log in and, you

5   know, you have some kind of profile.

6   Q   Do they log in via Facebook or are they

7   logging in via -- you know, how are they when we say

8   user?

9   A   Yeah. I don't -- I don't actually know

10   that detail.

11   Q   More importantly, is that data, the user

12   data, available to any third parties?

13   A   Yeah. And I'm not -- I'm not familiar

14   enough with that detail of the game and that system.

15   Yeah.

16   Q   It's a video game that -- it's the user

17   data about the people that are playing the game,

18   though?

19   A   Right.

20   Q   ███████

21   A   Yeah. I just know, you know, kind of

22   what's written there is my knowledge of the system.

23   Q   Would it be likely that Facebook would give

24   third parties access to their payment reconciliation

25   for users?

1   A   Yeah. That's outside of my kind of

2 experience or expertise to actually have an opinion

3 on that.

4   Q   But when you emailed it, when you sent them

5 the ██████████████████████████████████

    ██████████████████████████████████

    ███████████

8   A   Right.

9   Q   ████████████████████

10   A   I do have some knowledge of this system.

11 Yeah. I do have some knowledge of this. So this is

12 more like internal storage for other systems.

13   Q   Yeah. I assume you're not going to let

14 Google access --

15   A   Right.

16   Q   -- this.

17   A   So this operates at a lower level in the

18 tech stack, you know, providing more storage

19 capabilities, like physical storage.

20   Q   Yeah. All right. All right. So then

21 ████████████████?

22   A   Uh-huh.

23   Q   Who are UX researchers? Are they Facebook

24 researchers or are they third-party people?

25   A   Yeah. I'm not sure who those people are.

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1   Q   And they're storing user data in the

2   system?

3   A   Yeah. So I do have some experience with

4   just the ██████████ in terms of that. This would

5   be for user experience research where they're maybe

6   doing a case -- or, you know, came in and -- you

7   kinda come in and use the product and what have you.

8   That might be one example of the type of research

9   that's being done.

10   Q   All right. But is it being done by and

11   made available to third-party developers or anybody

12   else?

13   A   That I don't know.

14   Q   Okay. ██████   It says anyone. Does that

15   mean anybody can access this service?

16   A   So this is similar to ████████████. It

17   is a lower-level storage interface. So it would be

18   used by other systems.

19   Example, ████ uses ██████ underneath. So

20   it's a lower layer in the stack.

21   Q   And when it says "anyone," who's anyone?

22   A   Employees of Meta.

23   Q   Okay.

24   A   So they would use it. And just to kinda

25   clarify that, how they use it, these are libraries

1   that they would actually write their applications

2   and compile this code to store the data onto some,

3   you know, storage system.

4   Q   So, but third parties wouldn't have access

5   to that?

6   A   No.

7   Q   ███████████ .

8   A   Yeah. I mean, the familiarity is just

9   what's written there that I have with it.

10   Q   ████████   Any --

11   A   I don't have any additional knowledge or

12   experience.

13   Q   ███████

14   A   I do have experience with ██████ and it's an

15   internal tool for doing visual data analysis. Yeah.

16   Q   When you say --

17   A   Yeah.

18   Q   Internal tool being? Sorry. Could you

19   repeat that?

20   A   Yeah. It would be used by Meta employees.

21   It's not a production service or tool. It's for,

22   you know, analyzing. They call it kinda deep diving

23   on data, like some data that you import to the

24   system to, you know, kinda like -- like maybe things

25   like Excel with a bunch of extra features; right?

1   Like you put in a bunch of data and you can like cut

2   and, you know, kinda do different joins and do

3   different manipulations to understand the data and

4   do analysis.

5   Q   Yeah. Excel on steroids.

6   All right. ████████████   That to me is

7   pretty obvious.

8   But third parties don't have access, I

9   assume, to your backups?

10   A   Right. Yeah. They do not.

11   Q   ████████████████

12   A   Yeah. I'm not familiar with that, that

13   system.

14   Q   And ██████████ if I built like an app,

15   would I get access to this?

16   A   I actually don't have enough familiarity to

17   say on this one.

18   Q   Okay. ██████ I assume you don't provide

19   access to that or do you? It says within the

20   company and with external vendors.

21   A   Yeah. So it is the method that's used for

22   exchanging files with other external vendors --

23   Q   With --

24   A   -- of the --

25   Q   With user data?

1   A   There could be user data, you know, they

2   indicated by saying this on the form. I don't know

3   the nature of what those use cases are, though,

4   where they would be doing that.

5   Q   Got it.

6   Is ███ a service or something they back up

7   or -- well, we can figure it out later.

8   ████████

9   A   Yeah. So this is providing kind of a test

10   MySQL instance.

11   Q   It says it captures all incoming traffic

12   and replays it on another test in real time.

13   Who is this available to or accessible to;

14   right? Because this is user -- if I'm assuming it's

15   user data, how is user data -- is this user incoming

16   traffic of how they're using the Facebook platform?

17   A   I'm not actually sure. Yeah. No. I don't

18   know.

19   Q   Okay. I assume ████████ is not, but can

20   you confirm that it's not accessible to third

21   parties?

22   A   Yeah. My experience with ████████ is that

23   it's data processing jobs that were a message DB.

24   So this is part of a messaging service and does kind

25   of batch data processing, which would be an internal

1   process.

2   Q   All right. Novi, that's your crypto;

3   right?

4   A   Correct.

5   Q   Do you know if that's accessible to third

6   parties?

7   A   I do not know.

8   Q   Okay. ████████████████. I didn't know

9   what candidate generation meant.

10   A   Yeah. I'm not -- I'm not familiar with

11   that system or to be able to, yeah, really clarify

12   that term.

13   Q   ██████ this is an application developer

14   review tool. Is that to who?

15   A   Yeah. I'm not familiar with this one

16   either.

17   Q   Okay. All right. So you're not familiar

18   if Facebook allows other third parties or shares? I

19   mean, I would assume it doesn't, but okay.

20   A   Yeah. I'm not sure.

21   Q   All right. ███████

22   A   Yeah. I am familiar with ██████ I mean,

23   to kind of the extent that they're a stream

24   processing library. So it would be used by internal

25   software developers, internal being Meta employees,

1   to create the stream processing jobs.

2   Q   Got it.

3   ██████████   I understood that to be an internal

4   Facebook dev tool or ops tool, but can you confirm

5   that?

6   A   By the description with ██████████, you

7   know, these are for our company use by Meta

8   employees and as well that this is for archival

9   workloads, such as backups and data warehousing.

10   I don't have direct experience with ████████

11   but I think by this description is it's an internal

12   system.

13   Q   And then I would -- yeah. I would agree.

14   ██████████ I assume is similar, but again --

15   A   Yeah. I'm not familiar with this system to

16   be able to answer.

17   Q   What's composability mean?

18   A   I'm not sure. I'm not familiar with that

19   term in this context.

20   Q   ██████████ I've worked with, but do you give

21   third parties access to your ██████████

22   A   I don't know, actually. I'm not sure.

23   Q   But user data is moved into ████████ and

24   then you run ███ on it?

25   A   There can, yeah. So there can be user data

1   in performing the ████████████████████████.

2   Q   Yeah. Okay. Always a selling point.

3   A   Yeah.

4   Q   ████████████   Any idea?

5   A   No. No. I'm not sure. I don't know on

6   that one.

7   Q   Is there any reason you would think that

8   Facebook would make this accessible to a third

9   party or the user data stored in this system or

10 shared?

11   A   Yeah. I think I'm just actually not

12 familiar enough with its use to be qualified to

13 really --

14   Q   Because it says --

15   A   I could guess.

16   Q   And the reason I ask is it says "now

17 deprecated ██████ created as part of an effort."

18   So I took deprecated to mean no longer in

19 use, but maybe I -- well, fair enough.

20   ██████████

21   A   Yeah. I'm familiar with the service, but

22 can't really speak to its use cases or...

23   Q   How? What's your familiarity with the

24 service?

25   A   It's a service that runs on top of ██████

1   and basically is an application you can configure to

2   use for storing counters. Like an example I think

3   was given while we did talk with ████ would be the

4   number of likes that a post has received.

5   Q   All right. So then would you know if

6   third-party developers were just --

7   Do you know if Facebook makes this

8   accessible or shares it off Facebook's platform,

9   access to this data?

10   A   Yeah. I don't know. I don't know that

11   level of detail.

12   Q   All right. I assume that's the same for

13   ████████████████   That's the same --

14   A   Yeah.

15   Q   -- or is it different?

16   A   Yeah. I don't remember the distinction

17   between these two. They're related, but I don't

18   remember how they differ.

19   Q   TAO?

20   A   Uh-huh.

21   Q   I get what it is.

22   My question is, would you know if Facebook

23   makes it available or accessible or shares this data

24   in this -- the user data in TAO with any

25   off-Facebook platform?

1   A   Yeah. I don't have, like, familiarity with

2 that and how that all ties together with the social

3 graph and to the question that you're asking. So I

4 don't know how that...

5   Q   ███████████. It says it's an internal

6 tool, so I just assume it's not shared.

7   Is that an accurate assumption?

8   A   Yeah. I -- I -- again, I'm not -- you

9 know, this isn't my area of work, but I think from

10 the description --

11   Q   All right.

12   A   -- that's pretty clear. Yeah.

13   Q   All right. ████████ I get what it is.

14   Would you, by chance, know if it's shared

15 or made accessible to --

16   A   No.

17   Q   -- off --

18   A   Yeah. No. I don't know.

19   Q   And then ████ I assume it's not.

20   A   Yeah. Yeah. You're right. So this is

21 more internally used to understand our -- our

22 products and systems.

23   Q   And same with ████████?

24   A   So -- right. So just to make sure we're on

25 the same, yeah, so this would be where --

1   ██████████ is our container-based service. So this

2   would be storage tied to those containers. So it's

3   more of a lower-level internal --

4   Q   Yeah.

5   A   -- technology. Yeah.

6   Q   Yeah. I would be surprised if you made

7   that accessible.

8   And same with ████

9   A   Yeah. This is the backing, kind of, as it

10   says, backing database for TAO, █████████████

██   ██

██   ████████████████

13   I don't know. Again, kind of like I don't

14   know the linking in terms of availability to the

15   social graph, but that's like the underlying, you

16   know --

17   Q   And the social graph --

18   A   -- storage.

19   Q   And the social graph data sits in the TAO;

20   right?

21   A   Right. So that's like kind of our primary

22   cache for driving our applications and a large part

23   of that is where the social graphing is.

24   But again, you know, I don't have like

25   the -- that's definitely not my area of expertise

1   getting to how those all tie together.

2   Q   Yeah. And so where it says "used for

3   testing," is that internal testing for ██████████

4   A   That is actually my understanding of it and

5   I did have some work with ████████████ but my memory

6   is a bit dated to be truly definitive on that.

7   Q   All right. Your notes would reflect it at

8   some level?

9   A   Yeah.

10   Q   And ██████

11   A   Yeah. I'm not -- I'm not too familiar with

12 ██████

13   Q   All right. What about ██████

14   A   Yeah. I'm not familiar with ██████

15   Q   Can you explain to me, what is human

16 readable? I hear the term a lot, human readable.

17 To me data is data I can read, binary or hexadecimal

18 or words.

19   A   Yeah.

20   Q   When they say "human readable," what does

21 that mean?

22   A   I think that that's like written in a

23 common human language, you know, rather than, you

24 know, kind of encoded, you know.

25   Q   But someone translates the coding to

1   understand it; right? I mean, machine readable

2   means a machine can translate the data, right, or am

3   I reading that wrong?

4   A   I can't --

5   Q   It's all -- well, human readable is still

6   data, right, and machine readable is still data?

7   There's no -- it's still data we're talking about;

8   right? There's no distinction there.

9   A   Right. So I can't really speak to what

10   whoever wrote -- provided this description is trying

11   to convey with the human readable understanding

12   piece.

13   But to your point, I think more relevant is

14   that, yeah, for our exercise that we went through

15   and for the data we gathered, this is talking about

16   data. And, you know, whether it's, you know, in

17   sentences that we -- ███████████████████████████

18   some kind of, you know, ██████████████████

     ████████████████████████████████ isn't

20   really relevant to the work that we did. We're

21   just, you know --

22   Q   Right. That's why I was asking.

23   A   -- gathering data. Yeah.

24   Q   This is the only place for user data that

25   it says "human readable." So I didn't know if there

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1   was a distinction there.

2   A   Yeah. I don't think any meaningful

3   distinction. At least not in the context of the

4   work that we were doing. We were just concerned is

5   there data? True/false.

6   Q   Got it.

7   And then you wouldn't --

8   Did they clarify if this human readable of

9   user interests to improve personalization in various

10   user-facing products, is that just Facebook's

11   products or is this available to all app developers?

12   A   Yeah. I don't -- I don't actually know

13   about at that.

14   Q   Wouldn't they differentiate or identify if

15   it was non-Facebook products or no?

16   A   Yeah. I'd probably be speculating to say.

17   Q   The people that wrote it and said

18   "user-facing products," they're talking about the

19   products that -- I'm just trying to understand when

20   they say "user-facing products" what the person, the

21   context they're responding from.

22   A   Yeah.

23   Q   You sent them a ██████████████████████

     ████████████████████████████████████ Is that

25   Facebook users or you're just not sure?

1   A   I'm just not sure and I didn't --

2   Q   Okay.

3   A   I don't think --

4   Q   I read --

5   A   So yeah.

6   Q   And then a tax application?

7   A   I'm not familiar with this product or this

8 service or system.

9   Q   It's calculating taxes, right, for your --

10   A   Yeah.

11   Q   So ███████████ my question for this is do

12 you make ████████████ available off -- the user data

13 in ███████████ available to third -- off Facebook,

14 you know, accessible to or off Facebook platform?

15   A   So yeah. Well, so ████████████ is, again,

16 a lower-level storage solution that's used by

17 systems on top of it. So I can't really say, you

18 know. I don't know all the specific cases where

19 ████████████ is being used as the underlying

20 storage. It would be through --

21   Q   But there's no way --

22   A   Yeah. It would be through a data system

23 running on top of ████████████

24   Q   That's my point.

25   There's no way to access ████████████ The

1   data -- the user data in ███████████ still requires

2   some database app- -- some application to access the

3   user data that's stored there.

4   Is that not an accurate assumption?

5   A   Exactly. Yeah. No. That's a very

6   well-phrased way to put it. Yeah. That's correct.

7   Q   Makes more sense. All right.

8   WhatsApp ████████████████████

9   A   Uh-huh. Yeah. This ██████ that one that we

10   previously talked about with respect to WhatsApp

11   deletion, the way that deletions happen with

12   WhatsApp, this is that entire framework of the

13   component parts. So █████ would fit --

14   Q   Yeah. But --

15   A   -- into this.

16   Q   But that's behind WhatsApp. So a

17   third-party app. Facebook's not making that

18   accessible to anybody?

19   A   That's correct. That's correct.

20   Q   Okay. ████████████ It says it's limited to

21   different groups at Facebook.

22   I just want to make sure there's no other

23   groups that have access to that.

24   A   Yeah. I'm not -- I don't have enough

25   knowledge of it to say.

1   Q   On its face, at least it seems to be.

2   A   Yeah.

3   Q   Okay.   ███

4   A   Uh-huh.

5   Q   So I get what it is.

6   My question is, does Facebook make this --

7   it's, again, a very broad description.

8   Who has access to this self-service

9   relational database?

10   A   Somewhat to the previous statement and the

11   way you phrased it, this is applications product

12   developed with provision, a MySQL database through

13   this ███ service, and there would be an application

14   running on top of, you know, using tables that are

15   in an ███ instance. How that application manages

16   that data is not known at this layer.

17   Q   So my question is, for a user -- so the

18   user data, when they sent this back to you, how did

19   you figure out what was running on ███ to actually

20   do something with it?

21   Because I can't imagine you query the

22   entire ███ platform or the ████████ platform and

23   say delete this one user's data across 20, you know,

24   however many exobytes or whatever you have of data.

25   A   Yeah. So the way it works with ███ it's

1 self-service. So if I was an application developer

2 and I wanted to store, you know, using relational

3 database, I would go and I'd say I want to set up a

4 table or like, you know, provision some tables for

5 me, and it would be through that ████████████████

   ███ .

7 In which case then, okay, ███████████████████

   ██████████████████████ Like how will those be -- meet

9 the requirements of the user data deletion policy?

10   Q   Then my question is, how many

11 applications --

12   So but how, then, would they delete the

13 user data off ████ today? You can't. It would have

14 to be by application, no?

15   A   So the -- the -- one example would be where

16 the application only needs that data for, you know,

17 a short amount of time or some determined amount of

18 time. Let's say five days. And so they can

19 configure that. Like ████ supports a setting that

20 says, you know, delete the data in five days or

21 delete these rows from this table after they're five

22 days old.

23   I don't know if that kind of speaks to the

24 question you're asking, but that would be, you know,

25 one case where through time to live you could --

1   Q   And you would assert --

2   A   -- delete.

3   Q   Facebook doesn't share access to █ to an

4 app developer or anyone else that's not a Facebook

5 employee?

6   A   Yeah. Yeah. No. And the way you phrased

7 that earlier is right. You would have to have some

8 kind of intermediary application interface to that

9 data.

10   Q   Right.

11   And does Facebook allow third-party app

12 developers access to the █ database, data

13 warehouse?

14   A   No.

15   Q   Because █ is a database, no?

16   A   Yeah. Basically you can -- you know, if

17 you want to run a MySQL database, it's kind of a

18 service that provisions those databases for you or

19 those instances of a MySQL database.

20   Q   All right.

21   A   So yeah.

22   Q   So █   It says "next generation."

23 Does that mean it hasn't been deployed or --

24   A   It is a -- from my experience with █

25 yeah, it was in early phase of adoption, which would

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 1    have been, I guess, a year or so ago and, as

 2    I recall, it was, you know, kind of the -- an

 3    improved version, kind of in the space of ████

 4    like when we talked about those libraries where you

 5    create pipelines.

 6         Q     And ████

 7         A     Yeah.  I'm not -- I'm not familiar with

 8    this other than ███ is for -- I think it stands for

 9    Wi-Fi, but I don't -- I don't actually have any more

10    knowledge of that system.

11         Q     But it's not a Facebook -- it's not -- by

12    using Facebook web, you know, social network, I'm

13    not using X, the Wi-Fi, am I?

14         A     Yeah.  Unfortunately, I don't know.

15         Q     ████ I get.

16         A     Yeah.

17         Q     And my only question is, is ████

18    accessible or available or shared with third

19    parties, the data instances from ████

20         A     I don't actually know in that space.

21         Q     But it does have user data, right --

22         A     It does.  It definitely --

23         Q     -- when it's aggregated?

24         A     Yeah.

25         Q     And that's where it aggregates inferences
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1 and everything, I guess?

2   A   So yeah. ███████ is one of those that we had

3 previously called in our efforts general purpose

4 data. So where it's kind of like ██████ if you want a

5 relational database, go to ████ If you want a key

6 value store, you go to ██████ and you go through a

7 form and it's really serving very many, many

8 applications. Probably thousands of different

9 products and services are running on top of ███████

10 and using it. Again, it's just a very easy kind of

11 self-serve key value store technology.

12   Q   So then user data that's stored in ███████

13 would be -- whether it's accessible or shared with

14 third parties would be defined by the app that's

15 sitting on top of it?

16   A   So this is where it gets outside of my

17 expertise and access to the social graph and because

18 this would be. You know, some portion of this would

19 be.

20   Q   Well --

21   A   Yeah.

22   Q   Yeah. Some of it would power the social

23 graph.

24   The other question is, is there other

25 things? So the social graph provides all the data

1   and that's the DYI tool. If I spin up another

2   database instance on ████ and make it accessible

3   to -- this doesn't feed into the social graph, but

4   does it have the ability to make it accessible to

5   third parties or share the data that's stored in

6   that instance of the -- you know, the database that

7   you build that doesn't feed the social graph, but

8   sits outside of the social graph?

9   A   Right. No. It would not be.

10   Like maybe restating, I'll state it like

11   what I understand.

12   If you set up an instance, you get a

13   provision some portion of ████ and external,

14   outside of Meta's infrastructure, would not be able

15   to access the system to use ████ directly. There

16   would have to be an internal Meta -- Meta system

17   that provides an interface to that data that serves

18   ████

19   Q   Yeah. So there would have to be a Meta API

20   that's not social graph that would give direct

21   access to that ████ dataset?

22   A   Right. Right.

23   Q   Yeah. Makes sense.

24   And who would have access to the API? Who

25   controls the APIs that grant access like that?

1   A   I'm not -- I don't actually know.

2   Q   I assume it's one of those code repository

3 data information. At some level, there has to be

4 some -- a security has to track the API access

5 that's granted. Okay.

6   A   Yeah. I think that's a fair assumption,

7 but I don't know.

8   Q   Well, they wouldn't let -- I mean, I hope

9 so.

10   A   Yeah.

11   Q   ███████ and ███████ that's internal

12 training for the Instagram machine learning or is

13 that available to third parties?

14   A   I'm not familiar with that system to be

15 able to say.

16   Q   Okay. I thought it was alphabetical, but I

17 was unduly excited.

18   █████████ This is Instagram. Again,

19 is this -- do you know, like, how this system works

20 and if Facebook makes the data in it accessible?

21   A   No. I'm not familiar with ███████

22   Q   But it's just Instagram data; right?

23   A   That is my understanding from the

24 description.

25   Q   And then ██████

1   A   Embedding indexing system. Yeah. I

2 don't -- I don't know anything about this system.

3   Q   ████████████████████████████████ .

4   A   That's a mouthful, but --

5   Q   I didn't know what a privacy-wave task was

6 and what a user was.

7   A   Yeah. So, yeah, I can clarify those.

8   So privacy-wave is a privacy-wave task.

9 Privacy-wave is a framework program that essentially

10 federates work across the company. So this is

11 where, for example, ████ when they want to find out,

12 you know, who -- you know, if they want to reach all

13 of the applications and products teams that are

14 using, they would file those through these waves.

15 And so it's like kind of a central tooling that you

16 can get, you know, thousands of tasks, and tasks are

17 internal ticketing system, you can get thousands of

18 these tickets centrally managed and then track the

19 progress. Because it's so highly distributed across

20 the company, you know, you have hundreds of teams

21 potentially and thousands of employees that have to

22 take some action. So that's kind of privacy-wave.

23   And then the user verification/mediation,

24 that would be referring to the task owner. So a

25 Meta employee.

1   Q   Okay. Good. That's all I need to know.

2   All right. Then public street-level

3   imagery and map data platform. I wasn't sure how

4   user data is involved in that and if third parties

5   can access the mapping system.

6   A   Yeah. I'm not -- I'm not familiar with

7   that system at all.

8   Q   All right. A few more.

9   A   Homestretch.

10   Q   ████████

11   A   Yeah.

12   Q   I assume that's internal customer support?

13   A   So that is internal customer support.

14 However, I don't know if they have any kind of

15 relationships that would provide, you know, external

16 access.

17   Q   That's fine.

18   ██████ what's that stand for?

19   A   I think it's the ████████████

20 ██████████ similar to ██████████. It's just a way

21 of rolling up binaries.

22   Q   And when it says it's owned by

23 Core Systems, what's Core Systems?

24   A   That's a division of the company or

25 organization within the company.

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1   MR. GARRIE: Okay. All right. So that was

2 all of them. I will review the transcript rather

3 than making you stay on as we go through it all.

4   I thought about it for a minute and what I

5 was hoping, Mr. Pope, if you could go to a separate

6 room for a minute or two and I can just speak with

7 counsel, and then we'll bring you right back in. I

8 just think that may -- if that's okay. Obviously if

9 counsel from Facebook wants to go with Mr. Pope or

10 stay, feel free. But I just want to talk to the

11 lawyers directly.

12   You did excellent, Mr. Pope. This was

13 extremely helpful in understanding and I really do

14 appreciate you taking the time.

15   THE WITNESS: I'm glad I was able to help

16 you.

17   MR. GARRIE: If you could jump into that

18 other room before. I just want to talk to the

19 lawyers about potentially additional questions or

20 other things; but rather than you hearing them, I'd

21 rather just understand what may be sought.

22   THE WITNESS: Okay. I'm leaving now.

23 Thank you. I'll be in the other room.

24   MR. GARRIE: And, Counsel Chen, or anybody

25 from Facebook, feel free to stay or join.

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1   So, Counsel, you can turn your video back

2   on.

3   So thank you. Counsel or Martie, thank

4   you. It was actually extremely, very helpful for

5   me, at least, to get my way through all of it.

6   I will open this with a lot of -- well,

7   plaintiffs, if there are any other particular

8   follow-up questions that you think may be

9   appropriate, I'm willing to hear them. I'm not,

10   per se, willing to ask them, but I'm certainly

11   willing to listen.

12   MS. WEAVER: Right. I mean, we're very

13   appreciative of Mr. Pope's time and understand the

14   limits of his knowledge.

15   I think in terms of framing for us,

16   recognizing that not all data is actually

17   maintained, but there are some records, that is,

18   there were facilities that collect and made data

19   available, but those facilities probably are not on

20   the data source list.

21   And so we think the kinds of questions are,

22   you know, do these sources have either information,

23   what is it, is the information in those sources used

24   in any products that have been made available to

25   third parties?

1   So some of these questions about is this

2 data available. Like we know, for example, that

3 ██

████████████████████████████████████

████████████

6   So the simple question of is there data

7 sitting here in this source and does this source

8 make it available will miss some obvious

9 opportunities to learn about what is made available.

10   MR. GARRIE: For Mr. Pope?

11   MS. WEAVER: Yeah. We don't know what

12 Mr. Pope --

13   MR. GARRIE: Well, Mr. Pope stated up front

14 that he's not the person with the answer to that

15 question; right?

16   He said that he asked the simple binary

17 question, true or false. And data, user data in

18 this system, like ██ or some of these ████████

████████████████████, I'm assuming of data and

20 they have applications that, like you said, you can

21 ██

████████████, but, as he repeatedly stated, he

23 doesn't have that knowledge. So it wouldn't be

24 appropriate to ask him if it is appropriate or not

25 or so on and so forth.

1   I understand your point and we can talk

2 about that in a minute, but I do want to let

3 Mr. Pope go before we go down into that part of the

4 conversation since I did have a chance to read the

5 court's transcript on this.

6   So, counsel for Facebook, are there any

7 questions you'd like to ask Mr. Pope as a follow-up

8 that I may have forgot to ask? I can't imagine

9 there is, but maybe.

10   MS. CLARK: No. I don't think there are

11 any other questions that need to be asked.

12   I will just state for the record that we

13 request the transcript as marked highly

14 confidential, attorneys' eyes only, because there

15 was a lot of very confidential information.

16   MR. GARRIE: Yeah. So noted. And I'll

17 leave that for the court to work out if the parties

18 want to challenge any designations and so on and so

19 forth.

20   MS. WEAVER: We understand that and we

21 appreciate what has been shared today, and we'll

22 honor the designation.

23   MR. GARRIE: Okay. So I found it extremely

24 helpful.

25   But first, why don't we let Mr. Pope go,

1 and then we can resume the second part of the

2 conversation. Since I have everybody here, maybe I

3 can streamline some of that as well now that I've

4 read the court's transcript.

5   So can we bring Mr. Pope back in? Maybe

6 counsel wants to go and tell him I'm going to bring

7 him back in. I'm sure he loves lawyers. I just

8 don't know how much exposure he has to counsel.

9   MS. CLARK: I'll go in.

10   MS. WEAVER: I'm not sure anyone does,

11 but...

12   MR. GARRIE: Mr. Pope, I wanted to thank

13 you and let you go enjoy your Friday and your long

14 weekend, and thank you very much.

15   I may follow up with some additional

16 questions for particular systems ████████████

   ██.

18 I, frankly, have to read the transcript to process

19 everything because we did cover a lot of data. But

20 I do really appreciate and am grateful for you

21 making the time, and it was extremely informative

22 and helpful.

23   So have a good rest of your weekend and

24 enjoy.

25   THE WITNESS: All right. Well, thank you.

                                          Page 121

1 Thank you. It was my pleasure, and you're welcome.

2 Have a great weekend.

3   MR. GARRIE: You, too.

4   THE WITNESS: Okay.

5   MR. GARRIE: Thank you.

6   Okay. So I read the judge's transcript and

7 I did read the orders. I got lucky that my other

8 hearing this morning ended two and a half hours

9 early. I'm not nearly as lucky now.

10   The question I have after reading it and,

11 Counsel Weaver, to your point, so let me reiterate.

12 The whole purpose here is to determine a very narrow

13 issue, right, of determining the nine -- and I'll

14 read what she said; right? Page 29 of the

15 transcript says, "Facebook's portion is the only

16 named plaintiffs. We're only talking about the

17 named nine now, nine named plaintiffs, which is

18 fair. That the only data that is discoverable is

19 that which Facebook intends is shared or made

20 accessible; and if Facebook says it was not shared

21 or made accessible, that is the end of the matter."

22   MS. WEAVER: But her order says this;

23 right? "Apart from the court not having limited

24 discovery of each named plaintiff's data to only

25 data Facebook concedes it shared with third parties,

1 the court finds that such a limitation is not

2 appropriate. As the court previously noted, how

3 Facebook uses the data it collects about its users

4 is an open question. The first step in answering

5 that question is to identify the data it collects

6 about its users and specifically what it has

7 collected about the named plaintiffs."

8   So asking Facebook --

9   MR. GARRIE: I was just about to read that

10 part as well, but thank you for reading it into the

11 record.

12   MS. WEAVER: Good.

13   MR. GARRIE: So looking at her order and

14 the additional clarity she did provide, from the

15 systems we just heard about, I think I -- I'm going

16 to read the transcript -- maybe 15, maybe 10, maybe

17 less. I think of them all, there's probably three

18 or four where that conversation, you know, Facebook

19 may need to go back and give further clarification

20 or answers. I could be wrong. I have to actually

21 read it. We did cover 149 systems. So I'm going to

22 reserve rights.

23   But I do think that understanding

24 particularly the ones around -- well, the ones he

25 couldn't answer, like around the ad networks, around

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1   the very large data warehouses where he was -- and

2   the concern -- and this is all hypothetical. I'll

3   just be very clear here.

4   It sounds like Facebook has the ability to

5   answer the questions. I want to do this in an

6   iterative, reasonable fashion where it's focused but

7   reasonable, and resolves how the judge framed the

8   issue.

9   So the first step, from where I'm sitting,

10   is to go from 149 to a whole lot less; and then from

11   the whole lot less, get further clarification from

12   Facebook about what those systems actually do

13   because it sounds like to me some of these systems

14   are massive data warehouses that have lots of

15   databases or tables, of which there are

16   applications, that basically they build an

17   application and then they access the table, right,

18   and they provision that access.

19   The question is, to get access to that,

20   right, Facebook probably, the security team, has

21   some way of tracking who's coming inbound to

22   Facebook to get data queries for those particular

23   systems that have user data. At least that's what

24   I'm thinking. I could be completely wrong here, but

25   I'm trying to come up with a simple way that --

1   because Facebook already has to secure and track and

2   monitor to make sure there's not unauthorized access

3   to user data. So there has to be some sort of form

4   or function of logging the record keeping that's

5   kept somewhere about what data is going inbound or

6   outbound, but only for the narrow subset of systems

7   as the judge has narrowed and clarified.

8   MS. CLARK: Mr. Garrie, you know, we want

9   to do everything we can to help you with all this

10   list, obviously; and if there are specific sources

11   that you have questions about, we will do our best

12   to get back to you on those questions as quickly as

13   we can.

14   What I understand Mr. Pope to be saying is,

15   you know, how quickly a question could be answered

16   would depend on the question itself. Some are a bit

17   more complicated. Some are easier. Some of them

18   his point of contact might be able to answer. Some

19   of them his client contact might need to go to

20   various other people to answer.

21   So I think we'll just need to understand

22   what the information is you're looking for and for

23   which source, and from there we can gauge what work

24   would go into answering the questions.

25   MR. GARRIE: Yeah. And what I'm trying to

1   do is limit the work.

2   So the way I envision this is I'll identify

3   a subset of systems ████████████████

████ ████████████████████████.   According to

5   him, he'd be able to tell me what data could be --

6   ██████████████████████████████████████

██ ██████████████████████████, you know,

8   needs to be ████████████████ that he said

9   was ████████████.

10   ████████████████████████.   So my

11 goal is to narrow it to a subset of the 149, get the

12 ██████████████████████ after counsel's

13 reviewed them to make sure, then use that to better

14 understand what we're talking about.   Like the

15 systems he had no idea about, hopefully the

16 ██████████████████████ sufficient amount of

17 detail.

18   And then from there, if necessary, I'll

19 follow up with additional questions again using the

20 way the judge has defined what is in scope and what

21 is out of scope.

22   MS. CLARK: I just want to --

23   MS. MUMM: Can I clarify?

24   Yeah. Certainly we will follow up with

25 whatever questions you have and do our best to

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1   answer them, but it is not our understanding that

2   ██████████████████████████████████████

3   It's just a yes-or-no question as to whether it may

4   ██

5   of the definition of user data.

6   █████████████████████████████████

██   ██

██   ████████████████   And then the next level is --

9   MR. GARRIE: Well, I think he said that

10   they also identified. I thought that was the

11   ██████████████████████████████████

██   ███████████ .

13   That's why I want to see the ██████████

14   I couldn't -- I wasn't exactly sure. I'm trying to

15   make this as seamless as possible based on what

16   you've already done because it sounds like to me ██

██   ██

██   ██

██   ██

██   █████████████████████████

21   MS. MUMM: Our understanding is that the

22   information he has does not relate to what ███████████

23   in the sense that you and I would talk about it,

24   but, rather, how that ████████████████████████

██   ██████████████████████████████████ ; right?

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1   The focus is very much on accomplishing that end,

2   but then -- but again, you know, I think to the

3   extent you want to narrow the data, we can work with

4   Mr. Pope and identify what he has. We just don't

5   want -- we don't want to, you know, set expectations

6   that are not in line with what we understand the

7   ██████████████████████████.

8   MS. CLARK: My understanding of the --

9   MR. GARRIE: Yeah.

10   MS. CLARK: -- process.

11   MR. GARRIE: ████████████████████████

██   ████████████████████████ All I'm trying to

13   do is avoid having to talk to a hundred -- like,

14   I'm already convinced I don't have to talk to more

15   than like 15 or 18 people, but what I'd like to do

16   is talk to two or three or follow up with just a

17   handful of people rather than have an extensive

18   back-and-forth attempt at spreadsheets again.

19   I'd rather just see what's been done

20   because what I'm not trying to do is make Facebook

21   go and do a bunch more work to just answer my

22   question about what -- to answer the judge's

23   question, frankly, which is pretty salient, which is

24   what -- and I just need to think about -- I got to

25   review the transcript, see again what the judge

1 ordered, and then ultimately narrow it down to a

2 subset of systems for them either to request

3 Facebook to provide that information about it

4 because the judge is pretty -- the order is now much

5 clearer from what it was; right? There's no --

6 she's removed a lot of the ambiguity there, and then

7 get that information, and that's how I think I'd

8 like to proceed.

9   If I can get a rough of the transcript. I

10 don't need a final rush. A rough is more than

11 enough just to look at it, to go through it. And

12 then I will likely issue -- we have a status

13 hearing. So maybe I'll do it there or I'll issue a

14 supplemental order. Hopefully we can just do it at

15 the status hearing accordingly to move it forward

16 to just get that done based on the judge's

17 direction.

18   I do like the idea of a status hearing. I

19 do like that.

20   MS. CLARK: Thank you. And we appreciate

21 your scheduling that.

22   MR. GARRIE: Counsel Weaver?

23   MS. WEAVER: Thank you. I apologize.

24   We, plaintiffs, would like the opportunity

25 to review the transcript ourselves and have our

1   experts review it before you issue a final ruling;

2   and if you could build in a procedure for that, we'd

3   be grateful.

4   We haven't had an opportunity to weigh in

5   yet on any of the declarations that have been

6   submitted or any assertions that are being made by

7   Mr. Pope or there are other folks who put in

8   declarations as well.

9   So we would request an opportunity to, at

10   least, weigh in on these data sources and what we

11   think they reveal before you issue a final ruling.

12   MR. GARRIE: Okay. So noted for the

13   record.

14   MS. MUMM: And just to clarify, I don't

15   have the protective order in front of me, but I

16   think that there's some limitation on the ability of

17   experts who are being disclosed at this time, but I

18   don't have it in front of me.

19   MR. GARRIE: Wait. Wait. Time-out.

20   Time-out.

21   I don't want -- I assume everybody's

22   experts are following all the rules that the parties

23   have set forth and required and defined as; and if

24   there is any indication that hasn't been the case,

25   feel free to raise the issue separately.

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1   I will take your issue, Counsel Weaver,

2   under advisement and think about it. I just want to

3   read the rough transcript, read her order again,

4   read the transcript again, and then come up with a

5   game plan and roadmap that's actually feasible

6   because she issued three or four -- four orders.

7   So I'm trying to do all of that and move it all

8   along.

9   So that's kind of where my headspace is.

10 I'm not opposed to hearing from your experts or

11 having them weigh in. I just want to make it in a

12 methodical way so you don't have to do it more than

13 once and Facebook doesn't have to respond more than

14 once. I'd rather get forward until that point.

15   And then rather than issuing a formal

16 order, can you ask Mr. Pope for ██████████

██ ████████████████████████████ that he sent

18 out and just circulate it?

19   MS. CLARK: My understanding, and Ms. Mumm

20 can chime in a little more here, is that there is

21 ██

██ ████████████████████

23   MS. MUMM: Right. That's what he said

24 during his questioning and that was our

25 understanding.

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1   So if you can specify the systems you're

2   interested in, ███████████████████████████████

███   ███████ .

4   MR. GARRIE: Okay. And what about just

5   what user -- I mean, he had to use the same

6   definition of user data.

7   MS. MUMM: We can follow up with that. I

8   think that that might be --

9   MS. WEAVER: One --

10   MR. GARRIE: Because if it turns out --

11   MS. WEAVER: Go ahead.

12   MR. GARRIE: Go ahead, Counsel Weaver.

13   MS. WEAVER: One question that we on the

14 plaintiffs' side had is the timing for these data

15 sources. It sounded as though the testimony that

16 came in today, that this list was prepared maybe a

17 year ago and we don't know its scope. Certainly

18 our class period began in 2007. I don't know if

19 this is what was prepared and if it was a year ago,

20 whenever it was, but it is a question to be

21 answered.

22   Are there other data sources that are not

23 active that might contain older data for some of the

24 plaintiffs? I just don't know because this was not

25 collected for this case. It was collected for

1 another purpose.

2   MR. GARRIE: No. I agree. It's noted for

3 the record.

4   Counsel Mumm, did you want to respond?

5   MS. MUMM: Yeah. I'll just note for the

6 record that our ESI protocol indicates that we're

7 not required to collect or produce some off-line

8 statements questions.

9   MR. GARRIE: Noted for the record and not

10 lost on the special master.

11   The other question I had is I got your

12 post, Counsel Kutscher Clark, and I just want to

13 make sure. The ████████████████████████████,

14 you're going to start producing the report; right?

15 I just -- your counsel, Alex. I forget his last

16 name. Counsel Alex is in the process of reviewing a

17 report for privilege, but there will be a rolling

18 production starting when exactly? I didn't see a

19 date.

20   MS. CLARK: I'm sorry. I misunderstood.

21 You were referring to Alex Cadwell.

22   We're working on it currently and we expect

23 we will start the production next week. We're in

24 the process to get them collected and into the

25 database, but that is all underway and the wheels

1   are in motion and they should start going out the

2   door next week.

3   MR. GARRIE: Okay. And I have no problem

4   with the reconsideration. That's fine. I will

5   respond to plaintiffs' request to be heard on their

6   motion for reconsideration.

7   Any other issues plaintiffs or Facebook

8   want to raise? And I declare an impasse. Well,

9   spoke to Judge Andler and we moved that along as

10 well. I posted that, I believe, yesterday or this

11 morning or I emailed at some point the impasse on

12 those two issues.

13   So, I guess, Plaintiffs, anything you'd

14 like to cover since I have everybody here?

15   MS. WEAVER: I think that's it. Just to be

16 clear, it's not so much responding to the motion for

17 reconsideration as to have an opportunity to weigh

18 in on the collection of data sources and in light of

19 Judge Corley's order what's within the scope of

20 discovery.

21   MR. GARRIE: Yeah. I fully -- yeah. I

22 understand.

23   MS. WEAVER: All right.

24   MR. GARRIE: Counsel for Facebook?

25   MS. CLARK: I think we are all set. Thank

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1   you.

2   MR. GARRIE: All right. We'll go off the

3   record.

4   * * *

5   (Whereupon, the hearing ended at 3:21 p.m. PST)

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1   CERTIFICATION OF COURT REPORTER

2   FEDERAL JURAT

3

4   I, the undersigned, a Certified Shorthand

5   Reporter of the State of California do hereby

6   certify:

7   That the foregoing proceedings were taken

8   before me at the time and place herein set forth;

9   that any witnesses in the foregoing proceedings,

10   prior to testifying, were placed under oath; that a

11   verbatim record of the proceedings was made by me

12   using machine shorthand which was thereafter

13   transcribed under my direction; further, that the

14   foregoing is an accurate transcription thereof. I

15   further certify that I am neither financially

16   interested in the action nor a relative or employee

17   of any attorney of any of the parties.

18   IN WITNESS WHEREOF, I have this date

19   subscribed my name: Date: January 25, 2022.

20

21

22

23

24   Michelle Milan Fulmer

25   CSR 6942, RPR, CRR, CRC

[& - additional]

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  19:10,11,22,25
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  23:17,19 24:2,15
  24:22 25:16,23
  26:10 27:18 28:7
  29:13 31:4,11,13
  31:15 32:20 33:3
  33:15 34:5,5,5,8
  34:10,15 35:9
  36:6 37:3,6 38:6,6
  38:12,18,22 39:15
  39:23 40:3,20
  41:5,10,20,22
  42:18,19,24,25
  43:5,12,21,25
  44:17 45:11,14,21
  46:13,18,23 47:1
  47:22,22 48:23
  49:4 50:5,17,25
  52:4,4,20 53:12,21
  54:19 55:2,12,14
  55:25 56:16,18
  57:3,9,12,12,15,19
  58:2,17,20 59:6,21
  60:1 61:20 62:15
  62:21 63:9,17,19
  64:15 65:16 66:8
  66:23 67:15 68:5
  68:21,21 69:2
  70:2,10,14 73:2,3
  73:3,15,15,20 74:2
  74:3,12,14 75:13

75:19,23 76:3,21
77:1,9,19 78:10
79:9,14 80:25
81:22 83:2,5,13
84:2,2,21 85:5,10
85:13,22 86:1,8,13
86:19 87:5,13,24
88:15,15 89:7,7,12
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91:15,21 92:1,11
92:13,20,25 93:3
94:8,15,17,20 95:5
95:10,12,21 96:9
96:17,22 97:10,11
97:15,20,22 98:13
98:15,25 99:2,3,11
99:21 100:10,14
100:16 101:1,8,12
101:18,20,20,25
102:4,5,6,9 103:2
103:9,11,14,19
104:14,23 105:2
105:12,16,22
106:5,10,15,22
107:5,6,9,14,24
108:2,25 110:6,6
110:16,21,25
111:7,14,16,24
112:2,21,22
113:19,23 114:6
114:10 115:1,7,7
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Exhibit J

GIBSON DUNN

January 6, 2022

VIA JAMS ACCESS

Re: *In re Facebook, Inc. Consumer Privacy User Profile Litigation*, 3:18-md-02843

Dear Special Master Garrie:

Pursuant to the Special Master's Amended Order re: Plaintiffs' Motion to Compel Production of Plaintiff Data, Facebook has enclosed a document containing descriptions of the 149 data systems identified in the Declaration of David Pope as storing or interacting with user data. Consistent with the Special Master's Orders and statements on the record, the descriptions Facebook is providing consist of existing materials prepared by Mr. Pope's team in the course of its work, which was unrelated to this or any litigation.

Facebook has not identified additional existing, readily accessible materials identifying (1) "a description of the types of Named Plaintiff data contained" in each data system; or (2) the "most common functions and purpose" of each data system or "the business units, divisions, or groups" that use the systems. Where Facebook has not been able to provide additional data, Facebook has provided an explanation as to "why this information is not readily accessible," as required by the Order.

Facebook is providing this information pursuant and subject to the terms of the Protective Order that was negotiated by the parties and entered by the Court in this action and has marked this submission Highly Confidential – Attorneys' Eyes Only. These confidential materials are being submitted pursuant to the Special Master's Order for use only in connection with the parties' dispute as to the production of data relating to the Named Plaintiffs, and without prejudice to Facebook's rights and privileges.

The Special Master has also ordered Facebook to make Mr. Pope available ex parte on or before January 14, 2022. Mr. Pope is available from noon PT to 1 pm PT on January 14, 2022.

Respectfully submitted,

/s/ Laura C. Mumm

Laura C. Mumm

GIBSON DUNN

cc: Lesley E. Weaver

       Derek W. Loeser

Enclosure

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
Files with salted and hashed Facebook users' PII are stored in this data store. The data store is used by ▮▮▮▮▮	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
This is used in the delivery flow for targeting, ranking features, and as information for front-end to display. The social system is not, however, a general purpose system like ▮▮▮ -- it is only for ads. Thus, all objects returned are being actively targeted by an ad.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
▮▮▮ is a real-time service that performs a join between different event streams and features. ▮▮▮ is the core of the training data preparation flow. It is a realtime joiner of ads events to prepare training data for ads ranking models. The ads events include features, impressions, clicks, conversions, and (mainly) negative-feedback events.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
(MySQL)	It is the backbone for the Core Ads system not only just Ads buying but also other critical consumers of the ▮▮▮ etc. ▮▮▮	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮
	▮▮▮ is a set of components that together form the platform storage layer in▮ system to provide distributed file system storage. As a common platform layer, this is used by multiple teams across Ads org for various business applications for data storage needs.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮
Akkio	Akkio Locality is used to improve latencies and reduce replicas for usecases across different datastores. We do this by tracking which regions each ushard is being accessed from and limit the replicas for each ushard to three (or some configurable) number of regions.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮
▮▮▮	Serves ad-side and user-side features for AdFinder, AdPublisher, Prospector, FBShops	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮ The internal metadata is in MySql and follows general MySql backup flow.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is Facebook's end-to-end distributed tracing system that provides observability into the execution of requests. We support traces across systems (web, mobile, and services) and provide a general purpose platform for near-real time analysis.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ provides a ▮ These can be facts implicitly learned from other places in Facebook - user profile, Messenger chats, etc, or explicitly provided by the user to the ▮ as part of a dialog.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is not really a data store per se, it is a platform that allows users to schedule jobs, mostly from code, to be executed outside of the path of a request, thus asynchronously.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
Storing application data for the ▮ app (which is a zero to one ▮ app that provides a social rapping experience)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
To identify the user, provide scores/leaderboard, connect players to other players, and provide analytics data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a snapshot and shadow testing framework used for functional, correctness and performance testing of Spark, Hive and Presto.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
It is used to query and analyze internal data, produce visuals of analyses and share them with others.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
BigBox VR (M&A)	A system that provides game player and play data support.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
▇	▇ is the service which manages the persistent storage of messages for Facebook Messenger. It is the successor of ▇ and was created in order to migrate from ▇ reliance on HBase as the backing store to MySQL with the ▇ storage engine.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
▇	▇ is the project to use the Presto engine as the backend for Atlas Reporting. ▇	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
▇	▇ is a team within ▇ dedicated to the performance and delivery of media content of all Facebook products such as Facebook, Instagram, WhatsApp, Oculus and more.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations ▇ ▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
███ is a distributed scheduler for cron-like jobs (aka bash commands)		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ███ ███, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███
███ is an inventory estimation used to estimate the number of users that can be reached given one or more targeting criteria. It is mainly used by advertisers trying to target their ads to the right audience.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███
Serves Facebook use cases for user - entity features and scores		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ███ ███, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data ███
Powers the ███ application. ███ s a standalone app for creating music video content collaboratively. The data stored in our system is mostly user data (e.g. posts, comments, etc).		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███

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Provide tools and storage to author, test, and distribute configuration data		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
Provide automated testing of FB developed hardware		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
▇ is used to store contributors and contains data keyed off of the ▇) that allows for real-time attribution.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
▇ is a digital asset management (DAM) tool, sometimes just referred to as a DAM. Properly speaking a DAM is a digital tool for asset management		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇

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▮ provides efficient disk-based sort-merge for warehouse queries at FB scale.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is an in-memory realtime analytics database that enables users to execute sub-second moderately complex SQL queries on tables up to ▮	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data ▮ .
▮ is a fault tolerant scalable workflow solution, designed to let people specify a series of steps to be followed and then ensuring the steps lead to an expected conclusion.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is an interactive tool for querying multiple data sources at Facebook	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

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▆ s the backend platform that Ads Products use to build "Audience Segments".		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▆ ▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆ ▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆
tier 0 backups needed to recover critical infra & network		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▆ ▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆ ▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆
Dataswarm (Gluster FS)	Dataswarm is a data pipeline platform. A data pipeline is a set of data processing operations, where the output of one operation is the input of the next one.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▆ ▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆ ▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆
WhatsApp's Deletion Service		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▆ ▆ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆ ▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆

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The ▮▮▮▮▮ is an abstraction in our www codebase for reliably deleting data graphs from online data stores and being able to recover efficiently from errant deletions if they're discovered quickly enough. It's our main system used to satisfy our User Data Deletion Policy for data stores which support point deletes.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
Generate signals from ad delivery that can be used to provide advertiser guidance	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
It is a Core Systems infra service which allows other infra/product teams build dependencies between FOQS queue items.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
▮▮▮ is a mySQL database that runs on a developers devserver.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮

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	The DevOps Investigations team tackles various data-abuse related escalations and instances, ranging from ▮▮▮▮ ▮▮▮▮▮ from the FB platform	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
	▮▮▮) is a compute engine for large-scale graph analytics.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
Downpour Interactive (M&A)	User accounts game player data for Onward from Downpour	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮
	▮▮▮ is a simple, reliable, low dependency object storage system, with only four high-level operations: put, get, delete, and list.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
████ (Novi)	████████ (Novi) is a fast scalable eventually consistent point-in-time structured storage for Novi / F2 risk and compliance assessments	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ████ ████████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██████████ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████ ████████
████	The ████████████████ Team is focused on delivering scalable storage solutions to support the applications and virtualization environment that run the internal business at Facebook.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ████ ████████, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██████████ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████ ████████
████	Index database focused on low latency search. Primarily an open source project being supported at Facebook.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ████ ████████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██████████ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████ ████████
████	████████ provides durable, DR compliant, and highly available online storage. We aim to provide solutions to some of the hardest distributed storage problems in the industry at scale.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ████ ████████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human readable form.

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F3	The Facebook Feature Framework (F3) is Facebook's next generation feature engineering platform.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ ▇▇▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ ▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇
▇▇▇ (MySQL)	Iris (aka Generic Iris) is a persistent queue service that guarantees in-order delivery to either devices or backend services.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ ▇▇▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ ▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇
▇▇▇	▇▇▇ is a top-level directory of the ▇▇▇ where our backend services code lives. It is a federation of projects, written in a number of languages.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ ▇▇▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ ▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇
FBLearner / AI Infra (▇▇▇)	Enables all Facebook engineers to build AI applications and perform AI researches by providing scalable, reliable, efficient, easy-to-use and compliant AI services that power all parts of AI workflow, from feature engineering, to training, to inferencing, during both experimentation and model productionization.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ ▇▇▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ ▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇

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▮ is a system built to ▮▮▮▮▮▮ over MQTT as transport. ▮▮▮	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
▮ is Facebook's scalable binary distribution system.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
FOQS	FOQS powers the ▮▮▮ Tier for job processing. It provides a number of features important to that use case including prioritization of items, a lease expiry for items in the queue, and explicit timing for when an item in the queue is ready for processing.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
	Keeping the ▮▮ app ▮▮ running (https://apps.apple.com/us/app/id1509378877)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮ ▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮

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▇▇▇ is an eventually consistent key-value data store fully implemented in Erlang and designed to run within WA infrastructure. It can run embedded within the backend itself or as a remote tier managed by ▇▇▇ team.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▇▇▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇
▇▇▇ provides tooling to support external research initiatives. ▇▇▇ tooling primarily consists of a customized JupyterHub deployment that provides restricted access to ▇▇▇ datasets.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▇▇▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇
For teams to track goals information (objectives, outcomes, metrics for how to measure success)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▇▇▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇▇▇ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇▇▇.
Hive	"Hive" refers to several separate systems at Facebook: Hive Tables: Also called Data Warehouse, Hive Query Engine (also called Corona): An engine that executes queries written in FB-HiveQL, and Hive Query Language (HiveQL): A query language data analysis.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▇▇▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	As Facebook has disclosed previously, Hive stores millions of data sets that it uses for internal analytics, product development, and other business functions. As discussed in detail in the Declaration of Mengge Ji, ▇▇▇

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▮ is a data store used to store offline data for analysis	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
Storing user data to deliver a live streaming Q&A type of experience for a stand alone product.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮ .
A general purpose key-value storage solution that can handle high write traffic and store huge data in a highly efficient way.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a resilient plain-text chat protocol widely used by our engineering teams.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

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▮	▮ is an end-to-end solution for location-anchored content discovery for World AR. At the core is Geo Indexing, a component for retrieving content based on lat/long positions and 2D polygons.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
Laser	Laser is a service that indexes data in Hive and ▮ to provide high throughput, low latency lookup. Use this for indexing warehouse data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ (MySQL)	▮ is a hostname-scheme that exists to run Logtailer Servers. ▮ are designed to be spread thinly across racks to allow that Logtailers can always be allocated in the different racks as the MySQL instances they are tailing from.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ (MySQL)	▮ is a hostname-scheme that exists to run Logtailer Servers▮ is a system within this framework. ▮ are designed to be spread thinly across racks to allow that Logtailers can always be allocated in the different racks as the MySQL instances they are tailing from.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮ ▮.

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
███ is a fast in-memory storage of all our action/object ranking data. ███ stores action metadata, keyed on actor ID.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███ .
███ is an in-memory cache for actions and objects. More accurately, it is a meta-data cache since it doesn't actually store any physical objects such as photos or posts.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███ .
Reviewing Content that Governments think should get taken down form FB or IG		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███ .
Live streaming Infra.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███ ███ .

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮▮▮▮ Deliver live video to viewers		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮ an ongoing moving target, given that the data in many of these data systems is not static.
Transcode live video with high quality efficiently, reliably, and low latency.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮
▮▮▮ Provide a cache for resources available internally at facebook		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮
▮▮▮ is a new experience to enable reliable realtime storage and efficient search and retrieval for unstructured logging data generated by all applications across Facebook.		As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮ ▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮▮▮ is a distributed data store for sequential data. It offers high durability and availability under a variety of workloads and failure scenarios.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope ▮▮▮▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
▮▮▮▮ abstracts away the complexities of using dictionary-based compression. It does all the required state management internally (sampling, training, benchmarking, distributing, versioning, garbage collecting, etc.), exposing the same, simple, stateless interface you expect to see from a compression algorithm.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮
▮▮▮ is a managed horizontally scalable BLOB storage service accessible via Thrift and HTTP. It is analogous to Amazon S3.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user. and the best available compilation of the data about that user in the Social Graph, in a human readable form.
Memcache	Memcache refers to our implementation of memcached, along with its associated client libraries and APIs. Memcache was initially deployed as a distributed in-memory caching layer between the web tier and MySQL ▮▮	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮▮ ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
██ Managing metadata for Data Warehouse	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ ███████ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█████████ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████████
████ ██████ is the next-generation mercurial-compatible version control server (to scale our monorepo setup)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ ██████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█████████ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████████
████ A thrift service that composites audio and video streams and connects RTC infra with Live Infra.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ ███████ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█████████ ████ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████████
MySQL — The MySQL team works to keep all MySQL databases up and running 24x7. We also handle the lifecycle of database assets, and various services to support MySQL at scale.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ ██████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human readable form.

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▓ Small entrepreneurial teams building standalone app experiments.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▓ ▓ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▓ ▓ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▓
Novi ▓ Novi ▓ is a queueing system storing user data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▓ ▓ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▓ ▓ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▓
Oculus ▓ Logging for understanding user interactions on Explore, Store, and other Oculus surfaces	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▓ ▓, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▓ ▓ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▓
▓ Storing offline messages	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▓ ▓ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▓ ▓ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▓

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮	▮ allows you to focus on the problem of "storing/reading a few bytes" at a basic level. It provides the user writing the data with the flexibility to store the bytes on the storage systems of their choice, while solving the reader's "where do I get that data" problem.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮	▮ is a data storage and sync service, which supports periodic polling as well as real time updates to the Facebook family of apps. Today, it powers various product features such as Messenger Contacts, Messenger Stories, Mobile Config etc.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮	Used for Lift and allows for a real-time join between ▮ opportunities (as well as some impression and click data) to conversions.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ (MySQL)	▮ contains historical transaction data, primarily from the time frame of 2009-2014, that is generally unused.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮ (MySQL)	▮ teams are part of the Facebook Financial (F2) Org and power all ▮ across all products and family of apps.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮	▮ supporting ▮ users throughout the company.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ (Viewstate)	Cache for the newsfeed data	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮	Root cause analysis for metric movements (ex: Why did Facebook DAP go down between today and 7 days ago?)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
███ is a storage service ontop of ███ designed to store user side features.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
Power user presence (green dot) for Facebook, Instagram and Messenger users.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
███ is a a fully managed general purpose Stream Processing as a service solution (i.e. real-time data-processing).	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
It is used to load realtime data into our leaf machines	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
	Aggregation of call logs of different types by client session (i.e. one call connection) and call.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
	Stores user interaction with the feed(i.e. all the stories user has seen)	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data ▮
Ready at Dawn (M&A)	Ready at Dawn is a video game studio acquired by Facebook.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
	▮ is a data pipeline used for payment reconciliation	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮ provides network attached data volumes to compute nodes, allowing services to scale compute and storage needs independently.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
To store long-term research artifacts submitted by UX Researchers for easy discovery.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a persistent key-value store library which can be used by anyone to store data on disk.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮.
▮ is a research / experimentation to do self-supervised learning on copy of production data	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▇ is a distributed, buffered, named pipe that serves as the entry point to most of the data ingestion pipelines at Facebook.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
The ▇ UI is a tool for interactively querying and visualizing data without writing SQL.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
Blob Storage System for storing backups of other systems in secure environment	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇
a system to allow agents (humans and bots) to chat with customers	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▇ ▇ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▇ ▇ (the DYI tool) retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▇

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
	Performance and Efficiency regression A/B testing platform.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ █, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, █████
SFTP	SFTP is a service provided by the EPI team that allows Facebook to exchange data within the company and also with external vendors.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ █ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, █████
	█████ is a service that captures all incoming traffic on a MySQL instance and replays it on another test MySQL instance in real time.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ █, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, █████
	Run batch data processing jobs over msgdb	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook█ █ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—█ ████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, █████

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
(Novi)	We store user's balance and transactions for the Novi wallet.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████
	candidate generation for recommendation ranking system	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████
███	███ is an application developer review tool meant to investigate cases where app devs could be misusing user data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ████ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████
███	███ is a general purpose Stream Processing library (i.e. real-time data-processing).	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ████, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ████████ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ████████

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
Openstack ▮ is an object storage service being provided by th ▮ ▮ team. Currently it is aimed to be a low cost solution for archival workloads such as backups and data warehousing.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a distributed transactional storage system designed to give full composability across data structures, transactions, and storage encoding.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮ .
Tableau Server	Tableau is a business intelligence tool used to create charts, graphs, and other visualizations.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a special variant of now deprecated ▮ created as part of an effort to consolidate the non-replicated FQDB offering to core-data. SRS has two independent instances for feed tracking data and featuredb storage.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations— ▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
	▮ can be seen as real-time counter service. It keeps statistics about streams of events, such as counts, unique counts, quantiles (percentiles), mean, and top elements, and it allows dynamic time window queries in real-time.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data▮ ▮
	▮ is a real-time counter service for high volumes of data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
TAO	TAO is a high-performance service for storing, caching, and querying the graph of FBObjects and associations.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human readable form.
	Internal tool maintained by Global security to protect Facebook, executives and assets.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▆▆▆ is a backend system that persists all actions by users and pages and indexes them chronologically.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▆▆ ▆▆▆▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆▆▆▆▆ ▆▆▆▆▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆▆▆▆▆
▆▆▆ is a platform that leverages distributed tracing ▆▆▆ to collect service performance metrics and dependency context on a per-request basis across FB infrastructure.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▆▆ ▆▆▆▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆▆▆▆▆ ▆▆▆▆▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆▆▆▆▆
▆▆▆ is a managed deployment system for internal backend services.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▆▆ ▆▆▆▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▆▆▆▆▆ ▆▆▆▆▆ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▆▆▆▆▆.
▆▆ is a backing database for TAO for user data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▆▆ ▆▆▆▆, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human readable form.

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Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
(MySQL)	███ is a grouping of dbtypes that are used for testing.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
	███ is a low-latency, high-availability, key-value storage system for user data.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
	Provide human readable understanding of user interests that are used to improve personalization in various user facing products.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
	███ is a tax application used for tax calculation for all FB products (Digital, Ads, Services and Hardware) globally.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook███ ███, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—███ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███.

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▉ is a highly-distributed, highly scalable storage solution built to replace the large use cases of HDFS within Facebook.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▉ ▉, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▉ ▉ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▉
WhatsApp ▉	WhatsApp Messenger is a freeware, cross-platform and end-to-end encrypted instant messaging application for smartphones.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▉ ▉, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▉ ▉ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▉
▉ is a publish-subscribe platform. It allows different groups at Facebook to (re-)use a well designed architecture to receive an ordered and reliable stream of data changes, such as ▉ ▉ changes.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▉ ▉ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▉ ▉ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▉
▉ is Facebook's self-service relational database allocation system.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▉ ▉ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▉ ▉ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▉

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
▮ is Facebook's next generation streaming processing service.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ a platform which offers wifi as a product.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮
▮ is a reliable, consistent, highly available, scalable key-value storage service.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	This is one of the various databases that powers the Social Graph. Facebook produced each Named Plaintiff's DYI file, which for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human readable form.
▮ Generating training data for instagram ML systems	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook▮ ▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮ ▮ the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
	Record and serve IG user engagement history.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ███, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
	Embedding indexing system	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
	Detect if any feature contains UII and file the privacy-wave tasks for user verification/remediation	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ , and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███
Mapillary	Public street-level imagery and map data platform	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook██ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—██ ███ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ███

Defendant Facebook, Inc.'s Submission in Compliance with the Special Master's Amended Order re Plaintiffs' Motion to Compel Production of Plaintiff Data

Data System Name	High-Level Description of Data System	Explanation for Why Additional Information Is Not Readily Available	Explanation for Why Facebook Cannot Determine if the Named Plaintiffs' Data is Stored in the System
Process WhatsApp user support requests	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮▮▮ ▮▮▮▮▮▮▮▮, and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮▮▮▮▮▮▮▮▮
▮ is a Code Management system owned by Core Systems.	As discussed in the Declaration of David Pope, Facebook has not previously compiled information responsive to the Special Master's Order—including descriptions of the "most common functions and purposes of the data system" and a comprehensive list of "the business units, divisions, or groups that use the data system"—in the course of its prior efforts to inventory its data systems. Facebook ▮▮▮ and collecting and vetting further detail about each system would require a similar effort that would be disproportionate to the needs of this case, as Plaintiffs' request to identify "all" user data is not relevant to any pending claims or defenses and the vast majority of such data could not readily be identified by user and/or produced in a format that would be unintelligible outside of Facebook.	The Special Master's Amended Order asks Facebook to determine whether each data system contains data related to a specific Named Plaintiff. The burdens associated with providing that information are not meaningfully different than identifying any specific data relating to a Named Plaintiff within each system, because—as discussed in the Ji and Pope Declarations—▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ (the DYI tool retrieves data from a number of data systems, but not all). As a result, in order to determine what types of user data are contained within each data system and whether an individual user's data could be identified within that data, ▮▮▮▮▮▮▮▮▮▮▮▮▮

Exhibit K

GIBSON DUNN

January 27, 2022

<u>VIA JAMS ACCESS</u>
HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

Re: *In re Facebook, Inc. Consumer Privacy User Profile Litigation*, 3:18-md-02843

Dear Special Master Garrie:

I write in response to your January 18, 2022 Supplemental Order Re: Facebook's Production of Plaintiff Data, in which you ordered Facebook to provide a "date certain" by which it could: (1) identify "[w]hich systems identified by Mr. Pope . . . contain discoverable data related" to the eight remaining Named Plaintiffs, Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King, and (2) for those systems, "either produce th[at] . . . data from the system or articulate, with sufficient detail, the reason for it should not have to produce the Named Plaintiffs data from that system," and your supplemental January 25, 2022 Order.

Below we:

i.   Outline steps Facebook has taken to date to fulfill its discovery obligations with respect to data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King;

ii. Address the Special Master's request that Facebook identify which data systems contain discoverable data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King and provide a narrowed list of the sources that are potentially-relevant to the Special Master's inquiry; and,

iii. Describes Facebook's proposed next steps.

We respectfully remind the Special Master that discovery must be both relevant and proportional, considering, among other factors, "the importance of the discovery in resolving the issues, and whether the burden or expense of the proposed discovery outweighs its likely benefit." Fed. R. Civ. P. 26(b)(1). Courts have long recognized that the vast expansion of electronically stored information in the digital age has magnified the risk of discovery abuse: "[t]he information explosion of recent decades has greatly increased both the potential cost of wide-ranging discovery and the potential for discovery to be used as an instrument for delay or oppression." Fed. R. Civ. P. 26(b) advisory committee's note to 1993 amendment. Rule 26 was amended in 2015 to emphasize and mandate proportionality in discovery. "No longer is it good enough to hope that the information sought might lead to the discovery of admissible evidence. .

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. . Instead, a party seeking discovery of relevant, non-privileged information must show, before anything else, that the discovery sought is proportional to the needs of the case." *Gilead Scis., Inc. v. Merck & Co, Inc.*, 2016 WL 146574, at *1 (N.D. Cal. Jan. 13, 2016).

As we discuss more below, the burdens associated with producing additional data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King are not limited to extracting data and processing it for production. The mere process of investigating and searching numerous data systems (and multiple use cases within each of them) that are designed to provide a product to end-users— ██████████████ ██████████████—is itself extremely time consuming and burdensome. These burdens are far out of proportion to the needs of the case. This is particularly true given the volume of user data Facebook has produced to date and that conducting a scorched-earth search for duplicative data, or additional raw data that Facebook has confirmed is stored in a source not accessible to third parties, will not help Plaintiffs confirm what data was shared with third parties, which we understand to be the rationale for this exercise.

A.   Facebook's Efforts to Date.

1.   Facebook has complied with its discovery obligations to produce relevant user data related to the Named Plaintiffs and subsequent requests for information about the systems in which such data may be stored.

2.   Facebook has produced nearly one million pages of data relating to current and former Named Plaintiffs in this action, including the individual user data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King that is relevant to their non-stayed claims and does not present an undue burden on Facebook to search for, identify, collect, and produce. Facebook has provided the Special Master examples of the data it has produced for current and former Named Plaintiffs, which in some cases has exceeded 200,000 pages of data for a single Named Plaintiff. Facebook has also produced more than 80 GB of raw data memorializing Facebook's transfer of data to third parties.

3.   Facebook has developed a significant record demonstrating that the user data relevant to this case has been produced and that searching for additional user data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King from its data systems would be unduly burdensome and disproportionate to the needs to this case. Specifically, Facebook has:

   a. Provided sworn testimony that Facebook makes user data available to third parties through application programming interfaces ("APIs") (Anand Decl. ¶ 4);

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b. Provided sworn testimony that APIs available to third parties "pull data exclusively from the Social Graph" (Anand Decl. ¶ 4);

c. Identified the primary databases that support the Social Graph (*see* Ji Decl. ¶ 5);

d. Provided sworn testimony that the DYI file "represents the most complete and best compilation of data Facebook maintains associated with [a] . . . user," including–but not limited to–data from the Social Graph (Mitchel Decl. ¶ 5);

e. Provided sworn testimony identifying the burdens of collecting user data beyond that reflected in the DYI file (*see* Ji Decl. ¶¶ 10-31);

f. Provided sworn testimony that ████████████████—other than the DYI tool ██ ██ ████ (Pope Decl. ¶ 10);

g. Identified the relevant APIs through which third parties could access the categories of user data Plaintiffs have requested, identified the type of user data each API could be called for, and provided lists of the third parties that had access to them (*see* 4th Rog Responses);

h. Provided sworn testimony that identifying additional data points about each of the 149 data systems disclosed to the Special Master, including the "types of user data" within each one, would likely take ████████████ (Pope Decl. ¶ 9); and

i. Provided a witness for over three hours of testimony to provide further information about the 149 data systems disclosed, which included testimony that even a single one of those data systems could have numerous use cases–and each may need to be investigated individually to answer the Special Master's questions fully.

4. Plaintiffs have not made *any* showing that any of the above representations are incorrect or incomplete. While Plaintiffs have argued that they are "entitled to discovery to test Facebook's assertions about what it made accessible to or shared with third parties" (Pls.' Reply ISO MTC Named Plaintiff Data at 3), they have received that, in the form of millions of pages of documents, sworn testimony, the opportunity to take dozens of depositions, and 80 GB of data regarding Facebook's transfer of data to third parties.

5. Duplicative data, or additional raw data that Facebook has confirmed is stored in a source not accessible to third parties, will not help Plaintiffs confirm what data was shared with third parties.

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6.　　At the Special Master's request, Facebook has gone to great lengths to provide additional information about its data systems—which are some of the most technically advanced and complex systems in the world—through various submissions, declarations, and testimony. Also at the Special Master's request, Facebook provided information about 149 different data systems (regardless of their relevance); it also provided a witness who appeared at a three-hour hearing with the Special Master to assist with the Special Master's assessment of each of those data systems to the best of his ability.

7.　　Even with the benefit of all of this additional information, which goes far beyond the scope of proportional discovery to which they are entitled, Plaintiffs have not identified any specific information that is missing from Facebook's productions or made any showing that Facebook's representations demonstrating why its productions are complete are incorrect.

B.　　The Special Master's Request that Facebook Identify Which Specific Data Systems Contain Discoverable Data Relating to the Eight Remaining Named Plaintiffs.

8.　　The Special Master asked Facebook to identify "[w]hich systems identified by Mr. Pope . . . contain discoverable data related" to the eight remaining Named Plaintiffs, Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King.

9.　　As Facebook described in detail in the Pope declaration, Facebook ▮▮▮. As an initial matter, individual data systems may have multiple different use cases, all of which may store and use data differently and need to be investigated separately. 1/14/22 Hr'g Tr. at 87:13-23, 112:2-11. For each individual use case within each system, Facebook would need to assess whether the use case involves storage of individually-identifiable user data, determine whether the data sets used can be readily searched by user, and (if so) conduct a search of those data sets to determine whether data related to individual users exists in each system; assess the nature of the data and whether it is relevant and not duplicative of materials already produced; and determine whether that data can be extracted in a producible form. As the December 10 Ji Declaration made clear, this assessment and search could take ▮▮▮▮▮▮▮▮ for a single data system. As Mr. Pope testified during the January 14 hearing, his team did not investigate what (if any) categories of user data are contained within each of the 149 systems he disclosed—or even whether each data system actually contains user data. 1/14/22 Hr'g Tr. at 8:12-9:8, 127:6-8 ("So the questionnaire will determine whether it may store user data, but not whether it does and what type it is."). As relevant here, Mr. Pope's team investigated only whether each system was technically capable of housing user data writ large and identified 149 such systems. *Id.*
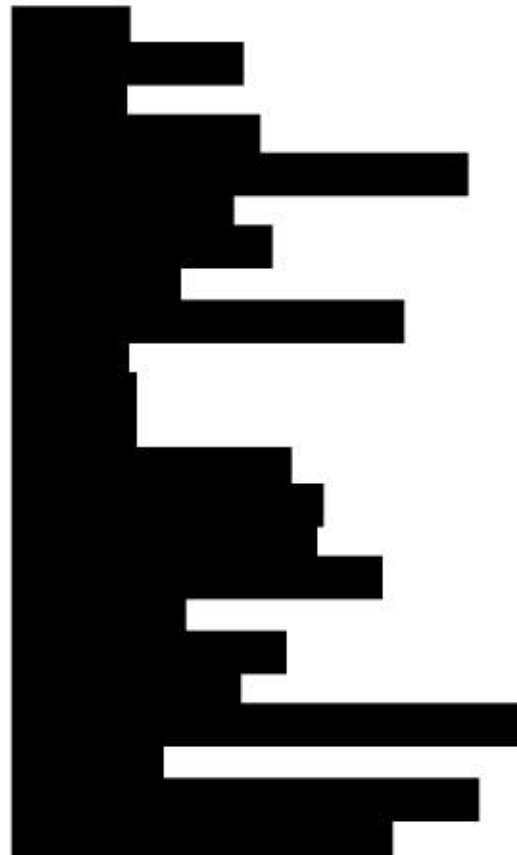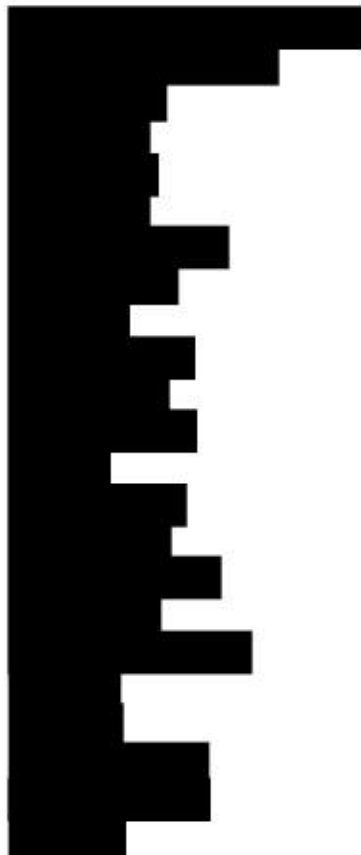
10.　　Facebook has continued to investigate the 149 data systems identified in the Pope declaration and discussed at the January 14 hearing in order to narrow that list to systems that

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could *potentially* be relevant to the Special Master's inquiry. Below, Facebook provides a narrowed (but still over-inclusive) list of 55 systems. This list excludes certain types of systems that Facebook understands are not relevant to the Special Master's inquiry. Specifically, the list excludes:

- internal test systems,

- systems Facebook's teams have declared not to store user data (even though as a technical matter, they are capable of storing such data),

- systems that do not serve the Facebook product and serve only other Meta products (such as WhatsApp),

- systems that do not store unique data, for example serving only as pipelines to transfer data from one system to another (such systems are designed only to move data and data cannot be read from them), and

- other systems from which Graph API cannot call data directly.

11. The remaining systems are as follows:

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████████████████   ████████████████

12.   Even within this narrowed list of 55 systems, certain systems may not ████████ ████████████████████████████ For example, a system could store instances of ██ [1]

13.   Data housed in Facebook's systems can typically be ████████████████ ████████ through a complex series of connections within the Social Graph, which is powered by software code drawing on several different data systems and assets. In essence, the Social Graph brings together data from various systems and databases in a way that allows data to be connected so Facebook's product can operate. Accordingly, ████████████████████████ ████████████████████████ and unless a system is connected into the Social Graph, and ████████████████████████████████████

14.   The following subset of systems are connected to the Social Graph and therefore the data within them typically can be associated to ████████████████████████

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[1] Facebook notes that the DYI files contain IP addresses associated with the users' log-ins.

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        C.   **Further Response to the Special Master's Inquiries.**

       15.   The Special Master asked for a date certain by which Facebook would identify the specific systems that contain data relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King and by which it would either produce the relevant data from those systems or explain why it should not have to do so.

       16.   As Facebook has explained numerous times, Facebook cannot determine with certainty if ███████████████████████████████████████—leaving aside whether such data could possibly be relevant here and has not already been produced ███ ██ . Facebook's systems are engineered to provide its website and apps to users, not for production in litigation of all data associated with a specific user. ██
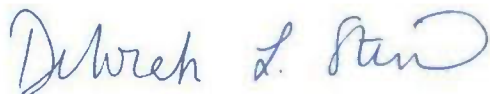
       17.   Facebook has now narrowed the 149 systems it disclosed originally to 12 systems that could be *potentially* relevant to the Special Master's inquiry, so that it is able to provide the Special Master more concrete information about each.

       18.   Facebook suggests that it work with the Special Master to identify three systems from the list of 12 above, and within 14 days, Facebook will provide a detailed analysis with evidentiary support regarding the steps that would be necessary for those particular systems to identify whether they house data Facebook has not already produced relating to Jason Ariciu, Bridgett Burk, Cheryl Senko, Jordan O'Hara, Samuel Armstrong, Steven Akins, Terry Fischer, and Tyler King, and whether it is possible to extract that data in a producible format. Facebook expects that even this narrowed exercise would be an extremely burdensome and disproportionate effort.

       As always, we are ready and available to discuss this issue further with the Special Master.

       Respectfully submitted,

Deborah L. Stein

cc: Lesley E. Weaver
        Derek W. Loeser

Exhibit L

1   JAMS

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3 IN RE: FACEBOOK INC.,   )

   CONSUMER PRIVACY USER   )

4 PROFILE LITIGATION   )

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9   HIGHLY CONFIDENTIAL

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11   HELD VIA ZOOM

12 REPORTER'S TRANSCRIPT OF PROCEEDINGS:

13   JAMS Special Master Hearing

14   Thursday, February 17, 2022

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22 REPORTED BY:

23 Katy E. Schmidt

24 RPR, RMR, CRR, CSR 13096

25 Job No.: 5096673

1   JAMS

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23   JAMS Special Master Hearing on Thursday,

24   February 17, 2022, at 1:07 p.m., virtually before

25   Kathryn E. Schmidt, RPR, RMR, CRR, CSR 13096.

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1   LOS ANGELES, CALIFORNIA

2   THURSDAY, FEBRUARY 17, 2022

3   ---o0o---

4   SPECIAL MASTER GARRIE: All right. All right.

5   So we'll go on the record.

6   Okay. This is Special Master Garrie. We have

7   a hearing today to discuss named plaintiff's data.

8   I asked Facebook to provide a series of

9   witnesses to get further clarification as the objective

10   of today is to determine which repositories are

11   appropriate from the initial 149 repositories that were

12   identified by Facebook as potentially having Facebook

13   data, that was subsequently narrowed down to 55

14   potential systems as potentially having -- may -- I

15   underline, may have user data in it.

16   The goal of today is to determine what -- for

17   me to get technical information to figure out what is

18   reasonable for Facebook to look for the named plaintiff

19   data.

20   For purposes of convenience today, named

21   plaintiff data and user data are one in the same.

22   They're not -- and it's not aggregated. It is user

23   specific data. It is not anonymized data. It is not

24   de-anonymized data. It is their data. It is user data.

25   Okay?

1   So with that sort of definition, I will use

2   them interchangeably, user data and named plaintiffs,

3   but to me they're users.

4   The goal of today is to determine what is

5   reasonable and what -- where -- what systems have what

6   data that relates to the named plaintiffs pursuant to

7   the Court's definition.

8   With that in mind, I wanted to read out for

9   really the Facebook engineers that are here. I'm glad

10 you guys are here, because I feel like I can finally

11 just get -- we can make -- we can make progress.

12   I just want to read the definition that the

13 judge has defined as what is discoverable user data

14 issue.

15   Okay?

16   Because it's not -- it's a defined definition

17 and I think it's worth reading for everybody.

18   So the first is "Data collected from a user's

19 on-platform activity."

20   Okay?

21   So it's "Data collected from a user's

22 on-platform activity." That's No. 1.

23   No. 2, "Data obtained from third parties

24 regarding a user's off-platform activities."

25   Now, there's no definition as to what

1   off-platform activities are or anything of the like.

2   So with that in mind, we then have No. 3,

3   "Data inferred from a user's on-or-off platform

4   activity."

5   So if it's obtained from third parties.

6   And then group No. 3 is "Data inferred," which

7   again is not defined -- but "inferred from a user's

8   on-or-off platform activities."

9   I take all platform activity to be activity

10   that is not being done within the je ne sais quoi of

11   Facebook, whether it's -- I don't -- there's lots of

12   assets, so off your platform.

13   Okay?

14   With that in mind, that's the general set of

15   definitions.

16   Okay. So with that in mind, I have a set of

17   questions, and I assume I can start with Mr. Zarashaw.

18   There are two important things you have to

19   remember, and I know both of you have been -- had the

20   privilege of meeting the lawyers here from both sides.

21   The attorney-client privilege is the only

22   thing that really counts today; right? If there's

23   something that you talked about with your lawyers, say

24   I -- your lawyers can object, saying it's -- or you can

25   say "I discussed this with my lawyers," whatever. I

1 think for Facebook it will be Counsel Falconer making --

2 or note -- assisting you as necessary, and it will be --

3 well, plaintiffs won't object to attorney-client

4 privilege, so --

5   But the goal today isn't to learn anything

6 about -- anything but systems and data.

7   Okay?

8   I'm not -- I mean, I appreciate the underlying

9 case and the zealous advocacy, but the truth is what I'm

10 here to do today is to learn and determine about your

11 systems. Like because you've disclosed there are 55 of

12 them that may have plaintiff data, and I think that may

13 be a little excessive to require Facebook to look

14 through all 55 systems for user data, given these

15 definitions.

16   So then with that in mind, I'm going to kick

17 it off --

18   Or are there any questions from Facebook?

19   MR. FALCONER: One or maybe two.

20   Is it okay with the Special Master if Mr. Elia

21 and Mr. Zarashaw -- there is a list of questions that we

22 answered on February 9th that we -- public information

23 filed into the case.

24   Is it acceptable to the Special Master if the

25 witnesses want to refer back to those written answers

 1   during the hearing today?

 2   SPECIAL MASTER GARRIE: Yeah.

 3   MR. FALCONER: Okay.

 4   SPECIAL MASTER GARRIE: Of course.

 5   MR. FALCONER: And --

 6   SPECIAL MASTER GARRIE: Go ahead.

 7   MR. FALCONER: And then just for the

 8   Special Master's benefit, if this is helpful,

 9   Mr. Zarashaw is here specifically with expertise on if

10   there was a API misused topic that the Special Master

11   indicated he was interested in.   And that's -- that's

12   Mr. Zarashaw's kind of area of knowledge and expertise.

13   The other topics that the Special Master had

14   indicated interest in, Mr. Elia is the person most

15   knowledgeable on those topics, if that helps -- just if

16   that helps with kind of organization and flow.

17   SPECIAL MASTER GARRIE: It certainly does.

18   I'm just working on my mute and un-mute skills.   It

19   certainly does.

20   Yeah.   And if either one of the technical

21   witnesses don't feel comfortable answering a question,

22   I get that there are millions of lines of source code.

23   I get there are thousands of engineers.   I fully

24   understand that being asked a question on the spot may

25   not result in an exact answer.

1   The idea is just to move it forward so that I

2   can at least put together tangible understanding of what

3   is appropriate and not appropriate or reasonable and not

4   reasonable in the context of the named plaintiff data.

5   So -- okay. So API, so I guess Mr. -- oh,

6   sorry.

7   Did plaintiffs have any questions?

8   MS. WEAVER: No. Not at this time. Thank

9   you.

10   SPECIAL MASTER GARRIE: Okay. So,

11   Mr. Zarashaw, I have some questions about APIs.

12   Before we get into that, I guess my first

13   question is what types of API's interaction took place,

14   specifically applications interacting with user data

15   versus the bulk API integrations with partners; right?

16   Because there's different ways and there's these bulk

17   APIs and then the other way.

18   What types of sort of API interactions sort of

19   played out, or possible?

20   MR. EUGENE ZARASHAW: So I'm not familiar with

21   a distinction between individual versus bulk API.

22   However, there is a distinction between server to server

23   API calls made by a third-party app from their secured

24   servers to our servers versus calls made by an app in

25   the mobile device or in the web browser controlled by a

1   user to our servers on behalf of an app.

2   Is that the distinction?

3   SPECIAL MASTER GARRIE: Yeah. So that --

4   yeah. So then that's how they're organized?

5   So -- because there's been a lot of terms

6   batted around about the bulk API integration from

7   partners, and I didn't fully understand what that meant.

8   So I'm glad that I'm not fully --

9   MR. EUGENE ZARASHAW: If I may add to that,

10   the APIs are not quite organized that way. There's

11   overlap in APIs that can be called only from a mobile

12   client, slash, specified only server to server or both,

13   depending -- and the distinction tends to be in the

14   access token used to access the API rather than API

15   itself.

16   SPECIAL MASTER GARRIE: Okay. Got it.

17   MR. EUGENE ZARASHAW: Would an example help?

18   SPECIAL MASTER GARRIE: Yeah.

19   MR. EUGENE ZARASHAW: So, for example, any

20   time a user is running the Facebook app or a third-party

21   app on a mobile device, the access token on that mobile

22   device inside the app only should have access to data

23   accessible to the user normally, intersected with the

24   data that that app should have access to.

25   So a subset of the two.

1   That -- which means if there's any data not

2   accessible to the user that owns that access token, then

3   that access token cannot retrieve that data.

4   So as an example, if you and I are not friends

5   on Facebook and have -- I cannot see your data on

6   Facebook, my access token cannot be used to fetch data

7   about you.

8   By comparison, there's the concept of an

9   application access token where in a server-to-server

10   call, if you and I have both installed the application

11   and given the application permission to look at our

12   data, that application access token can be used to fetch

13   data about both of us on behalf of just the application.

14   SPECIAL MASTER GARRIE: So then what if -- is

15   that true for mobile as well then?

16   MR. EUGENE ZARASHAW: On mobile we only use

17   the first type of access tokens, user access tokens,

18   because it would be unsecure to allow the server side

19   access token out of the control of the app developer's

20   servers.

21   SPECIAL MASTER GARRIE: Okay. So then does

22   Facebook's APIs, based on social graph and allow third

23   parties to access information on the user's friends

24   through that same system -- well, that is my first

25   question, and then using the system you just described.

 1   MR. EUGENE ZARASHAW: So using the system I

 2   just described, there would be two ways to access

 3   information about a user's friends. If we're talking

 4   about the mobile scenario --

 5   SPECIAL MASTER GARRIE: Yeah, mobile.

 6   MR. EUGENE ZARASHAW: In the mobile -- then in

 7   the mobile scenario, the access token could be used to

 8   call an API to get a user's friends who, after the

 9   platform 2.0 changes, only return the friends who have

10   also installed the app and granted the app permissions.

11   SPECIAL MASTER GARRIE: Yeah.

12   MR. EUGENE ZARASHAW: So it would return a

13   sub -- the intersection of the friends the apps has

14   access to, and the friends that the user has access to.

15   SPECIAL MASTER GARRIE: And then in

16   Version 1.0?

17   MR. EUGENE ZARASHAW: It would have returned

18   all of a user's friends if that friend had granted

19   friend permissions.

20   SPECIAL MASTER GARRIE: And that was in the

21   interrogatory's full response so that makes sense.

22   So then -- so then the Facebook's API is based

23   on the social graph, so then the answer is yes. Okay.

24   So then -- because one of the things -- so

25   there's another been a lot of talk of social graph;

1   right? And social graph is a -- I'll just leave it

2   there. And it allows third parties basically to

3   continue access --

4   Does the -- does Facebook's APIs based on the

5   social graph really allow third parties then to continue

6   accessing friends of friends of friends, like sort of a

7   Russian nesting doll, for lack of a better term?

8   MR. EUGENE ZARASHAW: They did not unless the

9   app had access to those specific friends.

10   So there's always the intersection of what

11   should the app be able to see and what should the user

12   be able to see? The app could only see information

13   about people who had installed the app, or in 1.0, only

14   information about people who are friends with someone

15   who installed the app when acting on behalf of the

16   person that installed the app.

17   So you could not just -- you could not find

18   data about unrelated people to whom the app should not

19   have access to.

20   SPECIAL MASTER GARRIE: Okay. All right.

21   That makes sense.

22   So then one of the things I want to

23   understand, because there's all this talk of all these

24   different systems, but one thing I'm trying to

25   understand is could then a third-party application

1   present a user with a user interface that mimics a

2   Facebook log-in page and collect their credentials, and

3   then log into the Facebook application on its own?

4   So I can walk you through what I'm talking

5   about, but I think you get the gist of it. I mean...

6   MR. EUGENE ZARASHAW: I think it might help

7   walking through, actually, if you don't mind.

8   SPECIAL MASTER GARRIE: Yeah.

9   So a third-party application, an app developer

10   builds something, and presents a user with a user

11   interface that mimmicks Facebook's log-in page.

12   Okay?

13   So they build an app. They think they're

14   logging in. They collect the credentials.

15   Okay?

16   So the app collects the credentials.

17   Then the app logs into the Facebook

18   application on its own.

19   Is that -- is that possible?

20   MR. EUGENE ZARASHAW: So it was technically

21   possible. It was something that we only allowed to

22   specific apps under a contract. It was called the

23   log-in permission.

24   SPECIAL MASTER GARRIE: That's it.

25   MR. EUGENE ZARASHAW: And it would have -- the

1   app would have to be permitted to exchange a user name

2   and password for a Facebook access to open to log in

3   this way.

4   And only apps who -- that had their log-in

5   permission were able to do it.

6   This was used in cases where usually due to

7   device constraints, it was impossible to launch a full

8   web browser and log into Facebook, such as an embedded

9   device.

10   SPECIAL MASTER GARRIE: Or a Nokia flip phone

11   or something?

12   MR. EUGENE ZARASHAW: (Nodding.)

13   SPECIAL MASTER GARRIE: So then -- you said

14   there was an agreement. And then they could log in, but

15   they would have a different level of access -- the app

16   would have a different level of access because they

17   would be -- have the user's credentials they're logging

18   in, not the other way; right?

19   MR. EUGENE ZARASHAW: Yes.

20   SPECIAL MASTER GARRIE: Okay. And then today

21   you've sort of stopped that, though. As I understand,

22   it has evolved, your user interface, to prevent -- to

23   limit that ability today.

24   MR. EUGENE ZARASHAW: May I ask Steven to

25   answer this question, just because I'm a bit out of date

1   on the current state?

2   SPECIAL MASTER GARRIE: Steven, hello again.

3   I hope you had a good evening at least.

4   MR. STEVEN ELIA: Yeah.

5   I'm not sure whether there's currently any of

6   those types of special log-in whitelists that remain.

7   SPECIAL MASTER GARRIE: But there would be a

8   contract or agreement or something there; right?

9   MR. STEVEN ELIA: That's right.

10   SPECIAL MASTER GARRIE: Okay. That's fine.

11   Then --

12   MS. WEAVER: Special Master Garrie -- I

13   apologize. But I think it would be helpful for us to

14   know time frame, and I think you're going there, and I

15   didn't know when to ask.

16   But when did the system operate that they just

17   described? And maybe you're about to get there and I

18   apologize.

19   SPECIAL MASTER GARRIE: I was literally --

20   MS. WEAVER: I've been getting texts so I

21   apologize. Okay.

22   SPECIAL MASTER GARRIE: Here's what I'll do.

23   Plaintiffs could write down all of their

24   questions. When I finish a section, plaintiffs can ask

25   their questions in case I forget anything, but I'm

1 really -- this is more for me than anybody else.

2   So my question is with regards to the timeline

3 for this -- what I just described; right? Right?

4   So at some point I know -- well, if you don't

5 have it, it's completely acceptable; right?

6   Do you know when this feature set -- what I

7 just described was restricted or removed from the

8 Facebook world, I guess? Platform? Sorry.

9   MR. EUGENE ZARASHAW: I do not.

10   SPECIAL MASTER GARRIE: Steven?

11   MR. STEVEN ELIA: I believe there were still

12 uses of it in 2018. Since then, I'm not sure.

13   SPECIAL MASTER GARRIE: Okay. That's fine.

14 Better -- "I don't know" is completely an acceptable

15 answer and it's something we can follow up on.

16   My next question is then: Based on the

17 scenario I just described, can a third party log the

18 user into GAE?

19   MR. EUGENE ZARASHAW: I'm sorry. But what is

20 a GAE?

21   SPECIAL MASTER GARRIE: Sorry. It's the graph

22 application -- you guys have all -- sorry. It's the

23 graphical --

24   MR. STEVEN ELIA: Graph API Explorer?

25   SPECIAL MASTER GARRIE: Yeah. Thank you. The

1 Graph API Explorer. I wrote all these down. I'm just

2 trying to keep track. There's a lot of APIs you guys

3 have. The Graph API Explorer.

4   Could a third party log the user into the

5 Graph API Explorer? Because that's -- in the scenario

6 I just described?

7   MR. EUGENE ZARASHAW: Yes. With a user name

8 and password and using Graph API Explorer, they could.

9   SPECIAL MASTER GARRIE: Yeah. They --

10   MR. EUGENE ZARASHAW: But their access would

11 still be limited to only things the user would have

12 access to.

13   SPECIAL MASTER GARRIE: Right.

14   But that's different according -- at least my

15 reading of your API and the libraries, whatever, that's

16 still a different level permission than the third-party

17 app developer would be naturally granted.

18   MR. EUGENE ZARASHAW: It grants access to a

19 number of things that would normally require app review

20 and it would violate our policies if they were to do

21 this, by the way.

22   SPECIAL MASTER GARRIE: No, no --

23   MR. EUGENE ZARASHAW: It no way bypasses the

24 controls on what data should a user be able to see.

25   So there -- there's no app ID under which you

1   would be able to get more information with the access

2   token than the user would normally have by just using

3   the Facebook site, which if you had the users use their

4   password, you could also just go to the Facebook site

5   without the API at all and get the same data.

6   SPECIAL MASTER GARRIE: Right.

7   But -- exactly. But if you're a third-party

8   app developer, you'd have to go through the -- and I get

9   it violates your policies. I'm not saying anything of

10 the sort.

11   But this is way to get a -- that would allow

12 an app developer to circumvent the need to get the whole

13 app -- I mean, I've heard a lot of testimony about your

14 app developer policy -- that whole -- I get it is my --

15 it allows them to circumvent it.

16   But I just -- so then -- so then I guess

17 from my perspective, did Face- -- so then -- okay.

18 All right.

19   So then the next question I have -- sorry.

20 I'm just moving things around because I thought there

21 would be more witnesses, so let me just...

22   API...

23   I have more API questions but let me -- I have

24 a couple questions about data collection.

25   So are you the right person for third-party

1   integration APIs, Mr. Zarashaw?

2   MR. EUGENE ZARASHAW: I think I would have a

3   subset of information.

4   SPECIAL MASTER GARRIE: Okay. Then I'll just

5   continue down the path that I have. I'll just --

6   Let me rethink this whole plaintiff question

7   strategy.

8   I think plaintiffs, if you have specific

9   questions, I will hear them and then determine whether

10   the witness needs to answer them.

11   So do you have any questions at this point?

12   MS. WEAVER: Just more specificity as to when

13   in 2018.

14   SPECIAL MASTER GARRIE: Oh, that was simple.

15   He did his best to give his answer and we can follow up.

16   So I'm not going to ask.

17   All right. All right. So then activity on

18   data collection, that is something just for Facebook to

19   understand that I do think that should -- clarity should

20   be provided as to when that access -- well, it doesn't

21   really relate -- well, I've gotta think about it. Let

22   me just keep going here.

23   Activity and data collection. So -- I

24   believe, and I just want to verify, Facebook collects

25   user activity, like page views, clicks, ad impressions,

1   et cetera; right?

2   Is that right, Mr. Zarashaw?

3   MR. EUGENE ZARASHAW: We collect data of user

4   interaction with our site and app.

5   SPECIAL MASTER GARRIE: And do you collect

6   data like page views?

7   MR. EUGENE ZARASHAW: Yes.

8   SPECIAL MASTER GARRIE: Mouse clicks?

9   MR. EUGENE ZARASHAW: Yes. Depending on

10   which -- what the clicks are on.

11   SPECIAL MASTER GARRIE: Yeah. So if I click a

12   like, do you capture that?

13   MR. EUGENE ZARASHAW: Exactly. If you click a

14   link, yes. If you click somewhere randomly on the page,

15   I don't believe we capture it.

16   SPECIAL MASTER GARRIE: So then I want to ask

17   about mobile but I feel like that's a whole different

18   animal and I don't know if I want to get to it now or

19   wait.

20   But do you collect data for mobile, like --

21   you know, there's all this data that mobile devices

22   have, like your Bluetooth signal, your wifi network. I

23   mean, theoretically, when they log in, as a developer, I

24   recognize that information is accessible.

25   Does Facebook collect that information, like,

1   you know, nearby wifi access points -- about the user;

2   right? -- GPS location, whatever they connect with;

3   right? I mean, do you guys collect that from the mobile

4   side of the house per user?

5   MR. EUGENE ZARASHAW: I don't know what we

6   collect on the mobile side.

7   SPECIAL MASTER GARRIE: Okay. So like time

8   zone, language, cookie data.

9   MR. EUGENE ZARASHAW: I apologize. I've not

10 spent time on the mobile side of the house so I don't

11 know what we collect there.

12   SPECIAL MASTER GARRIE: All right. Well,

13 let's talk about on the nonmobile side of the house.

14   What about like cookie data, like, that are

15 stored on the computer that isn't yours, like cookie IDs

16 and settings?

17   MR. EUGENE ZARASHAW: We only get cookies for

18 our own domain sent to us as part of the HTTP requests.

19 So we are not able to collect cookies outside of the

20 Facebook domain or other domains.

21   SPECIAL MASTER GARRIE: Yeah. Like Facebook

22 domains, like Instagram -- like, it's everything.

23   When you say Facebook domain, you're referring

24 to the Facebook universe; right?

25   MR. EUGENE ZARASHAW: I can confidently say we

1   do not collect data from other domains that we don't

2   have control over. I do not know what exactly we do

3   collect from the domains we do have control over.

4   SPECIAL MASTER GARRIE: Okay. And then like

5   obviously -- so then one thing that I would want to know

6   from Facebook is if you collect mobile phone numbers,

7   IP addresses, connection speed, and other things tied to

8   the mobile, accessing Facebook through the mobile side

9   by user; right? Not anonymized. Not anything else.

10   For the user; right?

11   And if -- Mr. Zarashaw -- or just Eugene and

12   Steven -- Steven, did you by chance know the answer to

13   my question?

14   MR. STEVEN ELIA: I don't know specific

15   instances. I know at certain points we've had offerings

16   in our app to, for example, import your contacts on your

17   phone to be able to find friends that you're not yet

18   connected to on Facebook.

19   SPECIAL MASTER GARRIE: From the mobile

20   device; right? So when you connect the mobile

21   connectivity, is that associated with the user, and

22   you're obviously granting permission for other things?

23   MR. STEVEN ELIA: I don't know a ton about

24   specifically about how that works. I haven't worked on

25   the mobile side. But I imagine that would read from

1   your, for example, phone book on your phone.

2   MR. FALCONER: Mr. Garrie, if it's helpful,

3   we've got some documents that address this question that

4   we could submit for the Special Master, too, if that

5   would be helpful.

6   SPECIAL MASTER GARRIE: Oh, yeah. That's

7   fine. I don't need it -- if you have the data to answer

8   the question, you can submit it. It's fine. I just --

9   there were so many documents and so much data that -- I

10   mean, I did read your interrogatories 1, 2, 3, 4 -- I

11   mean, there were a lot of them, and a lot of data, so I

12   may have missed it. So if you could flag it, that would

13   be helpful for me.

14   So then with that in mind, right, where is the

15   user data that's collected stored? The user activity

16   data that we just talked -- forget mobile. Just focus

17   on what we know. Where is this user activity collected

18   stored?

19   MR. EUGENE ZARASHAW: It's in a very wide

20   variety of systems. I think the most helpful way to

21   partition it might be to look at data that will at some

22   point in the future expect it to be read again versus

23   data that is being written and likely will not be read

24   any time soon.

25   So I believe we've referred to it as the

 1   social graph for the entire set of data we store that

 2   might also be used by the product again.

 3   And then there are additional types of offline

 4   storage where we do things, like logging for every kind

 5   of reason, performance, monitoring, stability, just

 6   backup, and so on. And a lot of that may end up in

 7   other systems that can then be read from production.

 8   SPECIAL MASTER GARRIE: So --

 9   MR. EUGENE ZARASHAW: It could be read by the

10   product.

11   SPECIAL MASTER GARRIE: Read by the product.

12   So this is the question; right? There are

13   these 55 systems that have been identified. We can go

14   through each one to figure this out or -- and they've

15   identified a subset of 12. I get that's a social graph.

16   Okay. Great. We can then say that we're down now to

17   43 systems.

18   Okay?

19   There's still 43 systems that may have

20   plaintiff data when the user activity is stored; right?

21   Where is a user -- I mean, it would be good to have with

22   some particularity where the actual user data that is

23   collected by Facebook -- all of it; right?

24   Because there's a lot of data you collect when

25   someone logs in. They don't -- the computer gives you;

1 right? They don't have an idea what their IP address

2 is. They have no idea what version of their browser

3 they're using. They have no idea what version of their

4 operating system they're using.

5   But I assume you, like every other web-based

6 application or platform, check these things, you know,

7 part for security, part for functionality, part for the

8 user experience; right?

9   Someone has a Mac that's four years old and

10 you try to show them some things on the web, it will

11 break the computer, and other --

12   You know, so you check these things and you

13 store this and associate it with the user.

14   So what I'm interested in is what data you --

15 but I get you don't keep all of that.

16   Okay?

17   But let's be clear there's user data, like

18 page use.

19   Okay?

20   Let's focus on page use.

21   Where does the data for page use go? Like

22 'cause I assume you track how long they look at it, they

23 scroll, the whole nine yards.

24   MR. EUGENE ZARASHAW: The last I touched this

25 in around 2015 or 2016, the primary repository for --

1 provide once and don't read until in bulk or during

2 analysis data would have been in Hive. And there's

3 quite possibly other specific systems it ended up in for

4 data analysis and so on.

5   But Hive was the general repository for

6 analytics data when there was no need for the product to

7 ever read it again.

8   SPECIAL MASTER GARRIE: Got it.

9   And then I'm looking for this letter to

10 show -- I'll share my screen in a second to go through

11 the 50 -- because -- but here's the problem: Of the 43

12 remaining systems, only one of them is Hive.

13   MR. EUGENE ZARASHAW: I commiserate with

14 the --

15   SPECIAL MASTER GARRIE: There are 42 other

16 systems that I'm trying to understand may possibly have

17 user data.

18   MR. EUGENE ZARASHAW: I commiserate with the

19 problem because looking at the list, I don't recognize a

20 number of those names either.

21   SPECIAL MASTER GARRIE: Well, good. I was

22 worried because I was like searching the data to make --

23 that's already been provided to see if it existed.

24   So then --

25   MR. EUGENE ZARASHAW: I think the clearest

1 distinction, if we're looking for -- understanding what

2 data then left Facebook again is --

3   SPECIAL MASTER GARRIE: We'll get to that. I

4 have a whole other set of questions of what left, came

5 back, received, and all of that. I have a whole set of

6 questions about that.

7   So then where does impressions go? Like how

8 many times I reload or load a page? Like, you know,

9 you put -- I'm sure you track it for ads but also just

10 impressions; right? Page impressions or ad -- ad

11 impressions and page impressions are different; right?

12 They're different units, so to speak?

13   MR. EUGENE ZARASHAW: So you've worked on

14 systems -- you've worked on similar systems before where

15 there are task specific storage systems.

16   SPECIAL MASTER GARRIE: Yeah.

17   MR. EUGENE ZARASHAW: ████████████████

██ ██

██ ██

██ ████████████████████████████████████

██ ██

██ ████████████████████████████████████

██ ████████████████████████████████

24   SPECIAL MASTER GARRIE: So then if a user

25 clicks on an ad, right, and they engage with an actual

1   ad unit, you capture that and that ends up in the DIY

2   (sic).

3   Like what I'm trying to understand is users

4   and ad -- like page impressions or whatever, people are

5   getting paid somehow.

6   So like how does the user relationship to,

7   just as an example, the ad -- they view a page and they

8   see an ad. How does that data get stored and captured

9   and associated with the user so you don't show the same

10 user the same ad 20 million times?

11   MR. EUGENE ZARASHAW: I'm not sure that we

12 don't show the same user the same ad more than once.

13   I'm not sure exactly how we store it -- or I

14 should say I'm not sure of all of the ways we store it.

15   But, for example, in case of an ad being shown

16 to a person, ████████████████████████████████

    ██████████████████████████████████████

    █████████████████████

    ███████████████████████████████████

    ██

    █████████████████████████████████████

    ███

    ██████████████████

24   And I am not a deep expert so I'm probably

25 missing other systems that it also could get written to.

1   SPECIAL MASTER GARRIE: What I'm trying to

2   figure out is there's two systems, 1 and 2; right?

3   ███████████   And I'm trying to figure out if you have

4   user data relationship stored for the ad unit about what

5   the user saw or is it duplicative? That's the first

6   question. And then -- for systems 1 and 2.

7   And then my next very obvious question, is it

8   duplicative of what you already put in elsewhere?

9   Because one of the things that nobody has told

10 me yet is what is duplicative of the DIY file versus

11 what is unique that's not in the DIY file that you can

12 get from the systems?

13   So what I'm trying to figure out is, you know,

14 if data is collected about user activity and it's stored

15 elsewhere besides the Hive, where -- and those

16 12 systems, where else is the data stored? Like ██████

17 servers, like, I store stuff on planet earth. I mean,

18 it's big.

19   Is there any more -- like, do you have any

20 idea where that information is actually stored today or

21 was stored? Because these are huge systems; right?

22   ████████ is like they paid billions of dollars

23 for it. It is a huge system in itself; right? I mean,

24 there has to be some rhythm to where you're storing this

25 information.

1   MR. EUGENE ZARASHAW: Not all of these systems

2   are that huge.

3   So I think part of the rhythm would be that

4   some of the systems are designed to work with much

5   narrower sets of information, such as not having user

6   cardinality data sizes. And instead, for example, ██

    ██████ being the database where we store ads rather than

8   user data, at least as of -- last time I touched this

9   back in 2015, 2016, it would not be able to handle the

10 load of storing user specific data. It's too small.

11 But there are other larger systems that can handle user

12 scale data such as Hive.

13   SPECIAL MASTER GARRIE: Yeah.

14   As I understand it, right, DIY has ad

15 impressions, and that means every ad impression is

16 associated somehow to the user, so that means it doesn't

17 exist just in Hive.

18   MR. EUGENE ZARASHAW: I'm not sure how we

19 produce the DIY file and whether that pulls from Hive

20 or not.

21   SPECIAL MASTER GARRIE: Okay. Based on what

22 I've heard from Facebook repeatedly -- but fair, good

23 question, one to follow up on, and I will --

24   Steven, would you know by chance if the DIY

25 file pulls from --

1   MR. STEVEN ELIA: I don't know that either.

2   SPECIAL MASTER GARRIE: Okay. Any next

3 question is before we go down any other -- does Facebook

4 have any legacy systems that contain plaintiffs -- that

5 contain user data today? And I'll give you an example.

6   I used to work in banking for very large

7 banks, like in building their technical systems. There

8 were literally times where my clients would keep systems

9 alive until the users would just die because nobody knew

10 how the systems actually worked. So -- which is cheaper

11 than trying to move these very wealthy individuals off

12 these systems from a bank they acquired so they just

13 kept them around. They called them legacy systems where

14 people could access the data but not write new data to

15 it.

16   So like does Facebook -- but I'm being

17 specific, just broader. Does Facebook have any legacy

18 systems that contain user data in it today?

19   Steven or Eugene, can you answer?

20   MR. EUGENE ZARASHAW: I think it might help to

21 have a clear definition of legacy, Mr. Garrie, if that's

22 possible. I don't think -- I don't know of any systems

23 that would match the example you gave.

24   SPECIAL MASTER GARRIE: Oh, you don't do

25 banking so I assume you have -- but I mean --

 1   MR. EUGENE ZARASHAW: But the small number of

 2   users read only, don't write to system, and still being

 3   left up in production, I'm not familiar with a system

 4   quite like that.

 5   SPECIAL MASTER GARRIE: Just products that

 6   sucked and you killed them; right? I mean, there's a

 7   lot of reasons why things may be legacy; right? Like --

 8   I mean, I think back to, you know, there had been lots

 9   of things, you know --

10   MR. EUGENE ZARASHAW: I think any point in

11   time there are infrastructure systems we're actively

12   trying to migrate off of.

13   SPECIAL MASTER GARRIE: Yeah.

14   MR. EUGENE ZARASHAW: But that would be in

15   that list. It's usually about the process and they're

16   still used to serve production traffic until they shut

17   down.

18   SPECIAL MASTER GARRIE: Oh. Can you identify

19   from that list which one those systems are? Because

20   that would be very helpful.

21   MR. EUGENE ZARASHAW: I'm a bit out of date on

22   what's currently being deprecated in infrastructure

23   versus what's new and shiny.

24   SPECIAL MASTER GARRIE: Because, like, I mean

25   I appreciate that you use elastic search but it's --

1   that's a very -- people specialize their entire lives

2   just in elastic search so it's worth noting.

3   So then it would be useful to know if Facebook

4   has any legacy systems that have user data in them that

5   are accessible through the DIY file.

6   MR. EUGENE ZARASHAW: I do not know the answer

7   to that offhand.

8   SPECIAL MASTER GARRIE: Okay. And what I'm

9   thinking about is remember Google Plus? I mean, I do;

10   right? That was a horrible like -- well, it's all --

11   Google Plus was a system Google made trying to do social

12   media that failed epically.

13   And I'm willing to reckon that Google Plus --

14   Google still has all of the Google Plus data, possibly.

15   Maybe not. But that's an example of what I mean by a

16   legacy system; right?

17   So Google doesn't run Google Plus today. But

18   I would -- hypothetically they may still have all of

19   that data. So that's what I'm referring to. Because

20   there's been lots of machinations over the years of

21   different attempts so...

22   MR. FALCONER: If that's not -- if that's not

23   something that Mr. Zarashaw or Mr. Elia can answer

24   confidently, that might be one where it makes sense for

25   us to go back and make sure we've got the right answer.

1   SPECIAL MASTER GARRIE: That's fine. I just

2   want to make sure we cover that. That's fine.

3   Mr. Elia, you're not in a position to answer

4   this or are you?

5   MR. STEVEN ELIA: I'm not aware of others

6   either.

7   I will add that as a general matter of policy,

8   we don't retain data beyond the lifetime in which it's,

9   you know, necessary and used.

10   So in these kind of scenarios where there's a

11   product that got shut down and there's no way for a user

12   to access it anymore, the expected behavior is that is

13   not data we're going to keep around.

14   SPECIAL MASTER GARRIE: Yeah. But would you

15   migrate -- is the data migrated to other systems then?

16   MR. STEVEN ELIA: If that product was, maybe,

17   morphed into another one that would continue being

18   accessible, that's possible. But if it was a product

19   that users would have no way of getting back to, I

20   wouldn't expect that data to be kept in any other form.

21   SPECIAL MASTER GARRIE: All right. So then

22   I'd like to know if there are any of those legacy

23   systems, just to confirm, and if there are, are they

24   identified in the list? If they're not identified in

25   the list, do they have user data? If they do have user

1 data, it would be helpful to explain what they do,

2 rather than having to hold a whole nother hearing and

3 back and forth, if possible.

4   So then I assume Facebook has a set of tools

5 internal for customer sort and other things to track

6 user data.

7   Are those tools identified in this list?

8   MR. EUGENE ZARASHAW: I don't know that we

9 have tools to per se track user data.

10   SPECIAL MASTER GARRIE: You don't, like, have

11 a customer support group that like gets access to --

12 like take down my page, this isn't fair, they get a

13 different view than -- of the user data than what the

14 user sees?

15   MR. EUGENE ZARASHAW: We do have operations

16 teams that manage specific queues of work that are task

17 specific and they do get to see data about the user that

18 is relevant to the specific query they're working.

19   So, for example, if there is -- the example

20 you gave of a page being taken down, then the person

21 working the appeal would have information about the

22 page, some information about the user, the reason for

23 the original decision that caused the page to be taken

24 down and so on.

25   But it's not really for tracking other data

1   about the user. It would be the minimum data needed to

2   make a decision on, in this case, whether to grant the

3   appeal.

4   SPECIAL MASTER GARRIE: All right. Makes

5   sense.

6   Are there other sort of systems like that?

7   MR. EUGENE ZARASHAW: There are a number of

8   integrity systems that are similar to this where people

9   losing access to their accounts, us taking down content

10   for a variety of violations of policy, appeals for most

11   of the take-down processes, similar systems for the

12   developer platform, and so on.

13   SPECIAL MASTER GARRIE: And when you're

14   looking at the user data, where is that user data coming

15   from?

16   MR. EUGENE ZARASHAW: Generally from TAO.

17   SPECIAL MASTER GARRIE: Oh, from TAO. Okay.

18   So we'll talk about TAO in a few minutes.

19   But where else does it come from besides --

20   because TAO is an interface; right? So, I mean, it's a

21   capability -- there's a lot -- you guys have your own

22   have vocabulary here but we'll call it an interface

23   capability, whatever you want to call it.

24   Besides TAO, where else is it getting from?

25   MR. EUGENE ZARASHAW: TAO is a primary storage

1   system.   The majority of day-to-day use data on Facebook

2   lives in TAO as its only storage.

3   TAO is underneath -- TAO is in itself a pretty

4   complex storage application written on top of thousands

5   of multiple databases but --

6   SPECIAL MASTER GARRIE: -- mySQL implement,

7   right? You just abstracted it out.

8   MR. EUGENE ZARASHAW: Exactly. It's a grab

9   database at the top of MySQL.

10   SPECIAL MASTER GARRIE: Okay. Now we can --

11   technical terms are better for me than nontechnical.

12   So okay.

13   MR. EUGENE ZARASHAW: With replication and all

14   that built -- handled properly across data centers so

15   multiple things.

16   SPECIAL MASTER GARRIE: Okay. So TAO is

17   backed by MySQL. So that's where all the user data is

18   stored.

19   MR. EUGENE ZARASHAW: I may be out of date.

20   I think we may have migrated the backing store for TAO

21   to a different database. I'm out of date on this one.

22   Maybe something faster than MySQL.

23   But, yes, most user data, including data about

24   a page, why we took down the page, the user who is --

25   had been on the page, the primary storage for that would

1   be TAO.

2   SPECIAL MASTER GARRIE: Okay. So then does

3   Facebook store data about users that is not directly

4   associated with the user or -- I don't know.

5   What do you guys call it? What's the key for

6   a user? You called it a token.

7   Is that -- are users -- so there's a lot of

8   terms that have been used so can we agree on one?

9   Facebook ID? Token? Whatever? The key?

10   MR. EUGENE ZARASHAW: The primary key would be

11 a user ID.

12   SPECIAL MASTER GARRIE: Okay. So then my

13 question is does Facebook store data about users not

14 directly associated with a Facebook ID but is capable

15 of being associated with that user?

16   MR. EUGENE ZARASHAW: I -- probably, in that

17 you -- we store data that is based on IP addresses, and

18 with sufficient work, you could be -- you could make a

19 probable guess between a timestamp and an IP address,

20 what user was using that IP address, not -- not with

21 certainty but with probability.

22   SPECIAL MASTER GARRIE: Yeah. I mean, the

23 only thing certain is I hold this pen and I drop it, you

24 know it hits the ground; right?

25   So -- so then I guess address, e-mail, phone

1 number. Okay. That makes sense.

2   So then what is the process that enables data

3 that is not stored in a manner directly -- so what

4 systems -- what's the process or systems where -- that

5 enable data that's not stored in a manner directly

6 associated with the Facebook ID to be associated with

7 it?

8   Is that like what you're using -- sorry.

9   MR. EUGENE ZARASHAW: I don't know of any

10 single process because it -- there's a multitude of

11 systems that store data in different ways, some of which

12 don't store it keyed off a user ID, in which case -- if

13 a system is not designed to pull data by user ID, it

14 would take a significant amount of work to potentially

15 modify the system to be able to look it up by user ID.

16   The analogy -- oh, sorry.

17   SPECIAL MASTER GARRIE: No. Go ahead.

18   MR. EUGENE ZARASHAW: The analogy I would use

19 is suppose you have an archive of newspapers that are

20 indexed by the language of the newspaper and the date of

21 that edition, and you want to find out whether my name

22 was mentioned in it.

23   It would require going through the entirety of

24 the archive quite manually or writing new software to go

25 through the archive to find mentions of my name because

1   during the original design, it was designed to only look

2   things up by date and language.

3   So we have a number of systems like that where

4   it was just not designed from day one to serve queries

5   of that type.

6   SPECIAL MASTER GARRIE: So then -- sorry. I'm

7   just thinking about it all. Sorry. I'm listening.

8   So -- but you have a -- using your analogy,

9   you have a list of delivered papers with addresses;

10   right?

11   MR. EUGENE ZARASHAW: Often not even

12   addresses. Often something much more rudimentary like

13   some other identifier --

14   SPECIAL MASTER GARRIE: You could delivery the

15   paper if it rained that day.

16   But the point is you have a list of delivered

17   papers with some identifier, the address or whatever,

18   and then you connect the paper to a -- you can connect

19   that paper to a user.

20   MR. EUGENE ZARASHAW: Sometimes. Sometimes we

21   don't even maintain the identifiers. A lot of it ends

22   up being anonymized intentionally or unintentionally

23   because only the necessary data is maintained.

24   So, for example, you might store performance

25   data about a system with no useful identifiers at all.

1   Just how did the system perform during each request with

2   no IP address and no user data, which would make it

3   nearly impossible to tie it back.

4   SPECIAL MASTER GARRIE: Okay. So then if we

5   look at the systems, these 43 other systems, so if

6   you select -- you select -- you remove the 12, do you

7   have any idea of what of those 43 would be -- right? I

8   mean, they all have data. The question is what -- how

9   is that data being, you know, used -- or connected to --

10   using your newspaper example, how do we know which ones

11   of those systems actually can or use to take the list of

12   delivered papers with addresses and connect the papers

13   to a user, as an example?

14   MR. EUGENE ZARASHAW: It would take a very

15   significant number of engineers a fair bit of time to

16   even answer that question, unfortunately. I do not know

17   offhand.

18   SPECIAL MASTER GARRIE: But then the engineers

19   for each of those systems, I mean, at some level someone

20   has to know -- I mean, let me be more tangible.

21   If we look at a system like ████ -- I mean, I

22   don't know what ████ is. It's literally System No. 6,

23   ████ --

24   MR. EUGENE ZARASHAW: I don't either.

25   SPECIAL MASTER GARRIE: Okay. Steven, do you

1 know what ▓▓▓▓ is?

2   MR. STEVEN ELIA: I don't, and I don't even

3 recognize the majority of the list.

4   SPECIAL MASTER GARRIE: Yeah.

5   Oh. What about -- oh, ▓▓▓▓▓▓ is a MySQL

6 database.

7   Is there a user data in ▓▓▓▓▓ -- I assume,

8 taking our newspaper address example, and ▓▓▓▓▓ is

9 No. 38 in the list -- well, I'm saying list. There's a

10 letter provided by Facebook called Facebook Supplemental

11 Submission. I could share it. I mean, it -- but

12 there's this list of systems identified.

13   Would you know if ▓▓▓▓▓ is one of those

14 systems we're talking about?

15   Is there any way if you look at this, you and

16 Steven -- I can share my screen -- say which ones would

17 possibly be able to do that newspaper example?

18   MR. STEVEN ELIA: I think it would be

19 difficult to say which ones might be, given that Eugene

20 and I don't recognize many of these.

21   The ▓▓▓▓▓ example I believe was one of the

22 12 later identified, so that may not be the best example

23 to ask us on.

24   SPECIAL MASTER GARRIE: Oh, yeah. Sorry. I

25 tried to highlight them all.

1   What about ████████████████? It's No. 48.

2   MR. EUGENE ZARASHAW: I have not heard of this

3   one.

4   MR. STEVEN ELIA: Same.

5   SPECIAL MASTER GARRIE: How about

6   ████████████; is that one? I mean, that... What's

7   ████████████

8   Is that one you can connect back?

9   MR. EUGENE ZARASHAW: I don't know of that one

10   either. I mean, I can volunteer an example, if you'd

11   like, that might be a good one, which is --

12   SPECIAL MASTER GARRIE: Yeah.

13   MR. EUGENE ZARASHAW: -- ████████

14   SPECIAL MASTER GARRIE: ████████ Okay.

15   Didn't think ██████ All right. Good.

16   MR. EUGENE ZARASHAW: So ██████ is a search

17   back end for searching. And it's a duplication of data

18   stored in other systems. So it enables the -- using

19   ██████ to index another system allows you to create a

20   search application for another system -- for specific

21   types of queries for another system. So it's generally

22   pointed at things inside TAO, because TAO itself does

23   not serve any kind of searches.

24   So there could possibly -- depending on what

25   kind of search indexes somebody at one point created, it

1   is possible for there to be user data inside ███████

2   but it would be duplicated in the other systems that

3   ███████ is fronting.

4   SPECIAL MASTER GARRIE: Because it's sitting

5   over.

6   So then if they -- so then if you infer data

7   about the users and it could be connected to people --

8   all right. That makes sense.

9   So then what I'm trying to figure out is one

10   of these systems -- so then you have -- because then, as

11   I understand it, right -- I guess maybe the better way

12   to look at it is what systems store the information used

13   to create each Facebook ID?

14   Can we do it that way?

15   Like a user profile?

16   MR. EUGENE ZARASHAW: What do you mean create?

17   SPECIAL MASTER GARRIE: Well, when you create

18   a new user, right, it stores data?

19   MR. EUGENE ZARASHAW: ███████

20   SPECIAL MASTER GARRIE: Where is that -- on

21   ███████

22   Because -- so then -- so then what systems

23   store the data necessary from that list to compile a

24   single user's profile or profile once it's created?

25   MR. EUGENE ZARASHAW: By compile, do you mean

 1   for DIY or for a certain type --

 2   SPECIAL MASTER GARRIE: Not DIY. I'm talking

 3   for Facebook. Because remember the definition the

 4   Court -- so, yes, I wish that was that simple.

 5   The Court said data collected from a user's

 6   on-platform activity, data obtained from third parties

 7   regarding a user's off-platform activities, and data

 8   inferred from a user's on-or-off platform activity. So

 9   it's much broader than what sits in the DIY file.

10   MR. EUGENE ZARASHAW: I don't have a good

11   answer to that one as to which of these systems may have

12   some of it.

13   The hard part of that question is also knowing

14   which parts are just duplicates of something else.

15   SPECIAL MASTER GARRIE: So if I could get the

16   first question answered, then I want the second part

17   answered.

18   But it's very challenging -- who at -- if it's

19   not you or Steven that can answer this, who at Facebook

20   can -- 'cause it's pretty simple; right? I mean, this

21   question is simple but the answer is deceptively

22   complicated. And I'm just trying to understand at the

23   most basic level from this list what we're looking at.

24   MR. EUGENE ZARASHAW: I don't believe there's

25   a single person that exists who could answer that

1 question. It would take a significant team effort to

2 even be able to answer that question.

3   SPECIAL MASTER GARRIE: Okay. There's a

4 Facebook ID and there's an ad impression mapping; right?

5 'Cause we know that because it's in the DIY file; right?

6   It's either in ████████ or ████████████

   ████████████████████████████ right?

8   MR. EUGENE ZARASHAW: (Nodding.)

9   SPECIAL MASTER GARRIE: Where is it stored --

10 who knows where these things are being stored?

11   MR. EUGENE ZARASHAW: Whoever is responsible

12 in the ads team for logging impressions would be the

13 most likely person to know everywhere it would be

14 logged.

15   SPECIAL MASTER GARRIE: And that would be

16 associated with a user?

17   MR. EUGENE ZARASHAW: And which parts of the

18 logging are user associated versus which parts of the

19 logging are only associated with the ad in advertiser

20 but not the user.

21   SPECIAL MASTER GARRIE: Yeah.

22   So --

23   MR. EUGENE ZARASHAW: And the challenge is for

24 each product, it would be a different set of people that

25 would know how that specific product area does logging

1   and data retention.

2   SPECIAL MASTER GARRIE: Because I see these

3   systems that have ad in it but nobody seems to be able

4   to tell me if it's user data in the ad system.

5   And I know that you can infer and make

6   relationships about the user ad data that's -- because

7   you have it in your DIY file, but there's obviously more

8   data that gets attached to the user's activity to the

9   ad unit that's sitting somewhere in these systems. And

10 I'd really like to not make Facebook go and figure it

11 out for every single system. But the Court says

12 on-platform or off-platform activity, so associated with

13 a user.

14   So -- but I hear you.

15   All right. Steven, do you have any idea?

16   MR. STEVEN ELIA: As I said before, I also

17 don't even recognize some of these. I would also agree

18 there's not a single individual who would recognize all

19 of these or be familiar enough with all of these.

20   SPECIAL MASTER GARRIE: But there are -- there

21 would be a group of individuals that could access --

22 someone at some level -- because the ad unit is a great

23 example; right?

24   Facebook ID to ad impression maps; right?

25 It's either in the Hive and extracted in a periodic

 1   fashion and stored elsewhere because that's how it ends

 2   up in the DIY file.

 3   Whatever system it's extracting it from would

 4   theoretically have a richer dataset about the ad user

 5   engagement, or maybe not, but someone needs to clarify

 6   of your list of systems yes or no.

 7   MR. STEVEN ELIA: What I would say is each of

 8   these 55 systems will have a team of engineers who are

 9   responsible and knowledgeable about it, but even then,

10   those individuals may not know all of the ways in which

11   that system is used by other teams.

12   SPECIAL MASTER GARRIE: I get that.

13   But I'm looking at it from the -- yes. I

14   agree. But I'm looking at it in the narrow definition

15   of how the Court has defined user data as to what needs

16   to be pulled for these users.

17   And the Court has made a very explicit

18   determination, Judge Corley and Judge Chhabria

19   affirmed -- I don't know who did. But Judge Corley

20   clearly said these three things; right?

21   And so there has to be some way to -- like I

22   have no problem with an -- like if it's too hard or too

23   complicated, you could articulate them. But what it

24   can't be is it requires a group of engineers to tell me

25   whether or not the ad unit and the ad impression mapping

1 part of it, you know, because it's going take a long

2 time and cost a lot of money. Like I appreciate all

3 that but there needs to be tangible pieces of it.

4   But if you don't know the answer, that's a

5 legal argument which has no business here. This is just

6 more just I want to get as many technical questions

7 cleared up. And I can bring my legal questions up with

8 the parties downstream and not waste your time.

9   MR. FALCONER: I think what -- sorry. I don't

10 mean to cut you off.

11   But for Mr. Garrie, I don't think Mr. Zarashaw

12 or Mr. Elia works a lot with the ads -- business in the

13 ads platform.

14   So maybe -- could we take that one back, too,

15 of -- to find someone who works in this area a little

16 bit more frequently and directly and see if that might

17 be one where we could get back to you with a better

18 answer from someone who is more familiar with this in

19 their day-to-day work?

20   SPECIAL MASTER GARRIE: Because all I'm trying

21 to do is go through this list and figure out what

22 systems have user data and how they -- and how --

23 like -- because I'm pretty certain that Facebook --

24 the -- Facebook ID, just based on my understanding of

25 the DIY file, is pulling data from different systems.

1   And those systems may have additional data about the

2   user sitting in them. They may or may not be

3   accessible, or may be duplicative or may not be, but

4   there has to be some way of figuring out the

5   information; right?

6   Because IP addresses may sit in this

7   database -- or ad impressions -- I don't know about ad

8   impressions -- but my likes sit in this database, and

9   the DIY file may -- the application may pull from that.

10   But the database may have other information about my --

11   the user.

12   And the Court, just with this definition,

13   intentional or otherwise, is on platform activity, I

14   mean, it's -- I clicked a like; right? I mean, it is --

15   as an example. But we'll keep going.

16   So then does Facebook include information in a

17   user profile that is not posted by the user to Facebook?

18   MR. EUGENE ZARASHAW: What definition should

19   we use for the user profile in this case?

20   SPECIAL MASTER GARRIE: Well, I could tell you

21   how the Court -- well, interesting you ask because you

22   have patents that define how you create user profiles

23   that I've actually read.

24   But we won't get into the patent piece of it

25   and just --

1   How would you define a user profile?

2   A Facebook ID; right? That's a human -- how about this,

3   a breathing human entity interacting with your system?

4   MR. EUGENE ZARASHAW: But what I mean is what

5   else makes up a user profile?

6   We don't generally -- when we look at user

7   profile internally, that term generally means a user,

8   but it's not necessarily a collection of data. So I'm

9   not sure how to answer that question.

10   SPECIAL MASTER GARRIE: So the user is a -- I

11 mean, the user, I guess you want to call it an object.

12 I mean, calling it -- I mean, the user is -- you have a

13 whole social graph schema. Like, I mean, you clearly --

14 there's a user -- I'm not as familiar as you're -- as

15 you guys are of your system, but we'll call the user an

16 object that interacts with a whole litany of services

17 and systems.

18   Some data, right, like some is

19 system-collected data, like the mobile activity, where

20 they were when they logged in, their OS, whatever, or

21 the computer or whatever.

22   But what you -- I guess the best way to think

23 about it is if you say Facebook include -- and its user

24 profile that is not posted by the user to Facebook so

25 the user -- I guess the Facebook profile page, if you

1   want to -- we can be -- maybe that helps -- let's say

2   Facebook profile page. Let's start with that.

3   MR. EUGENE ZARASHAW: So is the question then

4   is anything rendered on the Facebook profile page for a

5   user that was not put there by the user?

6   If so, yes, in that --

7   SPECIAL MASTER GARRIE: Yes.

8   MR. EUGENE ZARASHAW: -- there would also be

9   activity of other users that involve this user's

10   activity.

11   So as an example, if user A tags user B in a

12   photo, that photo may appear on user B's page, even

13   though user B did not post it.

14   SPECIAL MASTER GARRIE: So then how is -- so

15   is there a list of what information that is and how it's

16   obtained?

17   MR. EUGENE ZARASHAW: The challenge with

18   answering that question is the data is not -- you can't

19   always go from a user to all data referencing a user.

20   SPECIAL MASTER GARRIE: No. We talked about

21   that. I get that.

22   Let's just say Facebook profile page is how

23   we'll start with.

24   So does Facebook include information in

25   Facebook profile page that is not posted by the user in

1 Facebook? The answer is yes.

2   And then my question is, do you have a list of

3 what information that is?

4   MR. EUGENE ZARASHAW: I do not have a complete

5 list, but some of that would be in ███ and some of that

6 would be in ████████ for the case of the user profile.

7   And then I don't recall which system we use

8 these days to store the photos, but if the photo -- if a

9 user was tagged in a photo, the photo itself would be

10 stored in yet some other database. And then the

11 identifier for the photo stored in that database would

12 be stored with the post inside ████████ most likely.

13   And speaking of the earlier challenge, you --

14 I don't believe you would be able to go from the photo

15 to the user. Only the other direction -- or from the

16 photo to the post, but only in the reverse direction.

17   SPECIAL MASTER GARRIE: Okay. That makes

18 sense.

19   So then --

20   MR. FALCONER: Mr. Garrie, I don't know if

21 you're about to change topics. We've been going --

22   SPECIAL MASTER GARRIE: I am.

23   MR. FALCONER: -- a bit more than an hour.

24 Would it be okay if we took --

25   SPECIAL MASTER GARRIE: Yeah. We can take a

1 break. Sorry. I get --

2   MR. FALCONER: -- so Mr. Elia and Mr. Zarashaw

3 can stretch their legs, get some water, and use the

4 bathroom.

5   SPECIAL MASTER GARRIE: Yeah. I apologize.

6 Certainly. So literally it's a perfect breaking point.

7 We're -- yeah. We can take a five-minute break.

8   Plaintiffs, if you want to -- if you have any

9 questions that you want to ask, I'm happy to hear them

10 when we come back from our five-minute break. We'll go

11 off -- wait, before we go off the record. Sorry. We'll

12 go -- I'm sorry.

13   So the plaintiffs, organize your questions

14 during the five-minute break. We'll go off the record

15 for five minutes and we'll resume -- we're actually

16 right at the breaking point so that's perfect.

17   And then if Facebook -- I'm sorry. If counsel

18 for Facebook has any follow-up questions that they think

19 should be asked, please feel free to ask -- you know,

20 spend your five minutes thinking of any of those

21 questions as well. And we'll resume in five minutes.

22   Okay?

23   So now we're going to go off the record.

24   (Break taken in proceedings.)

25   SPECIAL MASTER GARRIE: So plaintiffs, are

1   there any questions that you want to ask me that you

2   think I should ask or follow up based on what we've

3   discussed so far?

4   MS. WEAVER: Yes. I think there's one general

5   framing question and then there's a follow-up with some

6   specific questions about identifiers.

7   The first general framing is trying to find

8   the internal word or jargon that Facebook uses for what

9   externally people refer to as a profile. And to

10 distinguish that from the profile that is on, you know,

11 a person's Facebook page, which is to say:

12   When Facebook is seeking to provide

13 personalized ads to Facebook's actual customers by

14 drawing off datasets about, say, one of our named

15 plaintiffs, they aren't going to the download your

16 information tool. They are drawing from some different

17 kinds of datasets that is contained within Facebook that

18 is much larger in scope than just what somebody posted.

19   It includes that inferred data from on and off

20 the web that's in one of the three categories you named.

21   And so the question is -- that's the framing.

22 The specific question is: Are there identifiers or

23 cookies, like the data cookie or a pixel, that can be

24 used to trace data connected to the named plaintiffs in

25 realtime today that we could use as an exemplar?

1   For example, if we had today the named

2   plaintiff go on, we looked at the data flow and said

3   there's a Facebook data cookie that is associated with

4   them, could we go in realtime today and use an

5   identifier like that to pull information that is

6   inferred? Like the -- whatever verticals or segments

7   these named plaintiffs are in.

8   Not the generic ones that are available on the

9   outward-facing Facebook profile, but the internal ones

10 that Facebook uses to personalize targeted ads.

11   SPECIAL MASTER GARRIE: That was a topic of my

12 next section, but we can kick it off.

13   Could you reask the question, though --

14   Go ahead, Counsel Falconer. Did you have any

15 question?

16   MR. FALCONER: Well, just -- I'm not sure if

17 Mr. Elia is back yet.

18   SPECIAL MASTER GARRIE: Oh, he's not. I'm

19 not --

20   So, Carlos, could you find Mr. Elia, or

21 Steven -- or Mr. Elia and move him back?

22   MR. FALCONER: I also --

23   JAMS CONCIERGE CARLOS ESPINOZA: I think he

24 might have left the session. I don't see him listed

25 anywhere.

1   SPECIAL MASTER GARRIE: That could be a result

2   of me, to be honest.

3   MR. FALCONER: I also am not on video for

4   everyone so I need -- I apologize. I need to log out

5   and log back in because I can't see anybody's video. So

6   if that's all right, I'll do that as quick as I can.

7   SPECIAL MASTER GARRIE: Okay.

8   MR. SANDEEP SOLANKI: I can try to ping Steven

9   just on our internal chat. So I assume that's okay with

10   everybody, just to see where he is.

11   SPECIAL MASTER GARRIE: Yes. We can go off

12   the record.

13   MS. WEAVER: Special Master Garrie, we know

14   that there's a replacement ID. You know, is that an

15   identifier that can be used to track people? Is it the

16   data cookie? I don't really know. Are there cookie

17   values we could create right now that are connected to a

18   Facebook user ID to use as an exemplar?

19   SPECIAL MASTER GARRIE: So I got the question

20   gist.

21   So it is the next section that I sort of have

22   to cover with them. So I will get to your question as

23   it comes up in a timely manner as we go into this next

24   sort of section.

25   But I have similar -- so -- questions there,

1   so...

2   Why don't we give them a minute to...

3   MR. SANDEEP SOLANKI: Oh, he said the Zoom

4   disconnected, gives him an error to log back into it.

5   (Pause in proceedings.)

6   SPECIAL MASTER GARRIE: We can go back on the

7   record.

8   And I can ask Mr. Zarashaw my first question

9   in this area and when -- I'm assuming if his answer is

10   very succinct, we'll go back off the record. If not, we

11   will continue forward. And hopefully Mr. Elia will be

12   back.

13   With that in mind, going back on the record, I

14   have a general question, which is sort of how does

15   Facebook refer to the set of data it has about users

16   inclusive of embedded and inferred data associated with

17   a particular individual?

18   MR. EUGENE ZARASHAW: The only term I could

19   think of is user data.

20   Just to add to that, we don't generally talk

21   about it in terms of -- in those terms of user and all

22   the data associated with them. Most of our

23   conversations are in the other direction of a product

24   and the things related to making the product -- specific

25   product work.

1   SPECIAL MASTER GARRIE: As engineers, when you

2   build something, how do you refer to it?

3   MR. EUGENE ZARASHAW: Honestly, data.

4   SPECIAL MASTER GARRIE: Yeah. But I'm a

5   unique piece of data. You call me a user object.

6   How do you -- there has to be some mechanism

7   for when you're developing things to refer to the data

8   about a user.

9   MR. EUGENE ZARASHAW: So we generally refer to

10 them as users or as people, and a user ID is the primary

11 identifier for a user.

12   I think the challenge is in the direction of

13 the connections between the data. A lot of -- in my

14 experience outside of Facebook, a lot of the time it --

15 things would start with a user and fan out from the

16 user. So you could start with a user -- a simple

17 product and find all the data about them.

18   Because we have centralized infrastructure for

19 certain things, and then many products and surfaces

20 built that both share some of the same infrastructure,

21 it tends to be the other direction around where you have

22 additional data in various systems that reference a

23 user, but it's -- unless you know what you're looking

24 for --

25   As an example, it's much easier if you have a

1 post to go find the user that made the post than if you

2 have a user to find all of the posts they made.

3   SPECIAL MASTER GARRIE: Like a phone number or

4 something key to the user?

5   MR. EUGENE ZARASHAW: The key is the user ID.

6 It's a 64-bit integer that is the unique identifier for

7 the user that is used for most systems inside Facebook

8 that are not anonymized.

9   SPECIAL MASTER GARRIE: That's more than all

10 the people in the world so I'm pretty sure you don't run

11 out of numbers.

12   MR. EUGENE ZARASHAW: Funny topic, we actually

13 are.

14   SPECIAL MASTER GARRIE: Really?

15   MR. EUGENE ZARASHAW: Because we share that

16 64-bit ID space with other objects as well, due to some

17 poor infrastructure choices a long time ago.

18   So we're running out of 64-bit numbers.

19   SPECIAL MASTER GARRIE: Got it.

20   So then the 64-bit numbers, every user that

21 trace through -- okay.

22   MR. EUGENE ZARASHAW: But there are systems

23 that don't care about the user in question, so the user

24 ID can get dropped often as the data traverses through

25 systems.

1   SPECIAL MASTER GARRIE: Okay.

2   MR. EUGENE ZARASHAW: Basically the general

3   privacy take on this is if we don't need to log PII, we

4   don't.

5   SPECIAL MASTER GARRIE: No. I get that.

6   But how then -- there has to be some mechanism

7   that I could use to search these different systems to --

8   because I'm at a -- like, the Court's definition, right,

9   unfortunately says "Data collected from a user's

10   on-platform activity," right, which could -- and the

11   second is "Data obtained from third parties regarding a

12   user's off-platform activities," which we're about to

13   get to, and third is "Data inferred from a user's

14   on-or-off platform activities."

15   So the issue then becomes all of these

16   systems, there has to be some -- a mechanism that will

17   allow me to trace the data that is associated with that

18   64 bit key.

19   MR. EUGENE ZARASHAW: I think that's the

20   challenge we're facing right now is that is not a use --

21   most of these systems exist because the generalized

22   systems weren't sufficient usually for performance

23   reasons.

24   So the reason you're seeing 55 systems on that

25   list is because we started out with two or three, and

1   for various reasons, as we built certain products, the

2   performance or cost characteristics of the generalized

3   systems just didn't work for those use cases.

4   And so we ended up adding specific systems to

5   serve just one use case.

6   One example, would be storage of large blobs

7   of data, i.e., photos or videos, is highly specialized

8   and only does one thing. It does it far better than our

9   other methods of storage but it only does that one

10   thing.

11   The use case you're mentioning of I would like

12   to look up all of a thing about a user from the system

13   just was not in this original specification, and it

14   would have to be built.

15   So I actually think the photo system is a

16   great example because it would be a rather nontrivial

17   effort if you went into that system and tried to find

18   old photos for a user.

19   You would have to go to a completely different

20   system, find how the photos are tracked about a user,

21   get the entire list of photo identifiers, then go back

22   to the system and look up each photo.

23   Just because we never originally built the

24   capability to go and find all photos by a user key. In

25   fact, I'm not certain a user key exists in that system

1   at all.

2   I think most of the challenges we're going to

3   see is because of these highly specialized systems where

4   it was a implementation cost and operational cost

5   decision to only build for the specific use case they

6   are good at and nothing else.

7   SPECIAL MASTER GARRIE: Then, Steven, I'm

8   going to ask you the same question.

9   MR. STEVEN ELIA: Sorry. I had technical

10   issues. Could you repeat the --

11   SPECIAL MASTER GARRIE: I'll reask the

12   question. Yes, of course.

13   So how does Facebook refer to the set of data

14   it has about users, inclusive of embedded and inferred

15   data associated with the individual user? Like a

16   Facebook profile; right? I mean, how does Facebook

17   refer to it?

18   MR. STEVEN ELIA: I would refer to a profile,

19   a profile data in a few ways myself, and that's probably

20   in a much more narrow fashion than I think the Court had

21   defined here.

22   Often when I'm thinking about a profile, I

23   think of the data directly on that user object in TAO

24   and other data like their content that is associated

25   with that, usually in that same system.

1   SPECIAL MASTER GARRIE: Then what about the

2   inferred data that you get associated with that user ID?

3   MR. STEVEN ELIA: Do you have an example you

4   have in mind of inferred data?

5   SPECIAL MASTER GARRIE: I mean, you collect

6   on -- there's a litany of data; gender, age. I mean, we

7   can -- I can give a very -- I guess maybe the newspaper

8   example, you know, where we have a list of the delivered

9   papers with addresses, and I can connect that paper to

10   that user. And then from there, I could -- you know, or

11   ad impressions; right? You know...

12   We could use the newspaper. Maybe that's a

13   good place to start.

14   MR. STEVEN ELIA: As Eugene was saying, I

15   think -- I only caught part of his answer there before I

16   reconnected -- when we don't store the user ID with some

17   of this data, it's generally very difficult to look that

18   up by user or associate with the user because that is

19   not indexed in that fashion.

20   And so when I, again, think of this kind of

21   user data, I would think of, well, what is the data

22   that's primarily indexed by that user ID?

23   SPECIAL MASTER GARRIE: You have 55 systems.

24   MR. STEVEN ELIA: Many of which I wouldn't

25   expect to contain user IDs at all or even if they did,

1 certainly not be indexed by that.

2   SPECIAL MASTER GARRIE: Well -- go ahead.

3   MR. STEVEN ELIA: Yeah. And so connecting any

4 data in there back to a particular user would be

5 difficult or impossible in most cases, if that's not how

6 it's stored.

7   SPECIAL MASTER GARRIE: But a system that

8 takes a user ID, right, and then returns data that

9 matches to the user somehow is based on characteristics.

10   MR. STEVEN ELIA: A system that takes in a

11 user ID and indexes the data that way, those systems do

12 exist, but most of the ones in that list of 55, I don't

13 believe operate in that kind of fashion.

14   SPECIAL MASTER GARRIE: Can you identify which

15 ones you know of on that list that operate in that

16 fashion?

17   MR. STEVEN ELIA: The primary system that

18 operates that way is ███ and that's the system -- the

19 only one I can think of that I've personally used that

20 operates in that fashion.

21   MR. EUGENE ZARASHAW: The other one I can

22 think of would be ██████

23   SPECIAL MASTER GARRIE: MySQL doesn't work

24 with the user ID key?

25   MR. EUGENE ZARASHAW: Depends how the keys are

1 set up. ███ is a layer on top of it that does its own

2 keys.

3   SPECIAL MASTER GARRIE: That's' a question I

4 had.

5   Why is MySQL in there?

6   MR. EUGENE ZARASHAW: We still have some MySQL

7 servers that are not back in ███ They are just used

8 directly. They are also generally not used to use store

9 user scale data.

10   SPECIAL MASTER GARRIE: Does ██████ use a --

11 like some of these I would think have some user ID, like

12 ██████ or ██████ or ██████████

13   MR. EUGENE ZARASHAW: There are some

14 databases, Clusters -- such as ██████ that are

15 clusters of MySQL that are not based in ████

16   I think one thing that may help, given you

17 worked in banking tech, is ██████████

██ ██████ ████████████████

██ ██████████████████

20   SPECIAL MASTER GARRIE: I lost connectivity

21 here.

22   How is that possible?

23   Is this the internet? Oh, you gotta be

24 kidding me.

25   Can you hear me, Kathryn?

1   THE COURT REPORTER: I can hear you, yes.

2   SPECIAL MASTER GARRIE: Okay. It skipped out.

3   Can you send me the link for the realtime

4   transcript so I can read it as well?

5   THE COURT REPORTER: Sure. Can I have your

6   e-mail?

7   SPECIAL MASTER GARRIE: Yeah. D -- I'll put

8   it in chat for you.

9   So what are those clusters, not the ██ ones,

10   I guess then?

11   MR. EUGENE ZARASHAW: ██ -- in some cases

12   because ██

██   ████████████████████████████ So I think you dropped

14   out during -- uh-oh.

15   You dropped out during the last answer. But I

16   mentioned ████████ for example, as per your banking

17   days, you had -- you had databases that had transaction

18   support.

19   ██████████████████████

██   ████████████████████████████████

██   ████████████

22   SPECIAL MASTER GARRIE: I mean, I guess

23   plaintiff's question -- so you're saying there's no

24   unifying user ID or key that goes across all these

25   systems?

1   MR. EUGENE ZARASHAW: Across all of them, no.

2   The most common way to represent a user is a

3   user ID. However, the user ID may not be associated

4   with a lot of the data stored in many IT systems.

5   SPECIAL MASTER GARRIE: Okay. All right.

6   We'll return to this once I've processed it a little

7   further.

8   Off platform -- so my next question is: Does

9   Facebook -- and I don't know if this is for Mr. Elia or

10   you Mr. Zarashaw -- but does Facebook receive data about

11   user's off-platform activity?

12   MR. EUGENE ZARASHAW: We receive some data

13   that I know of due to us having the like button, and the

14   Facebook Javascript SDK. So some data does come in

15   about the source of where this was loaded up or somebody

16   liking a page off of Facebook and so on.

17   SPECIAL MASTER GARRIE: I took a look at the

18   SDK. It's a little broader than that for your inbound.

19   Do you have a list of data you do receive

20   about users and then -- so I can be specific. User

21   tracking cookies?

22   MR. EUGENE ZARASHAW: I do not know the

23   details of the ad side of the SDK. The last time I

24   interacted with the SDK would have been about 2013,

25   maybe 2014.

1   SPECIAL MASTER GARRIE: Got it.

2   What about you, Steven? I can list them off

3   if you guys -- if either one of you know the answers.

4   User tracking cookies?

5   Mr. Elia?

6   MR. STEVEN ELIA: I don't know. I'm not

7   familiar with the use of cookies. No.

8   SPECIAL MASTER GARRIE: All right. What about

9   Facebook pixel?

10   MR. STEVEN ELIA: I believe that's for ads

11 purposes, which I haven't worked on either.

12   SPECIAL MASTER GARRIE: Mr. Zarashaw?

13   MR. EUGENE ZARASHAW: Same issue. I'm very

14 loosely familiar with the pixel and not the SDK details.

15   SPECIAL MASTER GARRIE: Is it possible that

16 the Facebook pixel, plus the user ID would give us a

17 decent idea of what systems have what user ID -- data?

18 Sorry.

19   MR. EUGENE ZARASHAW: I mean, it still

20 wouldn't help us retrieve the data or find it in the

21 systems. ████████████████████████████

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3   SPECIAL MASTER GARRIE: Do you guys have a

4 data diagram to explain the flows?

5   MR. EUGENE ZARASHAW: I don't know of one. I

6 think this would be a data that would need to create or

7 find data diagrams for every flow type or every product

8 type because --

9   SPECIAL MASTER GARRIE: I don't mean every

10 flow type so let me be specific.

11   I would just -- what about just basic one?

12 Like where I'm struggling, right, is there's a ton of

13 systems and I need to understand if they are -- if it is

14 too complicated or as intertwined or as cumbersome as it

15 sounds, there has to be some data diagrams that will

16 explain or articulate how this user data flows.

17   I mean, because, like -- because you have

18 DS share and -- I mean, you know, I could give you an

19 example, like what websites a user visits? Like is that

20 tracked?

21   MR. EUGENE ZARASHAW: I don't know offhand.

22 I know that underlying data would arrive at Facebook

23 servers just because of the browser always sending the

24 HTTP refer header any time.

25   But I don't know if we actually report it

1   anymore.

2   I'm not sure if the HP refer header at this

3   point is kept or dropped.

4   SPECIAL MASTER GARRIE: Mr. Elia, do you know?

5   MR. STEVEN ELIA: I also don't know. I did

6   briefly work on the social plug-ins, things like the

7   like button that you --

8   SPECIAL MASTER GARRIE: That's literally my

9   next question.

10   MR. STEVEN ELIA: But during my time working

11   on that, which was 2018 and 2019, I don't recall ever

12   seeing that data get processed and used --

13   SPECIAL MASTER GARRIE: So my --

14   MR. STEVEN ELIA: -- or stored.

15   SPECIAL MASTER GARRIE: So here's my -- does

16   Facebook receive data about user off-platform activity

17   via share or their like plug-in?

18   MR. STEVEN ELIA: As Eugene said, it's

19   certainly received. It's sent just as an ordinary part

20   of browser behavior. But whether that results in any

21   sort of logging or writing to any data source, I'm not

22   aware of any, just from seeing that plug-in.

23   SPECIAL MASTER GARRIE: Do you have a data --

24   there has to be some -- or takes custody of, may be a

25   better way is we use the word take custody of the data.

1   Does Facebook take custody of the data when it

2   comes inbound?

3   MR. EUGENE ZARASHAW: I don't really know what

4   that term means.

5   SPECIAL MASTER GARRIE: So I -- maybe try it

6   differently.

7   Is there a data diagram that would explain to

8   me how Facebook handles share and like plug-in activity?

9   So I'm on another website. I click something

10   or a like or a share.

11   Does Facebook take custody or receive or

12   whatever that data, how -- like a data diagram

13   explaining how the user of that data flows and through

14   what systems?

15   MR. EUGENE ZARASHAW: I don't know of one.

16   Russ, do you happen to know -- is there one we

17   already produced for this or one that exists?

18   MR. FALCONER: I'm also not aware of one off

19   the top of my head. And I don't want to speak off the

20   cuff about that, but that's something we can check. But

21   nothing comes to mind right now.

22   SPECIAL MASTER GARRIE: Yeah. I mean, so I

23   get the save part, but I know the C part is definitely

24   inbound data off the header; right? So you saw it.

25   So the question is: Is that associated with

1   the user? And then -- maybe that's the ad. I don't --

2   I'm just trying to figure out -- 'cause you're getting

3   that data, right, from a user's off-platform activity.

4   It's coming inbound. You're capturing it.

5   What about -- I guess about what via partner,

6   the API? So I'm a partner. I make Facebook an API and

7   share the data back inbound about users.

8   MR. EUGENE ZARASHAW: So we do have an API for

9   uploading graph activities via the SDK.

10   SPECIAL MASTER GARRIE: But what about via

11   partner making? So a partner like an Amazon or

12   somebody, or a Netflix makes an API available to you?

13   MR. EUGENE ZARASHAW: The only API like that

14   I know of as -- that I'm recalling is the push

15   notification API, the Android and iOS push

16   notifications.

17   SPECIAL MASTER GARRIE: What about you,

18   Mr. Elia?

19   MR. STEVEN ELIA: There is a similar kind of

20   push functionality, for instance, in a platform product

21   we have called WebHooks. The contents of those push

22   updates are defined by Facebook. The developer would

23   configure both, which types of events they want to be

24   notified about, and a URL on their server to receive

25   those.

1   SPECIAL MASTER GARRIE: So then the WebHooks

2   is like a published subscribed standard; right?

3   So my question is -- I guess the way I think

4   about it is does Facebook receive data about users'

5   off-platform activity via a partner making an API

6   available to Facebook?

7   So I'm Amazon. I make an API available that

8   Facebook could call attached to the user because there's

9   a whole lot of conversation about reciprocity.

10   MR. EUGENE ZARASHAW: I don't know of any such

11   API.

12   MR. STEVEN ELIA: Same. I'm not aware of any.

13   SPECIAL MASTER GARRIE: So then what about

14   partners bulk uploading data to Facebook? Not use --

15   I'm not saying user specific. I'm just saying partners

16   of bulk uploading the data into Facebook? Batch jobs.

17   MR. EUGENE ZARASHAW: So the only thing that

18   would remotely be like that is some of the work on the

19   ad side, but I'm not familiar with the details.

20   SPECIAL MASTER GARRIE: Okay. So then all the

21   off-platform activity goes to pixel share or like

22   basically, it sounds like.

23   Is there any other way that it's tracked, the

24   off-platform activity?

25   MR. EUGENE ZARASHAW: It's possible for a --

1   an off -- a third party to upload a custom audience of

2   identifiers for their own ad targeting, using our API or

3   our website upload functionality to upload a list of

4   either anonymized or non-anonymized identifiers to us,

5   and then use that list to target their ads without

6   knowing anything about the content of that list.

7   SPECIAL MASTER GARRIE: And you're hashing

8   them like -- so do they know who you're serving ads to?

9   MR. EUGENE ZARASHAW: There are multiple ways

10   to -- there are multiple types of identifiers that can

11   be used. And I'm quite out of date in this. I was

12   never particularly deep. But we had functionality to

13   upload user IDs, and at one point we had functionality

14   to target by e-mail addresses.

15   I'm not sure what other form -- types of

16   targeting there were where a partner would just upload

17   the set or -- there was also functionality for hash sets

18   where we wouldn't even know the e-mail addresses that

19   they're targeting directly, unless they were also

20   interfaced with users, and then they could just use

21   that custom audience to run their campaign against.

22   SPECIAL MASTER GARRIE: I know a couple other

23   companies do that.

24   What about you, Mr. Elia?

25   MR. STEVEN ELIA: I'm not aware of any others.

1   SPECIAL MASTER GARRIE: How hard would it be

2   for Facebook to take the UID and the pixel ad user or

3   unit and associate -- and figure out what systems they

4   actually have of the remaining systems or remaining

5   43 systems?

6   MR. EUGENE ZARASHAW: It would take multiple

7   teams on the ad side to track down exactly the -- where

8   the data flows. I would be surprised if there's even a

9   single person that can answer that narrow question

10   conclusively.

11   I think part of the challenge we're running

12   into is we tend to build pieces of infrastructure that

13   are generic and to -- whenever possible. And then just

14   leave them running for anybody at the company to use.

15   And sometimes piece of infrastructure end up

16   using other pieces of infrastructure as underlying

17   storage and ends up being as a layer on it. But they're

18   not necessarily built with a clear set of only use

19   cases.

20   So it's very difficult to let's say start with

21   a system and find out all of the users of that system.

22   On the other -- it's somewhat simpler to start

23   with specific use cases you have and find all the

24   engineers involved in implementing that use case, and

25   from that find out all the systems that might end up

1   being used tracing through when you use a system to

2   understand what other systems that system in turn uses.

3   SPECIAL MASTER GARRIE: I read your patents

4   and there's definitely inferences about users, like

5   their personality traits.

6   Where does that information go then?

7   MR. EUGENE ZARASHAW: For that one we would

8   need someone from the ads team, probably from the ads

9   targeting team.

10   SPECIAL MASTER GARRIE: Because, I mean,

11   there's patents to predict all sorts of things about

12   people that I assume are implemented somehow.

13   So if you're able to infer someone's rate of

14   being married or not, which is in one of your patents,

15   or anything -- you know, something of the like, that

16   data is being inferred because I can't imagine users

17   telling you "I think we're going to get divorced."

18   So there has to be somewhere -- at some level

19   that data has to be aggregated out and inferred from the

20   user activity, and then stored somewhere.

21   MR. EUGENE ZARASHAW: I just don't know

22   offhand where we stored with -- it would take tracking

23   down multiple people in the ads team to find out all of

24   the systems that might store this.

25   SPECIAL MASTER GARRIE: I'm in the unfortunate

1   situation where the Court has made it very clear that

2   the information relating to a user -- when we say user

3   name, plaintiffs is -- needs to be determined.

4   So then how does Facebook acquire data about

5   user activity off-platform from third parties like

6   Netflix or Amazon or others?

7   MR. EUGENE ZARASHAW: That's getting beyond my

8   depth, if we do it all.

9   SPECIAL MASTER GARRIE: Mr. Elia?

10   MR. STEVEN ELIA: To the degree those other

11   services use things like Facebook log-in, we would

12   certainly know when a user has done so, logged in with

13   their Facebook account, that is.

14   When a developer like Netflix, for instance,

15   uses the user access token, they get as a result of that

16   log in to make API requests. That is also something we

17   would know about --

18   But I'm not aware of other instances outside

19   of ordinary use of our APIs by those parties that might

20   be what you have in mind.

21   SPECIAL MASTER GARRIE: Let's talk about just

22   the APIs; right?

23   API. So we -- yesterday -- the data -- let's

24   start with APIs.

25   I'm Netflix. There's an API that's made

1 available. I mean, is that a -- we'll get into the

2 private API conversation. But how is that mapped to the

3 user? You said the token? Is that what you said?

4   MR. STEVEN ELIA: An access token is used to

5 authenticate API requests.

6   Towards the beginning of our session today,

7 Eugene talked about two different kinds of tokens. One

8 used on things like mobile devices and web browsers that

9 is specific to the user, and another type of token for

10 server-to-server API requests.

11   And so the -- result of the user going through

12 that log-in flow --

13   THE COURT REPORTER: Sorry. I'm not sure if I

14 missed something. The Zoom froze. So what I heard at

15 the end was "And so the result of the user going through

16 that log-in flow."

17   MR. STEVEN ELIA: The developer gets a user

18 token as a result of going through that log-in flow.

19   SPECIAL MASTER GARRIE: Is that user token the

20 same thing as a user ID?

21   MR. STEVEN ELIA: It's not the same thing.

22 But a user access token is a secure encryption of

23 primarily the user ID and the app ID. So that when that

24 token is provided with an API request, Facebook's APIs

25 can understand which user and which app is making this

1   request.

2   SPECIAL MASTER GARRIE: So then how does --

3   so then --

4   MR. EUGENE ZARASHAW: It's a bearer token that

5   covers both authentication and authorization, and then

6   access control is handled on the app server based on the

7   author's -- based on the ID that has been verified

8   inside the token. So the -- sorry.

9   SPECIAL MASTER GARRIE: No. Go ahead.

10   MR. EUGENE ZARASHAW: So the access control is

11   based on the pair of user ID and app ID. The access

12   token -- the bearer of the access token is authorized to

13   act on behalf of the payer of the intersection of user

14   and app. So the lesser of the privileges of the two.

15   SPECIAL MASTER GARRIE: So then could we use

16   the access token with the user ID to find all the data

17   for third-party apps at least that were accessing data

18   across the face of these systems?

19   MR. EUGENE ZARASHAW: You could use it to

20   query APIs for access to data that a third-party app

21   would have about that user if you knew which exact data

22   you were to query for.

23   So as an example, a complete synthetic

24   example, let's assume an app had access to a photo. A

25   user posted a photo and an app user payer had access to

1   the photo, you would need to know what photo to pull up

2   or how to navigate through the Graph API to find the

3   list of photos and then find the photo you're looking

4   for.

5   SPECIAL MASTER GARRIE: So then let's return

6   to a specific example for me. Let's talk about Netflix

7   or Amazon. You can pick either one.

8   What data does Facebook get about a user's

9   Netflix -- Amazon activity, and where does that data end

10   up being stored?

11   MR. EUGENE ZARASHAW: I'm not confident on

12   this one because I have not worked with Amazon, but my

13   understanding is we get absolutely nothing about Amazon.

14   SPECIAL MASTER GARRIE: What about Netflix?

15   MR. EUGENE ZARASHAW: We would get data if

16   they were to use the Javascript SDK about when the

17   Javascript SDK was loaded. It is served over the main

18   difference from Facebook dot com, if I remember

19   correctly --

20   Steven, correct me if I'm wrong.

21   -- so we might not get all the cookies.

22   I don't know if they use the social plug-ins,

23   such as like and share. And we would have to check what

24   they actually send us via the Graph API.

25   SPECIAL MASTER GARRIE: Okay. So then,

1   Steven, anything -- Mr. Elia, anything you would like to

2   add to that?

3   MR. STEVEN ELIA: No. My understanding is the

4   same.

5   SPECIAL MASTER GARRIE: So then where does

6   that data get stored? I mean, there has to be -- I

7   remember the SDK. I just don't know on the back end

8   where it goes.

9   MR. EUGENE ZARASHAW: ████████████████████

     ██ ██

11   SPECIAL MASTER GARRIE: The SDK has

12   function -- yeah. Keep going. I'm sorry, Mr. Zarashaw.

13   MR. EUGENE ZARASHAW: Logging about the raw

14   HTTP request by default ends up in Hive.

15   If API calls are made, it would depend which

16   API is being called and where the data would get stored

17   so...

18   SPECIAL MASTER GARRIE: Do we have a data

19   diagram for that? Like you develop -- someone must have

20   a diagram that says this is where this data is stored.

21   MR. EUGENE ZARASHAW: We have a somewhat

22   strange engineering culture compared to most where we

23   don't generate a lot of artifacts during the engineering

24   process. Effectively the code is its own design

25   document often.

1   SPECIAL MASTER GARRIE: So you have to look at

2   the code to figure out -- I mean, so --

3   MR. EUGENE ZARASHAW: For what it's worth,

4   this is terrifying to me when I first joined as well.

5   SPECIAL MASTER GARRIE: You understand,

6   though, like -- so you're telling me to figure this out,

7   I have to look at the Netflix code to see how they're

8   calling it, and then talk to each engineer in resource

9   to figure out where it's actually storing that data that

10   you're getting? There's no diagram?

11   Because you wrote an SDK so there has to be

12   someone that knows what's supposed to go where at a

13   minimum?

14   MR. EUGENE ZARASHAW: I don't think you'd have

15   to talk to Netflix. It would be more -- someone would

16   need to analyze what is Netflix actually uploading to

17   us, which would be likely somewhere in ███

18   Then someone on the team that handles that

19   specific API, because many teams at the company expose

20   different APIs. The API stack itself is another piece

21   of infrastructure that multiple teams contribute to.

22   So we would need to step on, find out what

23   Net -- API's Netflix is calling that might result in

24   data being exempt.

25   Step 2 --

1   SPECIAL MASTER GARRIE: So we have at least a

2   high level understanding of that and the time period of

3   that.

4   So where does it go?

5   MR. EUGENE ZARASHAW: So Step 2 would need to

6   find the engineering teams responsible for the specific

7   APIs and ask them to track down where are all of the

8   places the data ends up?

9   And it would depend on exactly what is being

10 up loaded and what the API is for, whether it ends up --

11 like if you're looking at -- we can certainly give you a

12 probabilistic answer. But to get a certain answer would

13 take some digging.

14   SPECIAL MASTER GARRIE: All right. But --

15 okay. Probabilistic.

16   What about you, Mr. Elia? I mean, you have

17 engineers on your team and I get the fact that you set

18 them loose on the world. But like there's an SDK for an

19 API. So there's APIs. They have SDK. There's a

20 Javascript SDK. I program it. It comes through to your

21 system. Someone somewhere must know where that data is

22 going to -- it goes to █████████

23   Then you -- what happens there? It gets

24 extracted out of ████████ and stored into other systems

25 or how does this work?

1   MR. STEVEN ELIA: So to use that example, that

2   SDK could call any number of APIs, and our code base is

3   open where any engineer in the company would have the

4   ability to modify that SDK, build a new API for it to

5   call.

6   And so as Eugene was saying, I think that

7   would require identifying all the APIs, someone like

8   Netflix was calling, finding the teams that are

9   responsible for those APIs.

10   And last I checked last year there were

11   thousands of APIs and over 500 teams that had built

12   these.

13   And so the individuals from the teams

14   responsible for those APIs would then be the ones most

15   knowledgeable about --

16   SPECIAL MASTER GARRIE: I get it.

17   But we could seduce statistically

18   significantly sample and come up with a relatively

19   probabilistic model that would answer probably for

20   95 percent of the data that flows through the company.

21   I mean, you're not talking that -- I mean, we don't need

22   to look at a thousand. I could look at 20 of them and

23   aggregate that through to all of them with a 95 percent

24   confidence level at some level.

25   But what I don't understand is -- so basically

1   you don't make it -- to engineer up front is required to

2   make data flow diagrams or data diagrams or anything

3   about what data is going where?

4   MR. EUGENE ZARASHAW: That is the exception of

5   the rule.

6   SPECIAL MASTER GARRIE: True, Mr. Elia?

7   MR. STEVEN ELIA: Yes. That's correct.

8   SPECIAL MASTER GARRIE: So we have 43 systems

9   where engineers of a --

10   MR. EUGENE ZARASHAW: For what it's worth, in

11 the design of a lot of these systems, there are diagrams

12 and design artifacts for how the underlying piece of

13 infrastructure is designed.

14   However, it is rare for there to exist

15 artifacts and diagrams on how those systems are then

16 used and what data actually flows through them. They're

17 generally agnostic to the data.

18   MR. STEVEN ELIA: I would add onto that that,

19 yes, often these systems may be built with a particular

20 use case in mind. If other teams find that they have

21 their own use case that would benefit from using that

22 system, they're typically free to make use of it.

23   And so even the teams who maintain and are

24 responsible for these systems may not be aware of all

25 of the specific use cases that are leveraging.

1   SPECIAL MASTER GARRIE: Well, with that in

2   mind, then the DIY file is certainly incomplete.

3   Because nobody actually knows what the users are

4   actually doing.

5   I mean -- I mean, that would be the logical

6   conclusion.

7   All right. Let me ask the next question then.

8   Sorry for thinking out loud there.

9   So then is there aggregated and inferred data

10   that is extracted from the Hive relevant to the users,

11   being the named plaintiffs here, on other named -- you

12   know, that's my first question, and then I have a

13   follow-up question to that.

14   MR. EUGENE ZARASHAW: What do you mean by

15   relevant in this case?

16   SPECIAL MASTER GARRIE: I mean anything. They

17   have brown cows, red cows, green cows, purple cows. I

18   mean, anything. Like your Hive literally stores

19   everything people do in the entire whole wide existence.

20   So I have no idea what some -- based on what

21   you told me, some Facebook engineer can write a query

22   and be, like, do these people have brown cows and

23   associated with their user ID because it's related to

24   the cow liking button.

25   I mean, is there -- so, I mean, any -- is

1   there any aggregated or inferred data that's extracted

2   from the Hive relevant to a user?

3   MR. EUGENE ZARASHAW: I don't know. Hive is

4   another similar system where it's relatively free form,

5   how it can be used.

6   So it's back to the starting with the final

7   artifact and trying to trace out how the artifact was

8   created is much easier than starting with the original

9   data and trying to trace all the artifacts that may have

10   been created from it.

11   SPECIAL MASTER GARRIE: So you can't

12   aggregate -- but can a developer aggregate and extract

13   data out of the Hive that is aggregated or inferred?

14   MR. EUGENE ZARASHAW: They can write queries

15   to -- assuming they pass the privacy checks, which does

16   require getting certain levels of permission and have a

17   good reason to be doing it, they can create data based

18   on other data in Hive during the data and so on and

19   intermediate tables.

20   But there's no way to find out, for example,

21   what are all of the intermediate tables a user appears

22   in.

23   MR. FALCONER: Could I ask -- I'm sorry. I

24   just want to make sure I'm following.

25   When you say a developer,

1   Special Master Garrie, do you mean like an internal

2   Facebook developer or like a --

3   SPECIAL MASTER GARRIE: Yeah. Only a Facebook

4   engineer. I understand only Facebook engineers have

5   direct access to the Hive.

6   Is that not true?

7   MR. FALCONER: Right. Okay.

8   MR. EUGENE ZARASHAW: That's correct.

9   SPECIAL MASTER GARRIE: Okay.

10   So I've sat through a lot of depos so I just

11   assume certain things, but fair point.

12   So let me give you a more practical example.

13   Can an engineer extract linguistic data from

14   the Hive that has communications between different

15   users, retrieve those data from the user profile; right?

16   So -- because the messaging is part of the DIY file.

17   So I extract linguistic data from the DIY

18   file, I then retrieve characteristics from the user's

19   profile themselves; right? So we have linguistic and

20   the user profile, and I'm extracting data from both of

21   them.

22   And then I determine, based on the user's

23   linguistic patterns and their profile data, I then store

24   certain personality or characteristics traits of it;

25   right?

1   I know you guys filed for patents on this.

2   My question is where does that data go?

3   Because then you store the content for the user based

4   on those characteristics that you derive, at least

5   according to the patents.

6   MR. EUGENE ZARASHAW: Since we're on the

7   record, I don't believe that case is possible because to

8   my recollection, ████████████████████████████████

     ███

10   SPECIAL MASTER GARRIE: Yeah. Sorry. I

11   forgot. You're right.

12   But you can look -- so you look at the message

13   and the other -- so you look at the message and the user

14   profile, ████████████   Sorry. So remove it from ██████

15   You look at them outside of ██████

16   MR. EUGENE ZARASHAW: So it would depend where

17   that team wanted to store it. There are multiple pieces

18   of infrastructure they could use. They could also build

19   custom infrastructure if they wanted to store something

20   like that.

21   It would entirely depend on the specific team

22   in question, what they chose to use.

23   SPECIAL MASTER GARRIE: So how I do find out

24   which systems actually have this user data that can be

25   inferred?

1   MR. EUGENE ZARASHAW: I don't know.

2   SPECIAL MASTER GARRIE: Seems very socialized.

3   MR. EUGENE ZARASHAW: It's a rather difficult

4   conundrum.

5   SPECIAL MASTER GARRIE: I mean, I appreciate

6   the equality of access here. It's just -- it seems

7   very -- I'm trying to figure out a way that's more

8   efficient and effective to meet what the Court has

9   ordered for the 43 other systems. But it doesn't sound

10   like -- let's keep going.

11   So what other databases housed -- do you

12   have -- is there any list anywhere the databases that

13   housed inferred or aggregated data? Is there -- of the

14   systems we have, can you tell me which ones are likely

15   to house it?

16   MR. EUGENE ZARASHAW: I don't know. ████ is

17   the only one is my go-to guess. Probabilistically.

18   SPECIAL MASTER GARRIE: And ████ is one of the

19   42 that remain.

20   Like, Mr. Elia, do you have any guesses?

21   MR. STEVEN ELIA: I don't have an indication

22   about some of the others. I probably used half a dozen

23   of these myself.

24   SPECIAL MASTER GARRIE: Which ones do you use?

25   Let's focus on those.

1   MR. STEVEN ELIA: I'll go through this list.

2   ████████, Memcache, TAO, ███ and ███

3   MySQL, although I mostly think of that in terms of ███

4   and ███

5   And those are the ones that I have personal

6   familiarity with.

7   SPECIAL MASTER GARRIE: Then could TAO store

8   that information?

9   MR. STEVEN ELIA: Could you repeat --

10   SPECIAL MASTER GARRIE: The inferences?

11   MR. STEVEN ELIA: Could you repeat the full

12   context of your question?

13   SPECIAL MASTER GARRIE: Yeah.

14   So I look at the chat message -- so you look

15   at my chat messages with a friend, and then you look at

16   my profiles and you decide that I am -- you make some

17   inferences about my personality traits or

18   characteristics or -- and then store that in a database.

19   MR. STEVEN ELIA: TAO might be an odd choice

20   to use for that. What you could do if you were to store

21   information like that in TAO is create a new kind of

22   object with fields for these different forms of

23   inferences you wanted to keep track of and associate

24   that object, for instance, with the user those are

25   inferences about.

1   SPECIAL MASTER GARRIE: But it sounds like

2   MySQL could be just as well a database if they wanted,

3   they could do it in?

4   MR. STEVEN ELIA: It could. That, as Eugene

5   also mentioned, is typically not used for user data,

6   just because it wouldn't support it at that scale.

7   SPECIAL MASTER GARRIE: Okay. So that -- I

8   would assume ███████ would not be one of those?

9   MR. STEVEN ELIA: ████████ is used to store

10   things like the photo or video binary files. It's more

11   of like a blob kind of storage.

12   I also, like Eugene, don't know if it even has

13   user IDs. So given something like an identifier of a

14   photo that's in ████████, I don't know if you could

15   even find the user who uploaded that photo.

16   SPECIAL MASTER GARRIE: But it is linked

17   somehow to the user ID, otherwise you just have a bunch

18   of photos sitting --

19   MR. STEVEN ELIA: ████████████████████

██   ███

██   ███

██   ██

██   ██████████████████████

24   SPECIAL MASTER GARRIE: So then TAO is sort of

25   like the database on top of the database, so to speak.

1   I have pictures --

2   MR. EUGENE ZARASHAW: It's often used that

3   way.

4   SPECIAL MASTER GARRIE: So then you look at

5   TAO.

6   And then if you -- then what about --

7   what's -- you mentioned Mem?

8   MR. STEVEN ELIA: Memcache, which is a caching

9   layer, so during a request there might be some

10 information that's repeatedly accessed.

11   SPECIAL MASTER GARRIE: That's the ADD

12 experience. I got it.

13   User satisfaction, eminent -- or most -- user

14 experience.

15   MR. STEVEN ELIA: As a -- let me give a

16 concrete example.

17   So something like your own name might appear

18 multiple times in the course of loading a particular

19 Facebook page like your profile. Rather than query TAO

20 in some underlying database every time that's needed to

21 render, that would be expensive. It's cheaper to use a

22 caching layer like Memcache.

23   SPECIAL MASTER GARRIE: Yeah. That's why they

24 have ram -- yeah. Same idea, just a software extracted

25 ram. I get it. It's for that user experience. People

1 aren't patient. I get it. And it's expensive. And

2 your data centers and all that.

3   Then you said ███ and what was the other one

4 you mentioned?

5   MR. STEVEN ELIA: ███

6   SPECIAL MASTER GARRIE: ███

7   Would they be used to store that?

8   MR. STEVEN ELIA: ███ and ███ to the degree

9 there's differences between them, I'm not familiar with

10 them. I would use those almost synonymously. These are

11 often direct MySQL instances.

12   My own familiarity and use of them has been

13 with the capability system that I described yesterday in

14 my testimony for whitelisting apps for a certain kind of

15 functionality.

16   SPECIAL MASTER GARRIE: Yeah. I thought

17 that's where all that sort of data rests or existed;

18 right?

19   MR. STEVEN ELIA: There's an ███ instance that

20 stores that information. But any team might have their

21 own ███ instance for data specific to their product or

22 system.

23   SPECIAL MASTER GARRIE: There's no way to

24 query the system to find out if there's user data

25 inferences in it, ████████████ it sounds like?

1   MR. EUGENE ZARASHAW: Not that I know of.

2   MR. STEVEN ELIA: Yeah. I don't think at a

3   technical level it would even be possible to query

4   across all ███████ instances.

5   SPECIAL MASTER GARRIE: You have to write a

6   script and then type it out and dump it, and then query

7   that script. And then go back and look at that dataset.

8   MR. EUGENE ZARASHAW: It's often more painful

9   than a script because you're often dealing with hundreds

10 of thousands of instances. So even one failure can

11 cause issues.

12   It takes some nontrivial engineer to work

13 through reliably, even touch every single database

14 shard.

15   SPECIAL MASTER GARRIE: Yeah. I mean, again,

16 we could sample it and skip every and just do a sample.

17   Is whitelist, you mean in and out -- an allow

18 list; right? That's what you -- when you say -- the

19 whitelist is a capability -- yesterday there was a lot

20 of -- in your prior testimony, there was discussion

21 about capabilities and whitelists and that tool set.

22   That's where that set is; right? In an

23 instance in that database?

24   MR. STEVEN ELIA: The list of capabilities

25 that have been granted to a particular application and

1   the history of that is in an ██████ as well as -- as of

2   last year, I believe, that information is also

3   duplicated in ██████

4   SPECIAL MASTER GARRIE: Looks like TAO data is

5   pretty -- it's fairly -- what systems in here on this

6   list of 55 -- or I'll call it 43 -- are TAOs an

7   overlayer for most user data? Do you have any idea?

8   MR. STEVEN ELIA: I don't know which of these

9   systems TAO would duplicate info of.

10 ██

   ██

   ██

   ███

14   SPECIAL MASTER GARRIE: A primary -- okay.

15   So what other data -- is it possible then to

16   tell me what other data, other than anonymized data, is

17   in the database or in these systems here?

18   If I were to say I don't care about anonymized

19   data, I just want to know about non-anonymized data in

20   the systems, is there any way to figure out?

21   MR. EUGENE ZARASHAW: I don't know of one.

22   We're back to square one on having to figure out what is

23   actually stored in each database and often task the

24   engineering team that owns that specific data what it

25   actually is.

1   SPECIAL MASTER GARRIE: Okay.

2   MR. EUGENE ZARASHAW: For what it's worth,

3   there are some systems we could rule out as definitely

4   being duplicate or transient data that is -- like, for

5   example, Memcache is a good example of only storing

6   things that are, okay, oozing in short order because

7   it's just caching data.

8   Or ████████ is another one where it's just an

9   indexing system where the primary data must live

10 somewhere else.

11   Laser is another system where by definition,

12 any data it serves is just fronting an existing Hive

13 table.

14   So there are certain systems that -- it's very

15 difficult to find out what has user data but it might be

16 possibly to rule out some systems as having data always

17 derived from some other system.

18   SPECIAL MASTER GARRIE: Yeah. That's what it

19 sound -- it sounds like some of these -- or they have

20 data that's contained in another system; right?

21   So TAO --

22   MR. EUGENE ZARASHAW: There's a lot of

23 duplication because the use cases for the different

24 systems vary more often by the read rather than write

25 case, since that tends to be the higher volume.

1   So there are often systems that exist simply

2   because the system they cover can't handle the read

3   volumes.

4   SPECIAL MASTER GARRIE: Do either one of you

5   have any idea what ███ is?

6   MR. EUGENE ZARASHAW: No.

7   MR. STEVEN ELIA: I don't.

8   SPECIAL MASTER GARRIE: It would be good to

9   know what the acronyms stand for at a minimum for the

10 systems.

11   Some I know, like -- what about ████████

12   MR. EUGENE ZARASHAW: Unfortunately not.

13   MR. STEVEN ELIA: I'm not familiar with it.

14   SPECIAL MASTER GARRIE: What's ████████?

15   MR. EUGENE ZARASHAW: Don't know.

16   MR. STEVEN ELIA: I also don't know what it

17 is. I don't know with confidence what ████ stands for,

18 but that may be████████ which is a common way we

19 would abbreviate a system named that.

20   SPECIAL MASTER GARRIE: I think we're at

21 another breaking point. If you want, we can take a

22 break, and then I have -- yes. I do have more

23 questions. And we'll take a five-minute break and then

24 I'll let -- well, if Facebook has any questions, and

25 then plaintiffs have any questions, we'll ask them right

1   after the five-minute break.

2   Hopefully -- oh, Mr. Espinoza is here so I

3   won't drop anyone this time. And I apologize, Mr. Elia.

4   That is likely me.

5   So we will take a five-minute break. We'll go

6   off the record and then we'll resume.

7   We'll go off the record.

8   (Break taken in proceedings.)

9   SPECIAL MASTER GARRIE: All right to resume

10   for the Facebook side?

11   MS. WEAVER: We do have some questions, if

12   we're allowed.

13   JAMS CONCIERGE CARLOS ESPINOZA: Mr. Falconer,

14   just trying logging off and logging back in again. I'll

15   see if that does the trick to reset your mic.

16   SPECIAL MASTER GARRIE: I think he's -- we're

17   still off the record so...

18   (Pause in proceedings.)

19   SPECIAL MASTER GARRIE: In the interest of

20   keeping everything on track, we're going move this right

21   along here. We're good to go back on the record?

22   THE COURT REPORTER: Ready.

23   SPECIAL MASTER GARRIE: All right. So

24   plaintiffs, what questions would you like to ask?

25   MS. WEAVER: I think we still are interested

1   in learning what the replacement ID is, its relationship

2   to the Facebook ID. And if Facebook is going to satisfy

3   an individual user's data deletion request, how does it

4   accomplish that? And does it trace the data through

5   some form of IDs or a script or a query?

6   SPECIAL MASTER GARRIE: That's my GDPR line of

7   questioning I have. So the replacement ID, I'm willing

8   to entertain.

9   Is there -- does Facebook use something called

10   a replacement ID?

11   MR. EUGENE ZARASHAW: I don't know what that

12   is.

13   Steven?

14   MR. STEVEN ELIA: I've heard of an RID, but I

15   don't know if that's the same thing.

16   SPECIAL MASTER GARRIE: That answers that. It

17   would be good if Facebook could check -- well, actually

18   before that happens, plaintiffs, can you clarify where

19   did you learn about a replacement ID?

20   MS. WEAVER: It's been referenced in some of

21   the documents produced.

22   I can actually -- if Chris Springer wants to

23   identify it, I don't know if he knows or not.

24   But we also know that there are other

25   alternative -- and I guess we think the replacement ID

1 is the RID. So if you can explain the context of what

2 the RID is?

3   We're just trying to trace the identifiers

4 that can be used to identify content that can be linked

5 under the definition of personal information in the

6 State of California that can be reasonably associated

7 with these named plaintiffs.

8   What are the identifiers that we use to do

9 that?

10   MR. DEREK LOESER: To provide slightly more

11 context, there are documents produced that describe the

12 deletion process of de-anonymizing data, and that's

13 related to the same query.

14   SPECIAL MASTER GARRIE: I have a full line of

15 questioning around the GDPR, but -- or CCPA.

16   I guess we can ask those questions first and

17 then we'll progress forward.

18   For GDPR, or the European Innovation Statute

19 or the California Consumer Privacy Act, they have very

20 stringent requirements around users' right to request

21 information about them to be deleted.

22   How does Facebook actually define a user and

23 delete the data?

24   Before you answer, what I'm specifically

25 interested in is do you have diagrams or any

1   documentation that's set out how that works and

2   operates?

3   MR. EUGENE ZARASHAW: I would have to defer to

4   the deletion and privacy team on this one. It is

5   definitely not my area of expertise.

6   MR. FALCONER: Yeah. That -- I would suggest

7   here that this is a pretty special team in -- at the

8   company that works on this and is knowledgeable about

9   this. And obviously we're more than happy to answer

10   these questions, but I want to get the right people to

11   give you the best answers.

12   SPECIAL MASTER GARRIE: That's fine.

13   MR. FALCONER: And so if we could do that, I

14   think that might be more fruitful.

15   SPECIAL MASTER GARRIE: Not a problem.

16   I want to talk to the engineering resources

17   that worked with Mr. Pope on that effort. I believe he

18   was a technical project manager in that effort. And so

19   it would be good to just -- the engineering resources

20   for how they did it because they surveyed all of these

21   people to make this list.

22   So we'll table that for a follow on, maybe.

23   Okay. RID, can you clarify what's the RID and

24   the chance that is, indeed, the replacement ID?

25   MR. STEVEN ELIA: You're directing that to me?

1   SPECIAL MASTER GARRIE: Yeah, Mr. Elia.

2   No lawyer is my question directed at at all.

3   MR. STEVEN ELIA: So I'll give you my limited

4   understanding of it. I think this would also be a topic

5   that could be useful to discuss with an engineering team

6   responsible for it.

7   But I've seen RIDs described as a way to

8   anonymize data.

9   A common scenario would be to ███████████

███

███

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████████████████   █████████████████████████████

██

23   SPECIAL MASTER GARRIE: That's an interesting

24   way to -- does that work across all of the system --

25   what systems is that RID operationally applied to?

1   MR. STEVEN ELIA: I'm not sure which systems

2   outside of ▮ might store data off of an RID.

3   SPECIAL MASTER GARRIE: All right. So next

4   sort of bucket of things we're going to talk about is

5   third-party integration APIs.

6   I know Facebook required -- at least

7   documentation I've reviewed, allows third-party

8   applications to access private APIs that are not

9   publicly available.

10   Is that your understanding as well, I guess,

11   Steven or Eugene?

12   MR. STEVEN ELIA: That's right.

13   MR. EUGENE ZARASHAW: Yes.

14   SPECIAL MASTER GARRIE: So now I want to ask

15   very specific technical questions because I've been

16   curious about this.

17   What do the following permissions provide:

18   Friends and anyone?

19   MR. STEVEN ELIA: The friends --

20   SPECIAL MASTER GARRIE: Friends underscore of

21   underscore anyone.

22   MR. STEVEN ELIA: Yes. Friends of anyone is a

23   capability that allows an application who would have it

24   to view friendships without the users in question

25   needing to have installed or logged into that

1   application.

2   Ordinarily the public behavior of this is that

3   for a friendship to be visible, both users need to have

4   logged into that app and both need to have authorized

5   access to their friends list.

6   And so this capability allows doing that even

7   if, say, one of those users had not logged into that

8   application.

9   SPECIAL MASTER GARRIE: Okay. And then what

10   about the XMPP underscore log-in underscore grant?

11   MR. STEVEN ELIA: I'm not familiar with that

12   one off the top of my head.

13   MR. EUGENE ZARASHAW: I am.

14   X -- the XMPP protocol is an old chat

15   protocol. And Facebook used to operate a set of chat

16   servers that I believe could integrate with XMPP client

17   a very long time ago.

18   So this permission has to do with the ability

19   to log into the chat servers back when it was chat,

20   before it was even called Messenger, from what I

21   remember.

22   I do not know if anybody still has this.

23   SPECIAL MASTER GARRIE: What about -- but why

24   would you use it? What would you use it for?

25   MR. EUGENE ZARASHAW: I'm now getting a little

1   hazy on my memory, but if I recall, it's to make sure

2   only certain clients could log into the chat servers,

3   the Facebook chat servers.

4   SPECIAL MASTER GARRIE: Okay. What about

5   TLS without dialogue?

6   MR. EUGENE ZARASHAW: Oh, yes. I do remember

7   that one.

8   And, Steven, correct me if I'm wrong on this

9   one.

10   I believe this was for apps which build their

11   own grant permissions dialogue UI, usually embedded apps

12   where they could not display a web browser with our UI

13   on them. So instead we would have a contract where they

14   would specify exactly how they were going render the UI

15   with all the disclaimers we needed.

16   And in exchange, we would let them grant app

17   permissions after log-in without displaying our

18   dialogue.

19   SPECIAL MASTER GARRIE: So there's no user

20   consent obtained from the Facebook side. It was relying

21   on the app provider?

22   MR. EUGENE ZARASHAW: Exactly.

23   And the type of consent, the exact pixels for

24   the consent, would be spelled out in the contract. So

25   that all of the consent would be in the third-party

1   controlled UI, but they would be contractually obligated

2   to still show everything we needed them to show.

3   SPECIAL MASTER GARRIE: I saw that on all

4   your -- a lot of the telco mobile...

5   MR. EUGENE ZARASHAW: Exactly.

6   SPECIAL MASTER GARRIE: Because it comes

7   pre-installed I guess.

8   So then standard friends info, friends of

9   anyone, I didn't get how that was different.

10   MR. STEVEN ELIA: If I recall correctly --

11   it's been a few years since I've looked at these

12   friends-related capabilities -- it's very similar to

13   the friends of anyone use case.

14   One of them, I'm not sure which, is restricted

15   to the type of access tokens and requests made from a

16   developer's servers as opposed to things like the mobile

17   device or web browser.

18   SPECIAL MASTER GARRIE: So then -- and then

19   what about FQL friend request permission with auto

20   accept link?

21   MR. STEVEN ELIA: Could you repeat the name?

22   SPECIAL MASTER GARRIE: Yeah. FQL underscore

23   friend underscore request underscore permission

24   underscore with underscore auto accept underscore link.

25   MR. STEVEN ELIA: I believe this was a

1   capability which allowed the app to see the friend

2   requests a user has received and information about those

3   friend requests, like who it's from, as well as a link

4   which they could render to the user, and if the user

5   clicks that link, it would accept that friend request.

6   SPECIAL MASTER GARRIE: Okay. I get it.

7   So what about nearby underscore users?

8   MR. STEVEN ELIA: I don't recall off the top

9   of my head what that capability did.

10   MR. EUGENE ZARASHAW: I don't know this one

11   either.

12   SPECIAL MASTER GARRIE: What about Titan

13   underscore API?

14   MR. STEVEN ELIA: That was a capability that

15   was generally used to gain access to messaging-related

16   APIs. So an API that would allow sending a message or

17   reading messages that a user had received, for example.

18   SPECIAL MASTER GARRIE: Now, these APIs could

19   write to which database -- which of those systems we've

20   been -- those 55 systems?

21   MR. STEVEN ELIA: The most common that they

22   would write to would be ███████. Not being familiar

23   with most of these 55, I can't say which others. But at

24   a technical level, any of these that have the ability to

25   be written to from production traffic are technically

1 possible.

2   SPECIAL MASTER GARRIE: So then if we call

3 these -- let's say if we called TOS without dialogue

4 capability, what -- that would write to TAO? Like how

5 does this capability -- like what I'm trying to

6 understand is capabilities -- who defines where the

7 data writes to on a capability?

8   MR. STEVEN ELIA: A capability is used to

9 gate a section of code. It could be an entire API. It

10 could be a particular field on an API. It could be a

11 particular function called by an API.

12   And so the capability itself doesn't directly

13 result in any kind of data to be written, but determines

14 whether a given piece of code should execute based on

15 whether the app making the request has that capability.

16   SPECIAL MASTER GARRIE: So then where does the

17 data for the TOS get written?

18   MR. EUGENE ZARASHAW: There are two sets of

19 data with that specific capability. One is the --

20 ██████████████████████████████████

21   SPECIAL MASTER GARRIE: Right.

22   MR. EUGENE ZARASHAW: And the fact that

23 Facebook has granted this specific application ID, this

24 capability, which would be something on the contracts,

25 review process and so on, and that would likely live in

1   █████

2   Steven, correct me if I'm wrong --

3   MR. STEVEN ELIA: That's right. That's right.

4   MR. EUGENE ZARASHAW: And might also be █████

█   █████

6   Then the other thing would be where does the

7   data get written that is the result of that -- of an

8   API call being used where the behavior of the API call

9   is different because of a capability?

10   So for that specific capability --

11   And, again, Steven, correct me if I'm wrong.

12   -- the relevant API call would be the grant

13   permissions dialogue or the -- or auth dot log in where

14   when the user logs into the app, because the capability

15   is present, some additional side effects could happen.

16   And those side effects, because it's about the

17   relationship between the user and the app, would likely

18   be █████████

19   SPECIAL MASTER GARRIE: Okay. So basically

20   these are all the capabilities that are needed for

21   building apps to do what you guys do today?

22   MR. EUGENE ZARASHAW: Most of the capabilities

23   around, yes, building a -- allowing a third party to

24   build all or part of a replacement Facebook client

25   themselves.

1   SPECIAL MASTER GARRIE: Does Facebook have a

2   record of all the private APIs?

3   MR. EUGENE ZARASHAW: Go ahead, Steven.

4   MR. STEVEN ELIA: There's a record of APIs

5   which are in their entirety gated by a capability,

6   rendering it a private API.

7   To the degree an API is publicly available but

8   might have slightly different behavior for an app with a

9   particular capability, that would be harder to produce.

10   And I can't think of an explicit record of that.

11   SPECIAL MASTER GARRIE: Is the capability what

12   makes the API itself private then?

13   MR. STEVEN ELIA: If the API is entirely gated

14   behind that capability, yes, the capability is what

15   makes it a private API.

16   SPECIAL MASTER GARRIE: So it essentially can

17   only get the capability via contract basically, it

18   sounds like, or in an agreement or something?

19   MR. STEVEN ELIA: These days we have a whole

20   review process. I talked about this in yesterday's

21   testimony called Partner Grant Review for granting

22   capability steps.

23   SPECIAL MASTER GARRIE: But 2014, pre-2014?

24   MR. STEVEN ELIA: Pre-2014, I'm less familiar

25   with. That would generally have been managed by the

1   partnership's organization.

2   SPECIAL MASTER GARRIE: But there was no

3   capability API private wall guard, as you're talking

4   about?

5   MR. STEVEN ELIA: There were capabilities

6   pre-2014. There was not a tool that made it easy to

7   view current capability grants or the capabilities a

8   particular app has before 2014.

9   SPECIAL MASTER GARRIE: So then what about

10   figuring out -- is there any documentation for -- or

11   some documentation, or any -- let's say any

12   documentation for what user data the private APIs could

13   access? I mean, any. That's caps, "ANY".

14   MR. STEVEN ELIA: This is an instance where a

15   phrase Eugene used before I think is relevant. We would

16   often think of the code itself as the documentation.

17   So for a given private API, it would be very

18   explicit what fields could be returned or requested as

19   part of that API, and that would be in the code for that

20   API.

21   SPECIAL MASTER GARRIE: The comment in the

22   code at the top of the code file list?

23   MR. STEVEN ELIA: It's not in a comment, but

24   the structure of an API's code has a very explicit

25   delineation of the fields that can make up a response to

1 that API.

2   MR. EUGENE ZARASHAW: It went so far as we

3 were able to automatically generate documentation by

4 using some descriptors in the code.

5   SPECIAL MASTER GARRIE: Because if it would --

6 so then you could automatically generate that

7 information for the private APIs if they all follow the

8 same -- if the program --

9   MR. EUGENE ZARASHAW: If it becomes -- well,

10 that would cover the APIs. It wouldn't cover the exact

11 behaviors of what happens when they are called, and the

12 differences in behavior if a certain capability is

13 present.

14   SPECIAL MASTER GARRIE: Yeah. But you would

15 know if it opens an SQL connection to a database and

16 writes to the database at some level.

17   At some point you have to open or stream a

18 connection to write information or receive information;

19 right?

20   MR. EUGENE ZARASHAW: Right.

21   It would just be a rather difficult task to

22 automatically find out what exactly a deep code stack

23 does.

24   SPECIAL MASTER GARRIE: That I get.

25   But the way the APIs are written, it sounds

1   like that you could function, at least identify the data

2   elements.

3   MR. EUGENE ZARASHAW: It's clear which ones

4   are reads and which ones are writes.

5   SPECIAL MASTER GARRIE: Yeah.

6   And do they -- and it defines what those data

7   elements are in the code somehow?

8   MR. EUGENE ZARASHAW: It defines what is the

9   write somebody is trying to make. As an example --

10   let's use an example, the stream publishing API.

11   It defines as the write that a post may have a

12   body, a link, a photo, and so on. And that's the end of

13   the definition.

14   What happens to that data once it passes into

15   the API code depends on exactly how that specific API is

16   implemented, and therefore where it's stored.

17   So, for example, if you're uploading a photo,

18   it may -- the photo may go into ██████████████████

██ ████████████████████████████████████

██ ██

21   It is not clear from the API description or

22   implementation up front where that storage actually is.

23   You have to dig through many layers of code to

24   understand which storage a specific write would end up

25   in.

1   SPECIAL MASTER GARRIE: So basically there's

2   no documentation?

3   MR. EUGENE ZARASHAW: There's documentation on

4   the APIs but not what they actually do underneath.

5   There's documentation also of what is the

6   product implication of the API. So there's

7   documentation that if I call an API to post to feed, a

8   story will appear in the news feed of the person who

9   owned the access token containing what was posted.

10   But there's not documentation on exactly how

11   that is implemented underneath.

12   SPECIAL MASTER GARRIE: So then I guess my

13   next question is: Does the DIY tool include all the

14   data available that's accessed via the private APIs?

15   I assume no. Definitely not.

16   But anyways, that's my question.

17   MR. EUGENE ZARASHAW: I would defer to Russ on

18   what exactly does include, since I don't know much about

19   the DIY tool.

20   MR. FALCONER: Yeah. And let us get back with

21   a definitive answer on that.

22   But our understanding, which I think we've

23   submitted before, is that the DYI has -- whatever data

24   might be called up through calling any API end point

25   would be included, you know, in the most comprehensive,

1   most human readable form in the DYI.

2   That's my recollection. But, again, let us

3   get you a formal confirmation on that.

4   SPECIAL MASTER GARRIE: Yeah. But I'm talking

5   about -- let's be clear. I'm talking about the private

6   APIs where Netflix or somebody else is using a private

7   API to generate data, I would assume, since there's no

8   documentation, that the DIY file -- they wouldn't even

9   know possibly to include it in the DYI file.

10   Is that right, Mr. Zarashaw?

11   MR. EUGENE ZARASHAW: I don't know that that's

12   a reasonable assumption just because there's very little

13   documentation anywhere, and yet we have a DYI file that

14   contains quite a lot.

15   SPECIAL MASTER GARRIE: Yeah. It's a mystery

16   to me as to how the DYI file is actually built and then

17   where does all the -- because all of the inference data

18   that you can derive about a user's behavior isn't stored

19   in the DYI file. It's stored and distributed in other

20   datasets because you don't -- Facebook doesn't provide

21   inferences that it derives about user behavior in the

22   DIY file.

23   MR. EUGENE ZARASHAW: To my knowledge, the

24   reason it works is many, many years of an effort. It

25   was not a simple project.

1   SPECIAL MASTER GARRIE: Well, that's my

2   question --

3   MR. FALCONER: And, again, we're happy to

4   verify this formally. But there are -- our

5   understanding is there are derived inferences of a

6   DYI file pretty voluminously.

7   SPECIAL MASTER GARRIE: That would be good --

8   I mean, yeah, so that would be good to understand.

9   And then which ones aren't. Because it

10 doesn't sound like there's documentation anywhere.

11   So what I'm trying to figure out is since we

12 don't know what actually could be written to any of the

13 systems relating to the user data, how do we know that

14 the data and the user DIY file is possibly even close to

15 complete if there's no recorded documentation?

16   But we'll talk about that offline. I don't

17 want to waste the engineer's time.

18   But that's just my question; right? I mean,

19 because the Court is very clear about it being, you

20 know, data collected from the user's on-platform

21 activity, data obtained from a third party regarding a

22 user's off-platform activities, and data inferred from

23 the user's on-and-off platform activity.

24   And it's clearly stated that you collect in

25 your terms -- at least in your interrogatories, that you

1   collect the Bluetooth, the wifi signal, and all that

2   through the mobile and associate it with the user. But

3   that doesn't -- as far as I can tell, my review of the

4   DIY file didn't actually have that information, just as

5   an example. Or, you know, any of the other data in

6   there.

7   But you can -- because what I'm trying to

8   understand is there are 40 -- or 55 total systems, but

9   we can't seem to figure out what's actually stored from

10   a user data perspective in the systems because the

11   developer could store whatever they -- data wherever

12   they wanted as they saw fit.

13   MR. EUGENE ZARASHAW: Mr. Garrie, the solution

14   to this is unfortunately exactly the work that was done

15   to create the DYI file itself.

16   And the thing I struggle with here is in order

17   to find gaps in what may not be in DYI file, you would

18   by definition need to do even more work than was done to

19   generate the DYI files in the first place.

20   And if it helps, we can find out approximately

21   the size of the team and the number of months it took

22   that team to do the work to sift through the systems and

23   generate DYI file as a scoping exercise for what it

24   would take to find even more, if there's more to find.

25   SPECIAL MASTER GARRIE: Well, it sounds like

1 TAO is a good place to start. It sounds like to me TAO

2 and maybe, like, one or two other systems are a good

3 place to rest your laurels to go from, based on my

4 review of the patents and the conversations so far.

5   But I guess my next question is are user

6 message threads -- they are -- are the user message

7 threads in the DIY tool accessed via the social graph?

8   MR. EUGENE ZARASHAW: If the social graph

9 contains the backing store for the messages product,

10 which is one point called Titan, and I don't recall what

11 the system is called, then yes.

12   SPECIAL MASTER GARRIE: And then let's be

13 clear. Like, I mean, to deal with the EU, there has to

14 be some process about the data and the deletion of data

15 and user data at some level to be compliant with GDPR,

16 whether it's inferential data or not inferential data.

17 So we'll follow up with Russ on that separately.

18   So then --

19   MR. EUGENE ZARASHAW: ███████████████████

   ██

   ██

   ███ ███

23   SPECIAL MASTER GARRIE: Yeah. All right.

24 That's one way to do it.

25   MR. EUGENE ZARASHAW: It's by far the easier

1   way to do it. There's a very similar problem of do you

2   sift through a massive box --

3   SPECIAL MASTER GARRIE: I get it. You got the

4   point across. I get it. I get it.

5   I'm telling you now, as long as the database

6   stays and isn't stolen. But yeah.

7   So then do private APIs provide data other

8   than the data in the social graph?

9   MR. EUGENE ZARASHAW: Not to my knowledge, in

10   large part because the -- most of the other systems

11   could not handle the load.

12   SPECIAL MASTER GARRIE: Steven -- or Mr. Elia?

13   MR. STEVEN ELIA: No. I think almost by

14   definition user data that is part of the Graph API,

15   including any private API, is to be part of the social

16   graph.

17   SPECIAL MASTER GARRIE: All of them or just

18   some of them?

19   MR. STEVEN ELIA: Some of the -- any API,

20   including the private API, that would, for example,

21   return user data, I would classify that as part of the

22   social graph.

23   SPECIAL MASTER GARRIE: What about inferred

24   user data? So not user input data but user-inferred

25   data. So I'm drawing a distinction; right?

1   There's user data you input and then there's

2   user data you infer. Two different things.

3   MR. STEVEN ELIA: Sure.

4   I'm not aware of Graph APIs that return

5   inferred data.

6   SPECIAL MASTER GARRIE: So where does all that

7   go?

8   MR. STEVEN ELIA: Other than the very

9   high-level understanding of things like our ads

10   targeting system leveraging that kind of data, I'm not

11   sure what uses inferred data like that.

12   SPECIAL MASTER GARRIE: Because that would be

13   on-platform activity data about a user's behavior that

14   is being inferred and stored and captured by Facebook.

15   MR. STEVEN ELIA: Besides use cases like our

16   own ads targeting, I'm not aware any of that includes

17   anything that would share that with a third-party

18   developer.

19   SPECIAL MASTER GARRIE: Well, not -- it's not

20   a third-party developer. It's if it -- it's if it's

21   on -- so -- so that would make -- the Court defines it

22   as data collected from a user's on-platform activity,

23   not data shared with a third party. It's -- let's be

24   clear.

25   The delimiter isn't whether it's shared. The

1 delimiter is data collected from a user's on-platform

2 activity.

3   MR. STEVEN ELIA: I apologize. I was

4 mentioning that because of the connection to private

5 APIs, which I'm considering to be --

6   SPECIAL MASTER GARRIE: Yeah.

7   MR. STEVEN ELIA: -- APIs called by third

8 parties.

9   SPECIAL MASTER GARRIE: Yeah. Fair enough.

10   But I just want to make the distinction here;

11 right? This is where it becomes more challenging,

12 right, because it's data collected from a user's

13 on-platform activity so you have on-platform messages

14 and you have on-platform user profile and you draw

15 inferences about that user's behavior and store that in

16 the database. We're not sure which database systems.

17 Maybe ███████████████ , like a handful of systems

18 for -- that's group 1.

19   And then you have data obtained from third

20 parties regarding a user's off-platform activities.

21   That is your APIs; right? That is your data

22 dumps and your private APIs. It doesn't sound like you

23 do data dumps but APIs at a minimum.

24   And then three is data inferred from a user's

25 on-or-off platform activity. Again, not defining what

1   inferred is, but it says, you know, on-or-off platform

2   activity.

3   So if you get data returned from Netflix and

4   you make -- you make inferences based on their movie

5   watching habit and their chat messages and you write

6   that out to a third party -- one of your internal

7   database systems. So the API covers really the second

8   bucket, not buckets 1 or 3 that the Court's defined.

9   But we'll keep going.

10   All right. Partner integration. And then

11 we'll take a break, and then I think Counsel Falconer

12 will be closer to the finish line.

13   So partner integration, what access does --

14 'cause you define in the -- in multiple different

15 places, you define strategic partners, such as Amazon,

16 Etsy, Netflix, et cetera.

17   What data did they get for that relevant time

18 period?

19   MR. STEVEN ELIA: Each of those would be its

20 own unique case and depends on what is the specific user

21 experience they were building. And the agreements, the

22 contracts we had with them would outline what kind of

23 data would be made available as part of that and what

24 they would be allowed to do with that.

25   I'm not that familiar with all of those

1 specific agreements.

2   SPECIAL MASTER GARRIE: What's a strategic

3 primary you are familiar with? We can work backwards

4 from that.

5   MR. STEVEN ELIA: Bing is an example of one

6 which I've implemented some of the APIs they would use.

7 Bing the search engine.

8   SPECIAL MASTER GARRIE: Yeah. So that's good

9 because that's something I know something about.

10   All right. So Bing and Facebook. You can

11 search friends of friends on Bing; right?

12   How did that work?

13   MR. STEVEN ELIA: I'm not aware of the ability

14 to search that on Bing.

15   What I am aware of is an API we had for them

16 that shared public content on Facebook. So this were

17 things like post photos, videos that had public privacy,

18 anyone on Facebook could see it, and those kind of posts

19 could show up if they were relevant to your search

20 query, for instance.

21   SPECIAL MASTER GARRIE: And did Facebook get

22 any data back from Bing?

23   MR. STEVEN ELIA: I'm only aware of a unit

24 directional API here of Facebook pushing data to Bing.

25   SPECIAL MASTER GARRIE: Are there any

1   bidirectional partner APIs?

2   MR. STEVEN ELIA: I can't think of any off the

3   top of my head.

4   SPECIAL MASTER GARRIE: Where would one look

5   to find that out? The engineer, not -- not just --

6   MR. STEVEN ELIA: Sure.

7   So a rather laborious exercise I could carry

8   out as an engineer, for instance, would be to start with

9   a list of all the capabilities, including ones that have

10   ever existed.

11   For each one, look to see whether it gated an

12   API. It would be much more difficult to see did it

13   modify behavior of an otherwise public API?

14   And in some cases I might have to go through

15   the entirety of the code history for that API or frankly

16   other files in the repository that may have referenced

17   that capability to see what that did.

18   I don't think even in that case that that

19   would yield any insight into an API the partner provided

20   that Facebook would have called.

21   SPECIAL MASTER GARRIE: What about looking at

22   the firewall logs for the inbound data?

23   MR. STEVEN ELIA: I'm not familiar with that

24   part of our infrastructure and what's possible there.

25   MR. EUGENE ZARASHAW: The one challenge I

1 recall from looking at the inbound logs is that we did

2 not store post-request bodies, and most write APIs were

3 post requests.

4   SPECIAL MASTER GARRIE: That is very true.

5   Okay. Did -- and it sounds like -- and I did

6 look that the A -- private -- well, the strategic

7 partners had varying network access, additional

8 computing and storage.

9   Is that accurate?

10   MR. STEVEN ELIA: ████████████████████████

██████████████████████████████████

12   SPECIAL MASTER GARRIE: Yeah. That's it.

13   MR. STEVEN ELIA: ████████████████████████

██

██

██████████████████████████████████

17   SPECIAL MASTER GARRIE: Did Facebook allow

18 data connections between the Facebook and its strategic

19 partners?

20   MR. EUGENE ZARASHAW: What do you mean by

21 data connections in this case?

22   SPECIAL MASTER GARRIE: Did they allow

23 partners to connect to Facebook's data stores?

24   MR. EUGENE ZARASHAW: No. All access was

25 through the API.

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1   SPECIAL MASTER GARRIE: So scheduled API

2   calls?

3   MR. EUGENE ZARASHAW: Would WebHooks count?

4   SPECIAL MASTER GARRIE: Yeah, I guess.

5   What about FTP, SFTP servers?

6   MR. EUGENE ZARASHAW: Not to my knowledge.

7   That's terrifying.

8   MR. STEVEN ELIA: I'm also not aware of any

9   instances like that.

10   SPECIAL MASTER GARRIE: Is there a difference

11 between custom APIs and private APIs?

12   MR. STEVEN ELIA: I wouldn't use the phrase

13 "custom API" myself. That doesn't mean anything to me.

14 Maybe given a specific context sentence it was used in,

15 I'd be better able to answer that.

16   SPECIAL MASTER GARRIE: That didn't mean

17 anything to me either so -- I see it a lot, so I was

18 just wondering if Facebook created a term called

19 "custom APIs."

20   So I assume then there are query-able Hive use

21 cases for data that exists now.

22   Is that a -- is that accurate?

23   MR. EUGENE ZARASHAW: Do you mean for API

24 usage data?

25   SPECIAL MASTER GARRIE: Or for debugging.

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1   MR. EUGENE ZARASHAW: There's a fair bit of

2   data in █████████████████████████████████████

     █████████ and so on.

4   SPECIAL MASTER GARRIE: Right.

5   So there are other tools for querying.

6   Is there a query-able Hive use cases today for

7   user data?

8   MR. EUGENE ZARASHAW: I'm not sure what you

9   mean by use cases.

10   There are Hive tables that can be queried

11   using our standard query UI. And if you know what table

12   to look in and it has the right fields, you can query

13   for user data.

14   SPECIAL MASTER GARRIE: Is there a list of --

15   or --

16   So the answer is yes, you have the use --

17   there are use cases for where you're querying high data

18   tables?

19   MR. EUGENE ZARASHAW: Yes.

20   SPECIAL MASTER GARRIE: Could you -- how --

21   Sorry. I'm just thinking.

22   So then where was data acquired by a partner

23   retrieved from?

24   MR. EUGENE ZARASHAW: It would depend on the

25   API but most APIs are backed by █████

1   SPECIAL MASTER GARRIE: What about you,

2   Mr. Elia, do you agree?

3   MR. STEVEN ELIA: I agree with that statement.

4   MR. EUGENE ZARASHAW: There are some system

5   specific APIs that for a given set -- or certain -- some

6   specific APIs for product would -- may be backed by a

7   different back end.

8   So as an example, messaging has its own

9   separate back end, and any of those Titan APIs you

10   mentioned earlier would be partly backed by ██████

██   ████████████████████████████████████

12   Another example would be reading the news feed

13   for a user, reading the stories they have posted ██████

██   ████████████████████████████████████ ██████

██   ████████████████████████████████

16   SPECIAL MASTER GARRIE: Where is the message

17   back end?

18   MR. EUGENE ZARASHAW: I don't recall the new

19   name of it, but I remember it being -- looking up some

20   of the 55 systems, the message back end was on that

21   list.

22   SPECIAL MASTER GARRIE: Okay. It would be

23   good to identify which one that is.

24   And then the user data and the message back

25   end I assume stores way more data than what sits in the

1   DIY file.

2   MR. EUGENE ZARASHAW: I'm not sure what's in

3   the DIY file, so --

4   SPECIAL MASTER GARRIE: DIY, do it yourself.

5   Sorry.

6   MR. EUGENE ZARASHAW: No, no. I meant I'm not

7   sure what's in that file. I'm not sure what it actually

8   contains versus what's in the back end.

9   SPECIAL MASTER GARRIE: All right.

10   MR. EUGENE ZARASHAW: To answer your earlier

11 question, the name of the current messenger back hand is

12 ███████ So it is No. 4 on that 55 item list.

13   SPECIAL MASTER GARRIE: Okay. DYI files.

14   So then can a system exist that queries the

15 Hive for data to create inferences and store it

16 elsewhere?

17   MR. EUGENE ZARASHAW: Yes.

18   SPECIAL MASTER GARRIE: Do you know what

19 systems that those inferences are being written up to?

20   MR. EUGENE ZARASHAW: I don't know a system

21 like that could exist. I don't know if it does. But if

22 one were to exist, I would likely ask the ad targeting

23 team if they have something like that.

24   SPECIAL MASTER GARRIE: Okay. You said end

25 targeting team.

1   MR. EUGENE ZARASHAW: Ads targeting. Yes.

2   SPECIAL MASTER GARRIE: Okay. Did you say

3   "ends" or "end"?

4   MR. FALCONER: Ads, a-d-s.

5   MR. EUGENE ZARASHAW: Ads.

6   MR. STEVEN ELIA: Advertisements.

7   SPECIAL MASTER GARRIE: Oh, advertising

8   targeting team. Got it. Ads. That makes more sense.

9   Sorry. Go ahead.

10   MR. EUGENE ZARASHAW: ███████████████

     ██

     ██████████

13   SPECIAL MASTER GARRIE: But you could look for

14   code that talks to the ██████

15   MR. EUGENE ZARASHAW: ████████████████████████

     ██████████████████

17   SPECIAL MASTER GARRIE: Yeah. But your

18   production code being the consumer face -- you use --

19   you say production, that's the consumer facing. That's

20   not your research, your development, or your

21   engineering.

22   MR. EUGENE ZARASHAW: Generally for any kind

23   of randomized access, for example, if we want to serve

24   ads, the data would have to be pulled out of Hive into

25   another system for immediate data access. Hive has very

1 high latency.

2   SPECIAL MASTER GARRIE: Oh.

3   MR. EUGENE ZARASHAW: In the minutes.

4   So one example system on that list is No. 9,

5 Laser, which does not store any data of its own but it

6 is a cache in front of other systems that are slow and

7 can't handle the load, such as can be TAO, can be Hive,

8 and so on, to accelerate them. So it's an in-memory

9 cache in front of a slower system.

10   SPECIAL MASTER GARRIE: That would be very

11 helpful, I guess, Counsel Falconer, if you can identify

12 those systems that are caching systems versus systems

13 that actually have beyond just user experience.

14   MR. FALCONER: Mm-hm. Yeah. Understood. We

15 can do that.

16   SPECIAL MASTER GARRIE: Okay. So then did

17 integration involve Facebook -- so then is there any

18 centralized area where -- you would receive data from a

19 partner. We've established there's no way to

20 determine -- for a particular user; right? I log in

21 with whatever information, you would get that data back

22 from a partner.

23   Do you know where that data would be stored?

24   I'll give you an example.

25   I go to Netflix, I use my Facebook ID. You

1   get back a set of movies I like. I don't believe the

2   set of movies I like that Netflix shares with Facebook

3   sits in my DIY file about me.

4   MR. EUGENE ZARASHAW: So the one way I could

5   think that working is there's an API for posting that a

6   user has watched something. It's the graph -- it's the

7   graph actions API.

8   So at one point I believe Netflix may have

9   been using it. I don't recall for sure. Steven might

10   know. But --

11   A site -- if some site out there provided

12   videos that people could watch and that site integrated

13   with a Facebook API and made post requests to this API

14   every time a user who had tossed the app, watched a

15   movie, we would likely store that information in two

16   places in duplicate: ███████████████████████████

█   ███████

█   ████████████████████████████████

█   ███

█   ██████████████████████████████████████

█   ███████████████████████

22   SPECIAL MASTER GARRIE: I got it.

23   No reflection on this hearing.

24   Mr. Elia, is there anything you'd like to add

25   to the examples?

1   MR. STEVEN ELIA: Nope.

2   SPECIAL MASTER GARRIE: And then -- so then do

3   we -- is there any way to figure out from this list of

4   systems which ones stored data that was accessed and/or

5   received by partners, especially in cases where access

6   was not through the Graph API? So --

7   MR. EUGENE ZARASHAW: I don't know of any ways

8   for partners to get data outside of the API.

9   SPECIAL MASTER GARRIE: The Graph API or any

10   API?

11   MR. EUGENE ZARASHAW: I don't -- I think it's

12   all Graph API now.

13   Steven, correct me if I'm wrong.

14   We used to have a rest API that we folded into

15   it but it was still the same exact API with slightly

16   different parameters.

17   MR. STEVEN ELIA: There may be a small set of

18   APIs that aren't based on the Graph API even today, but

19   those would be well understood -- identified. We would

20   have a list of those.

21   It's plausible that there could exist

22   something not on that list.

23   But as a general matter of policy, again,

24   there's a whole review process to go through whenever

25   you're building this kind of API that would result in

1   such an API winding up in this list.

2   SPECIAL MASTER GARRIE: And pre-2014, that

3   didn't exist?

4   MR. STEVEN ELIA: This type of review process

5   I mention was even later that was started in 2018, 2019,

6   something like that.

7   SPECIAL MASTER GARRIE: All right. And the

8   Graph API that's now consolidated was not consolidated

9   to a single API pre-20- -- what --

10   When did the graph API become the omnibus API

11   for the partner access and receive?

12   MR. EUGENE ZARASHAW: Go ahead, Steven.

13   MR. STEVEN ELIA: For the general populous --

14   '15/2016 was when we removed access to some of those

15   other APIs, like FQL. But there, I believe, were

16   capabilities allowing access to those for a few more

17   years.

18   MR. EUGENE ZARASHAW: To add to that, the

19   previous set of APIs also known as the rest APIs still

20   followed the same semantics of needing an app ID,

21   needing permissions, needing access tokens.

22   It was just different semantics and how to

23   call them.

24   MR. STEVEN ELIA: I would also add to that

25   that I'm not aware of any data, and I'm highly confident

1 that the only data available through that legacy rest

2 API FQL was also available over the Graph API. Those

3 would be like duplicate APIs.

4   SPECIAL MASTER GARRIE: Who is the engineer

5 that built the DYI tool?

6   MR. EUGENE ZARASHAW: I would have to defer to

7 Russ on this one. It would be an entire team.

8   SPECIAL MASTER GARRIE: Okay. But on every

9 team there's an engineer or two engineers that build --

10 that do -- that are the pillars of the team.

11   MR. FALCONER: I -- go ahead. Sorry.

12   MR. EUGENE ZARASHAW: I was going to say, it's

13 a more than two-pillar engineer undertaking.

14   MR. FALCONER: Yes. And that -- I don't -- we

15 don't have names or statistics, you know, at our

16 fingertips on that. We would be happy to get them.

17   But we have -- my understanding is the same as

18 Mr. Zarashaw's about the scope of the project and how

19 many people were involved.

20   SPECIAL MASTER GARRIE: Yes. So 30 engineers

21 to one pillar? So a 60 engineer team?

22   MR. EUGENE ZARASHAW: I would be impressed if

23 a 60 engineer team could have completed DYI tool in

24 six months.

25   SPECIAL MASTER GARRIE: Not six months.

1   Figure 18 months. But yeah. And then they iterated on

2   it for several years.

3   But anyways -- so specialized consumer

4   experiences, are they different -- they're defined

5   differently. Are they the same, though, specialized

6   consumer experiences?

7   MR. EUGENE ZARASHAW: I'm not sure what that

8   means.

9   SPECIAL MASTER GARRIE: So as I understood it,

10   specialized consumer experiences, according to the

11   Interrogatory 4, page 374:

12   "Facebook developed private APIs to

13   enable select partners to offer custom

14   seamless experiences for users seeking to

15   more closely integrate their Facebook

16   experiences with other things they'd like

17   to do, such as listening to music,

18   watching movies, or pursuing and sharing

19   interests and hobbies. These custom

20   experiences are built by companies such as

21   ███████████████████████."

22   MR. EUGENE ZARASHAW: So it sounds like that

23   refers to the whole set of private APIs where we allowed

24   third parties to do customized integration into some

25   aspects of how their experience worked with ours.

1   As an example, I recall we did special

2   integration for ████████ that you mentioned where when

3   you were sharing ██████████████ with someone, you

4   could also send them a message on Facebook about it,

5   where for almost anyone else, there was no ability to

6   send a message via an API but we enabled it via contract

7   for this specific use case.

8   SPECIAL MASTER GARRIE: And theoretically that

9   would be related to ████████ today?

10   MR. EUGENE ZARASHAW: Yes.

11   SPECIAL MASTER GARRIE: So it's either in the

12   contract or the code. All right.

13   All right. So then I had some I guess DYI

14   questions but we'll ask those later.

15   Measurement Partners, that's another term

16   that's been defined as having different access, and

17   it's -- where is it? -- do you know what

18   Measurement Partners are?

19   MR. EUGENE ZARASHAW: I loosely know what they

20   are but this is not my area of expertise.

21   SPECIAL MASTER GARRIE: Mr. Elia?

22   MR. STEVEN ELIA: Similar. I wouldn't have

23   worked on any of their APIs.

24   SPECIAL MASTER GARRIE: They had their own set

25   of APIs; right?

1   MR. EUGENE ZARASHAW: I don't know.

2   SPECIAL MASTER GARRIE: Mr. Elia?

3   MR. STEVEN ELIA: I don't specifically know.

4   If that was represented as an example of those

5   customized integrations, then I would imagine that

6   would be true, yes.

7   SPECIAL MASTER GARRIE: Do you know who was on

8   the Measurement Partner engineering team, or who to talk

9   to or --

10   MR. STEVEN ELIA: I don't know.

11   MR. EUGENE ZARASHAW: We would have to follow

12   up to find who's actually on the team.

13   SPECIAL MASTER GARRIE: And the reason I ask

14   is because there's a specific distinction and I'm trying

15   to trace this back to these systems that exist because

16   it says in your exhibit -- you know, in your

17   interrogatory or -- anyways, the point is that there's

18   references to individually identifiable user content

19   that Facebook provides to the Measurement Partners

20   that's stored.

21   And what's not clear to me is if that same

22   information exists in the DYI file, and if it doesn't

23   exist in the DYI file, where does it exist? Because you

24   make it a point to state that you have this data and

25   you're providing it.

1   And if it comes -- and my point is -- and this

2   is worth noting, Counsel, for Facebook generally, if

3   it's duplicative, that's great. But someone has to say

4   it is duplicative because nobody is saying it's

5   duplicative.

6   MR. FALCONER: Yeah. And, again, this is

7   starting to veer more into the guts of the ads business,

8   the advertising business. And so I think if this is a

9   subject matter that the special master wants to ask more

10   questions on, I think it would be better served

11   getting -- putting you in touch with different people

12   who were more familiar with that part of the business.

13   SPECIAL MASTER GARRIE: I'm not interested in

14   the ad part of it. I'm interested in the fact that --

15   and I can point you to what triggered it. It's an

16   exhibit now exhibit in the depo as 128. It's page 495,

17   and 128, page 374. And there's very explicit references

18   to user, like individual identifiable -- which we've

19   decided is not a term -- individually identifiable user

20   content that Facebook provides to Measurement Partners.

21   What isn't stated is where it's stored, what

22   is collected, and if it's duplicative of the DYI files.

23   And that's the same for the -- these SCEs or

24   these specialized consumer experiences. And it's not

25   clear to me -- and it's going to be important to

1   understand what user data is collected in -- for these

2   experiences that you've identified -- Facebook has

3   identified, is it duplicative or is it in other one of

4   these systems? Because there's no identification about

5   where this data exists but it's clearly data that is

6   created or collected from the user's on-platform

7   activity.

8   MR. FALCONER: Sure. Yeah. Understood on all

9   that.

10   And, again -- yeah. So let us find the right

11   person -- I understand what you're interested in, and

12   let us find the right person who can talk with you about

13   that.

14   SPECIAL MASTER GARRIE: Then for user mobile

15   device data, it sounds like we'll need a different set

16   of engineers to provide that, unless it's completely

17   duplicative of what's in the DYI file.

18   But, again, that's not established, and I

19   can't figure out from the systems you're identifying

20   what is or is not within the DYI file, specifically

21   around the mobile user data. Because they go to

22   Facebook's mobile app using Facebook engagement.

23   So, again -- but I think it sounds like,

24   Mr. Zarashaw and Mr. Elia, you're not in a position to

25   answer the questions about the mobile data?

1   MR. EUGENE ZARASHAW: I'm not.

2   MR. STEVEN ELIA: Are you referring to data,

3   for example, collected from our mobile apps?

4   SPECIAL MASTER GARRIE: Yeah. That is part of

5   the user.

6   MR. STEVEN ELIA: That's also again something

7   I'm not familiar with. I wouldn't believe that, though,

8   to be stored any differently from data collected

9   generally from the web or elsewhere. I wouldn't think

10 there's a separate, for example, data store of only

11 mobile data, for instance.

12   SPECIAL MASTER GARRIE: Yeah. But there's

13 different mobile -- there's different data that can be

14 collected off mobile devices, and if it's part of the

15 social graph and available, about the user activity.

16   MR. EUGENE ZARASHAW: I think the challenge

17 I'm having is I don't actually know what's in the DYI

18 file and I don't know what mobile data is collected. So

19 it's difficult to do more than guess on what is stored

20 for which.

21   SPECIAL MASTER GARRIE: Yeah. I mean, I could

22 tell you in the terms of services that were provided by

23 Facebook, it indicates that the Bluetooth ID, the

24 network ID, a bunch of ID is collected.

25   So, I mean, again, Exhibit 128, page 487 kind

1   of delineates a bunch of that, just to point Facebook

2   sort of in the direction of what I'm asking about or why

3   I'm asking about it.

4   Because I did look at the files and I did not

5   see these data elements in there, so I don't know if

6   it's possible they didn't access it through their mobile

7   devices or mobile -- or maybe they -- you know, but this

8   may end up being is I'm just curious to understand that

9   piece of it.

10   And then the last set of questions, we can

11   either power through them or we can take a break.

12   What would Mr. Elia or Mr. Zarashaw prefer?

13   MR. EUGENE ZARASHAW: I would love a break.

14   MR. STEVEN ELIA: Same.

15   SPECIAL MASTER GARRIE: All right. That

16   sounds good. I mean, the DYI file, as far as I could

17   tell, has device ID, mobile servers provider, and

18   country code. But not the other elements that are

19   identified.

20   So we will take a -- you guys want to take a

21   five-minute break?

22   Is that a yes, Mr. Elia.

23   MR. STEVEN ELIA: Yes.

24   SPECIAL MASTER GARRIE: We'll take a

25   five-minute break. I'm supposed to put everybody in the

1 breakout room so that's probably -- we'll go off the

2 record.

3   (Break taken in proceedings.)

4   SPECIAL MASTER GARRIE: All right. We're

5 going to go back on the record.

6   I'll take, like we have, if there are

7 questions for plaintiffs, and then I will jump into

8 the --

9   Back on the record?

10   Plaintiffs, are there any questions you would

11 like to ask?

12   MS. WEAVER: Yes.

13   Can you query the Hive with the Facebook user

14 ID or some other identifier, and have they done that for

15 the named plaintiffs, given the latency issue that

16 Mr. Zarashaw mentioned?

17   SPECIAL MASTER GARRIE: I mean, the engineers

18 don't really answer the second part of the question, but

19 the first part of the question is can -- can you query

20 the Hive for user data? I think the user that we

21 already said is yes.

22   Is that correct, Mr. Zarashaw?

23   MR. EUGENE ZARASHAW: ██████████████████

██ ██ ██

██ ████████████████████████████ ████████████████

1 ████████████████████████████████████

2 ███████████ ███████████████████████████

3 █████████████████████████████████████

4 ████████████████████████████

5   ████████████████████████████

6 ████████████████████████ █████████████

7 █████████████████████████████████████

8 █████████████████████████████████████

9 █████████

10   SPECIAL MASTER GARRIE: It would be possible,

11 though, to identify the largest tables within the Hive

12 and how those data schemas were; right? The top 10

13 tables or whatever it may be.

14   MR. EUGENE ZARASHAW: Yes.

15   MS. WEAVER: May I ask a follow-up?

16   SPECIAL MASTER GARRIE: You may ask a question

17 and then I will --

18   MS. WEAVER: Fine.

19   Is there a schema or fields for Hive or

20 descriptors so that we can identify the top 10 or some

21 way to identify what we could query using user ID?

22   SPECIAL MASTER GARRIE: I will reask the

23 question.

24   If we could identify the top 10 tables, can

25 you extract the fields for those top 10 tables

1   because -- whatever -- X number of tables. That's

2   possible; right?

3   MR. EUGENE ZARASHAW: It is possible. But the

4   only exception is going to be that some of those fields

5   may themselves be complex things such as JSON encoded

6   objects, and the names may not make sense.

7   SPECIAL MASTER GARRIE: Yeah.

8   I think that got at your question; right?

9   MS. WEAVER: Yes. Thank you.

10   MR. EUGENE ZARASHAW: But given -- yes, but we

11 could find what are the largest tables by size and get

12 their schemas.

13   SPECIAL MASTER GARRIE: Okay. Any other

14 questions from plaintiffs?

15   MS. WEAVER: So many, but we'll hold for now.

16   SPECIAL MASTER GARRIE: Okay. Well, just so

17 you're -- everybody is aware, I see the finish line may

18 be 20 minutes away, so you best brainstorm away.

19   My next questions are really focused around

20 the Graph API.

21   Mr. Zarashaw, Mr. Elia, are you guys -- either

22 of you familiar with the Graph API Explorer application?

23   MR. STEVEN ELIA: I am.

24   MR. EUGENE ZARASHAW: I am.

25   SPECIAL MASTER GARRIE: Okay. How many

1   versions of Graph API have been created during the

2   relevant time period, to your knowledge?

3   MR. STEVEN ELIA: I don't know off the top of

4   my head, but we typically have three or four different

5   versions in any calendar year, and we started versioning

6   in, again, roughly 2015 or so.

7   SPECIAL MASTER GARRIE: And before 2015?

8   MR. STEVEN ELIA: Before then, there weren't

9   versions to the degree we introduced changes that were

10   not backwards compatible to APIs. We had different

11   mechanisms for doing so.

12   SPECIAL MASTER GARRIE: Okay. Has GAE -- I'll

13   call it GAE -- ever accessed data from sources other

14   than the social graph?

15   MR. STEVEN ELIA: The Graph API Explorer is

16   only able to access graph APIs, and so --

17   SPECIAL MASTER GARRIE: Since its inception or

18   as of 2015?

19   MR. STEVEN ELIA: Since inception.

20   SPECIAL MASTER GARRIE: But I said the social

21   graph.

22   MR. STEVEN ELIA: Could you repeat the full

23   question?

24   SPECIAL MASTER GARRIE: So has GAE ever

25   accessed data from sources other than the social graph?

1   MR. STEVEN ELIA: So the Graph API can call

2   any arbitrary Graph API. There are Graph APIs that are

3   unrelated to the social graph.

4   SPECIAL MASTER GARRIE: So what user data

5   sources -- so then what are those?

6   MR. STEVEN ELIA: Commonly this would be APIs

7   that have nothing to do with users. There are APIs, for

8   example, for managing business assets like ads or pages.

9   SPECIAL MASTER GARRIE: Specific to users, so

10   the GAE just calls Graph APIs, and then by definition,

11   it talks to just a social graph as it relates to user

12   data or user inferred data?

13   MR. STEVEN ELIA: Graph APIs, as they relate

14   to user data deal with just the social graph, I would

15   say. I think that was what you were asking.

16   SPECIAL MASTER GARRIE: That is correct.

17   So is the answer yes?

18   MR. STEVEN ELIA: I would answer yes.

19   SPECIAL MASTER GARRIE: So then what user data

20   sources did each version of the Graph API have access

21   to?

22   MR. STEVEN ELIA: Sure. By version.

23   And I think we're back at earlier questioning

24   and difficulties when it comes to identifying things

25   like which of these 55 systems might have user data.

1   SPECIAL MASTER GARRIE: Mr. Zarashaw, do you

2   agree?

3   MR. EUGENE ZARASHAW: Yes. They're going to

4   be -- there's, again, the probabilistic answer, which is

5   ███████████████████████████████ But then there's

6   going to be in each case APIs that have dedicated

7   systems. And depending on the time we added the

8   specific API or with which version, the other systems

9   might have changed.

10   So, again, things like the storage of new

11   seat posts, such as ███████ -- would be in ████

█   ██████████ back end, messages would be in messaging

13   back end. Photos themselves have the dedicated

14   back end, while the meta data about the photo might be

15   in the ███████ back end.

16   SPECIAL MASTER GARRIE: My question is: Is

17   that data -- and I guess we need to get -- I think the

18   DYI, your engineer or engineering -- engineers will

19   answer is that duplicative or not of what's in the DYI

20   file?

21   MR. EUGENE ZARASHAW: Exactly.

22   SPECIAL MASTER GARRIE: Does Facebook store

23   data about users it's not directly associated with the

24   Facebook ID but is capable of being associated with a

25   specific user?

1   I think the answer to that we've established

2   is yes.

3   MR. EUGENE ZARASHAW: Yes.

4   SPECIAL MASTER GARRIE: Am I right, the answer

5   is "yes"?

6   MR. EUGENE ZARASHAW: The answer is yes, the

7   IP address associated data.

8   SPECIAL MASTER GARRIE: IP, OS, Windows

9   update, time and length of chats, length of video,

10   whatever. There's lots of metadata about data.

11   Are there different processes for different

12   data?

13   MR. EUGENE ZARASHAW: What do you mean by

14   processes in this case?

15   SPECIAL MASTER GARRIE: I guess what I'm

16   thinking here is for data that you infer from a user

17   profile and a user's action, are there processes that --

18   like how that data is written out?

19   MR. EUGENE ZARASHAW: I would not call it

20   processes. It would just depend on the implementation

21   of the specific use case, where the specific use case

22   might leverage different pieces of infrastructure and

23   different systems and flow in different ways, depending

24   on how the engineers implementing decided to do it.

25   SPECIAL MASTER GARRIE: There's no

1   documentation here.

2   MR. EUGENE ZARASHAW: There might be some

3   documentation for specific use cases as they were built.

4   And generally that documentation falls out of date

5   rapidly versus the actual evolving systems.

6   SPECIAL MASTER GARRIE: Is there a database or

7   a central -- or a set of central databases for use

8   cases?

9   MR. EUGENE ZARASHAW: I don't know of one.

10   Steven?

11   MR. STEVEN ELIA: Same. I'm not aware of any.

12   SPECIAL MASTER GARRIE: That's a question

13   worth following up on.

14   So then when I look at this list,

15   Mr. Zarashaw, of 55 systems, are there any of these

16   55 systems you can shed light on that we haven't

17   discussed?

18   MR. EUGENE ZARASHAW: I'm pulling up the list

19   right now.

20   SPECIAL MASTER GARRIE: I can start at the

21   top.

22   ███████████

23   MR. EUGENE ZARASHAW: Last time I looked at

24   it, it stores data that is advertiser based rather than

25   user based. So data about ████████████████████

1 ███████████████████████████████████

2   SPECIAL MASTER GARRIE: I did too, which is

3 why maybe -- how could it -- well, yes. All right.

4   No. 2, ████████████. Again --

5   MR. EUGENE ZARASHAW: I don't know what that

6 one is.

7   SPECIAL MASTER GARRIE: And Mr. Elia, I assume

8 you don't know as well?

9   MR. STEVEN ELIA: That's right. I don't know.

10   SPECIAL MASTER GARRIE: ████████

11   MR. EUGENE ZARASHAW: Don't know.

12   MR. STEVEN ELIA: Me neither.

13   SPECIAL MASTER GARRIE: ████████ -- is

14 ████████ and ████████ different?

15   MR. EUGENE ZARASHAW: I believe so. One of

16 these is the messaging back end. I don't know what the

17 other one is.

18   SPECIAL MASTER GARRIE: Got it.

19   And, Mr. Elia, would you by chance know the

20 difference between ████████ and ████████

21   MR. STEVEN ELIA: I don't.

22   SPECIAL MASTER GARRIE: Okay.

23   MR. EUGENE ZARASHAW: ████████ is the messaging

24 back end. I don't know what ████████ is.

25   SPECIAL MASTER GARRIE: And they would have --

1   the messaging back end would have its own, like -- just

2   so I understand, ████████████████████████████████

█   ███████████████████████████████████

4   MR. EUGENE ZARASHAW: I don't know that it

5   even does. It might be a completely separate storage

6   system or it might be an abstraction layer on top of

7   another storage system. We would need to dig in to

8   understand how it's built.

9   SPECIAL MASTER GARRIE: ████████

10   MR. EUGENE ZARASHAW: I don't know.

11   SPECIAL MASTER GARRIE: Not at Disneyland.

12   MR. STEVEN ELIA: I'm not familiar with it

13   either.

14   SPECIAL MASTER GARRIE: And if counsel for

15   Facebook, if anybody from Facebook has knowledge of what

16   any of these systems are, feel free to raise your hand

17   and Zoom, and I will gladly welcome any insight.

18   ████████████████

19   MR. EUGENE ZARASHAW: It is a text search

20   service, but I don't know what it's actually used for,

21   given we also have ██████████ which can also do this.

22   MR. STEVEN ELIA: And I'm not familiar with

23   it.

24   SPECIAL MASTER GARRIE: ████████████

25   MR. EUGENE ZARASHAW: It's a blob store for

1 storing images and videos and other large blobs.

2   SPECIAL MASTER GARRIE: You have several

3 patents using that as well actually for that storage.

4   Laser?

5   MR. EUGENE ZARASHAW: It is caching layer in

6 front of slower forms of storage.

7   SPECIAL MASTER GARRIE: And ██████████

8   MR. EUGENE ZARASHAW: Don't know.

9   Steven?

10   MR. STEVEN ELIA: Me neither.

11   SPECIAL MASTER GARRIE: Manifold or Manifold?

12   MR. EUGENE ZARASHAW: Manifold is another blob

13 storage service. I don't remember if it's -- came

14 before or after ██████████

15   SPECIAL MASTER GARRIE: Do we know what's

16 stored in that one?

17   MR. EUGENE ZARASHAW: If I remember correctly,

18 photos and videos. I actually don't recall which one is

19 being transitioned to which.

20   SPECIAL MASTER GARRIE: Again, knowing which

21 ones transition and which ones don't will be helpful.

22 Which ones --

23   MR. EUGENE ZARASHAW: It might also just be a

24 slightly different blob storage case and both of them

25 are long term, going to be there.

1   I don't recall the distinction but both do

2   store blobs. It's akin to Amazon S3.

3   SPECIAL MASTER GARRIE: Okay. All right.

4   Memcache, we know, we discussed.

5   ████ we don't know.

6   ██████

7   MR. EUGENE ZARASHAW: No.

8   SPECIAL MASTER GARRIE: Mr. Steven?

9   MR. STEVEN ELIA: I'm not familiar, no.

10   SPECIAL MASTER GARRIE: ██████

11   MR. EUGENE ZARASHAW: No.

12   MR. STEVEN ELIA: Me neither.

13   SPECIAL MASTER GARRIE: ████████?

14   MR. EUGENE ZARASHAW: Nope.

15   MR. STEVEN ELIA: Me neither.

16   SPECIAL MASTER GARRIE: ██████

17   MR. EUGENE ZARASHAW: No.

18   MR. STEVEN ELIA: Me neither.

19   SPECIAL MASTER GARRIE: ██████ Server?

20   MR. EUGENE ZARASHAW: I know what it is but

21   not what we use it for.

22   SPECIAL MASTER GARRIE: I mean, it's a data

23   analytics tool at its core.

24   MR. EUGENE ZARASHAW: Exactly. I've seen us

25   use it for things like ████████████████

1 ███████████████████████████████████████

2 ██ ██████

3   SPECIAL MASTER GARRIE: Yeah. I'm not exactly

4 sure where user data fits in there, but...

5   ██████

6   MR. EUGENE ZARASHAW: It's a counter service

7 used by the integrity teams to count how many times

8 various things have happened.

9   SPECIAL MASTER GARRIE: Does it record API

10 requests?

11   MR. EUGENE ZARASHAW: It might be used to ████

12 ██ ██████████████████ , but it wouldn't be in a particularly

13 identifiable way.

14   SPECIAL MASTER GARRIE: TAO we know.

15   ████████████we know.

16   ██████████

17   MR. EUGENE ZARASHAW: Don't know.

18   MR. STEVEN ELIA: I'm not aware.

19   SPECIAL MASTER GARRIE: Okay. ██████

20   MR. EUGENE ZARASHAW: ████████████████

21 ██ ████████████████████████████

22   SPECIAL MASTER GARRIE: So that would know if

23 we had user data in there.

24   MR. EUGENE ZARASHAW: I don't recall the exact

25 interplay between █████████████████ and which

1 part is where. ████████████████████████████

██ ████

3   SPECIAL MASTER GARRIE: Before we get to the

4 remainder of this list, this is just for Facebook.

5   For the other systems that you removed into

6 these five buckets of internal test systems, systems

7 Facebook teams, systems that do not serve, systems that

8 do not store, and other systems, I need you to put of

9 the -- from the 149 systems which you cut it down, which

10 ones fall into which bucket; right?

11   So this one falls in this bucket, this one is

12 in this bucket, just so I have an understanding of how

13 it was organized.

14   MR. FALCONER: Yeah. Absolutely. Yeah.

15   So, I mean -- yeah. We're more than happy to

16 do that.

17   And then, you know, the questions on these

18 sources, you know, we had brought Mr. Elia and

19 Mr. Zarashaw -- those are the folks we identified as

20 most knowledgeable and kind of most likely to be able to

21 answer the Special Master's questions today based on

22 what was in the orders.

23   SPECIAL MASTER GARRIE: I get it.

24   MR. FALCONER: Anything on these sources, you

25 know, we veered into a little DYI and advertising and

1   privacy, anything on that, we're happy to identify the

2   right people, get them in front of you so you can ask

3   the questions you have. Anything like that you need,

4   we're more than happy to do it.

5   SPECIAL MASTER GARRIE: Yeah. I get it. I

6   think it was productive. We only have another

7   25 systems to quickly run through.

8   ████

9   MR. EUGENE ZARASHAW: No.

10   MR. STEVEN ELIA: I'm not familiar.

11   SPECIAL MASTER GARRIE: █████████

12   MR. EUGENE ZARASHAW: It's an offline backup

13 system or partly offline backup system.

14   SPECIAL MASTER GARRIE: All right. Well, it

15 will be very helpful for me from the Facebook lawyers,

16 remove all the backup systems, all the offline memory

17 caching, caching systems from this list, because I think

18 it will get substantially smaller.

19   MR. FALCONER: Right.

20   SPECIAL MASTER GARRIE: ███ we talked about.

21   ZippyDB or -- how do you say that? Akkio

22 or Akkio?

23   MR. EUGENE ZARASHAW: I don't know what Akkio

24 is.

25   MR. STEVEN ELIA: I have a high-level

1   understanding of ZippyDB, although it's not something

2   I've used. I think it has data for some ephemeral use

3   cases, things like notifications, for example.

4   SPECIAL MASTER GARRIE: Like notifications to

5   users, like hurricane is coming?

6   MR. STEVEN ELIA: I'm not sure what kind of

7   notifications.

8   SPECIAL MASTER GARRIE: But it's outside

9   messaging. It's push notifications to the user, not

10   messaging notifications?

11   MR. STEVEN ELIA: Again, I'm not sure which

12   specific kinds.

13   SPECIAL MASTER GARRIE: Okay.

14   ███████████████████? Is that not a caching

15   tool?

16   MR. EUGENE ZARASHAW: I don't know what that

17   is. I'm learning a lot about our systems from this

18   experience.

19   SPECIAL MASTER GARRIE: As am I.

20   Mr. Elia?

21   MR. STEVEN ELIA: I'm not familiar with it

22   either.

23   SPECIAL MASTER GARRIE: All right. ████████

█   ███████?

25   MR. EUGENE ZARASHAW: I don't know.

1   MR. STEVEN ELIA: Me neither.

2   SPECIAL MASTER GARRIE: But they're MySQL

3   so...

4   Does counsel know any idea why they're

5   identified as MySQL? Are they systems within MySQL? Or

6   are they MySQL systems?

7   Because ███████████████████████. And

8   like is ████████████ the same or are they unique?

9   MR. EUGENE ZARASHAW: My best guess would be

10 that ████████████████████ It's a pretty

11 involved layer in addition to it. And I don't think it

12 uses MySQL anymore underneath.

13   On the other hand, we do run some other MySQL

14 clusters for different purposes, and while the software

15 may be about the same, the purposes are different. It's

16 machines with different data on them.

17   SPECIAL MASTER GARRIE: Okay.

18   MR. FALCONER: That's a far better answer than

19 you would have gotten from counsel, I just want to note

20 for the record.

21   SPECIAL MASTER GARRIE: Yeah. Noted.

22   ██████

23   MR. EUGENE ZARASHAW: I don't know.

24   MR. STEVEN ELIA: That may be -- I don't know

25 if ████ which is a system renamed itself, in which case

1 you also might be better able to speak to that than me,

2 Eugene.

3   MR. EUGENE ZARASHAW: I honestly don't

4 remember what ███ is anymore.

5   MR. STEVEN ELIA: It's very similar to TAO but

6 I think had fewer reliability guarantees perhaps.

7   MR. EUGENE ZARASHAW: Oh, is that -- oh, I do

8 recall what ███ is now. That was the Memcache base TAO

9 without the MySQL part. So data went in and it might

10 just disappear at any time. It was meant for more

11 convenient caching than Memcache directly.

12   SPECIAL MASTER GARRIE: All right. So we can

13 junk that one.

14   All right. ██████████████

15   MR. EUGENE ZARASHAW: Don't know.

16   MR. STEVEN ELIA: Me neither.

17   SPECIAL MASTER GARRIE: I don't even know how

18 to say the next one.

19   MR. EUGENE ZARASHAW: It's okay. It's a no

20 for the next three as well.

21   MR. STEVEN ELIA: Same.

22   SPECIAL MASTER GARRIE: Yeah. I don't even

23 know.

24   ████████

25   MR. EUGENE ZARASHAW: Don't know what that one

1   is.

2   The next one I know anything about is

3   ███████████

4   MR. STEVEN ELIA: Yeah. I don't know the ones

5   before ████████

6   SPECIAL MASTER GARRIE: ███████████

7   MR. EUGENE ZARASHAW: Any time we bill a user

8   for something, whether we bill them for ads, for

9   example -- the most common cases, we charge them for

10   running ads. But also bill them for sending money to

11   their friend.

12   SPECIAL MASTER GARRIE: And then you also have

13   like -- they can buy photos or whatever else services.

14   Is that all run through ███████████

15   MR. EUGENE ZARASHAW: I don't know if you can

16   buy photos anymore. But, for example, there's

17   remittances, which you can send money to a friend and

18   that runs through ██████████

19   SPECIAL MASTER GARRIE: All right. Anything

20   you want to add there, Steven?

21   MR. STEVEN ELIA: Nope.

22   SPECIAL MASTER GARRIE: Okay.

23   ████████████████████████

24   MR. EUGENE ZARASHAW: I don't know anything up

25   until 44.

1   SPECIAL MASTER GARRIE: Okay. I'll take that.

2   How about you, Steven?

3   MR. STEVEN ELIA: Same.

4   SPECIAL MASTER GARRIE: MySQL.

5   MR. EUGENE ZARASHAW: Likely on there because

6   we probably have a set of MySQL machines somewhere that

7   are not covered by the other MySQL clusters listed.

8   SPECIAL MASTER GARRIE: That's what I'm a

9   little confused about. There are a bunch of MySQL

10   clusters here that seem -- so one of the things -- these

11   are systems that plaintiffs identified as storing user

12   data. But wouldn't MySQL be the like -- MySQL is --

13   it's a database; right? It's not a --

14   MR. EUGENE ZARASHAW: Right. And it's hard to

15   tell which instance of that database this is and what

16   would be in it.

17   MR. STEVEN ELIA: I would add that as Eugene

18   has previously said, these storage systems are often

19   implemented and organized here by use case. And so

20   those other MySQL instances listed here have their own

21   very specific use cases.

22   SPECIAL MASTER GARRIE: Where would we find

23   these use cases for these systems?

24   MR. EUGENE ZARASHAW: I recommend going the

25   other way and looking at what systems are actually big

1   enough to serve a couple of -- two billion people.

2   Because if you're looking for user scale systems that

3   are storing that much data and having that much load, a

4   cluster of 50 machines is just not going to do it.

5   So getting some idea of the number of machines

6   involved might help you sift through these --

7   SPECIAL MASTER GARRIE: Okay. That could be

8   very helpful. That is actually an excellent idea.

9   We'll give that some more thought.

10   Anything to 46, either one of you?

11   MR. EUGENE ZARASHAW: No. I'm lost until 50.

12   MR. STEVEN ELIA: Same.

13   SPECIAL MASTER GARRIE: We discussed ████████

14 ████████████████ is something of interest to me.

15   What is ████████████████

16   MR. EUGENE ZARASHAW: I don't know.

17   MR. STEVEN ELIA: I don't either.

18   SPECIAL MASTER GARRIE: Does counsel for

19 Facebook have any idea why ████████████████ would be on

20 this list?

21   MR. FALCONER: I don't want to speak off the

22 cuff on that, no. I mean, we can find out. We're happy

23 to find out as well, but I don't want -- you know,

24 if were to say anything inaccurate.

25   SPECIAL MASTER GARRIE: No. I got it.

1   The reason I ask is because there's been

2   testimony from -- that there is no central -- or

3   testimony and statements from Facebook that there's no

4   central research repository.

5   When I read the words ████████████, it

6   strikes me as that may be a central research repository.

7   I could be wrong.

8   MR. EUGENE ZARASHAW: My guess on that one --

9   and, again, this would only be a guess -- is this is a

10   database backing the research dot Facebook dot com site

11   containing the papers that we publish.

12   SPECIAL MASTER GARRIE: That's what I thought

13   likely as well.

14   MS. RING: Just to be clear, we don't know.

15   I mean, you asked, Special Master, counsel. There are

16   crazy names for things that make no sense and end up

17   having no relationship to what's actually in a data

18   source. I've seen that for over a decade. So we will

19   find out. But it would not be out of the ordinary for

20   it to have nothing at all to do with research.

21   SPECIAL MASTER GARRIE: I mean ██████ -- don't

22   have to do with ██████

23   MS. RING: Exactly. Or ██████ I mean --

24   SPECIAL MASTER GARRIE: ██████████ My daughter

25   that was very excited when I told her I was going to

1   talk about ████████ today.

2   So that --

3   MR. EUGENE ZARASHAW: Of all the things I know

4   on that list.

5   SPECIAL MASTER GARRIE: Anything?

6   MR. STEVEN ELIA: I don't specifically know

7   52 PYMK ████████   But PYMK does stand for "people

8   you may know." It's the part of the product that

9   suggest friends to you. And so while I don't know what

10   data is in there, I would guess that it's in service of

11   that.

12   SPECIAL MASTER GARRIE: Any others?

13   MR. STEVEN ELIA: That's the last I recognize

14   anything about.

15   SPECIAL MASTER GARRIE: Got it.

16   And then below, there's a drawing and it was

17   stated that the social graph connects to 12 specific

18   systems.

19   One thing I did see that was removed from the

20   list, just for notification, was Hive.

21   But one thing I had a question about is do

22   you -- for these four -- for those 12 systems, right,

23   ████████ -- which I'm not quite sure I understand --

24   ████████████ Laser, Manifold, I think we can

25   probably get rid of Memcache, MySQL, again --

1   MR. EUGENE ZARASHAW: Apologies. I need to

2   update the record.

3   It is ███████████████████ , that is the

4   messaging store.

5   SPECIAL MASTER GARRIE: Yeah.

6   ██████ TAO.

7   So -- all right. I think this was helpful.

8   I think we'll have to add one -- I'll get a more

9   specific set of requests for further clarification, as

10   well as the other things that I mentioned. I'll try to

11   get an order out, sort of clarifying that.

12   And I may tier the approach.

13   Does plaintiffs have any further questions

14   they'd like to ask?

15   MS. WEAVER: I think we're okay right now.

16   Thank you.

17   SPECIAL MASTER GARRIE: Facebook, any

18   questions you would like to ask?

19   MR. FALCONER: Not right now. No. Thank you

20   for the opportunity.

21   But I think what we'll do is, you know, once

22   we get the transcript, we'll go through it and if we

23   have any clarification that we think it would be helpful

24   to provide to the Special Master, we'll do that.

25   Probably just with a letter through the JAMS portal, you

1 know, so everybody gets a copy. But I don't think

2 anything for this afternoon.

3   SPECIAL MASTER GARRIE: All right. We can go

4 off the record for one second.

5   (Pause in proceedings.)

6   SPECIAL MASTER GARRIE: All right. We'll go

7 back on the record.

8   All right. So rather than issuing a formal

9 order for the additional requested information, I'm

10 going to post via JAMS access my request for additional

11 information, and likely to request the scheduling of an

12 additional hearing. All hearing will be labeled as

13 confidential or actually highly confidential.

14   Any party that does want to attend this

15 hearing has to sign the protective order and receive --

16 and notified accordingly.

17   In addition, I'm requesting that the

18 plaintiffs, if they come up with additional systems or

19 any particular systems they think would be of value, to

20 not let the five days that stand after the issuance of

21 my order, identify them as early as possible would be

22 much appreciated.

23   And otherwise I believe that is all. And I

24 thank the parties for making Mr. Zarashaw and Mr. Elia

25 available for today's hearing, and it was extremely

1   helpful and informative. I feel like we were able to

2   cut down the systems, at least from the list of 55

3   fairly substantially and develop clear parameters and

4   focus. So I do appreciate it.

5   And I'm going to move as fast as possible to

6   get to the bottom -- to resolve this issue.

7   MS. RING: Special Master Garrie, if I can

8   raise one more thing, and I don't know if we can resolve

9   it today but at least raise it and then think about how

10   to resolve it.

11   I think given the nature of the things that

12   are being discussed, we would like the hearings to be

13   sealed. Not just to people who are here to sign the

14   protective order, but to seal. I mean, this is very

15   detailed information about all of the companies'

16   internal systems, so --

17   SPECIAL MASTER GARRIE: I'm fully with you.

18   So on the record, I'm fully in support of that, but that

19   is a motion Facebook has to bring to the Court for the

20   Court to issue a ruling.

21   MS. RING: Okay.

22   SPECIAL MASTER GARRIE: Accordingly, I do

23   agree with you that we are covering the inner workings

24   of Facebook systems and databases and technology and

25   systems.

1   But, again, that's a relief you would -- a

2   motion you would have to bring part before the judge or

3   the Court, and according to the local rules, follow the

4   respective procedures that underline that and the Court

5   will rule accordingly.

6   MS. RING: Understood. I just wanted to -- I

7   didn't want to leave the hearing without having

8   addressed that.

9   SPECIAL MASTER GARRIE: No. And that is why

10   today's hearing, there was such -- there was a lot of

11   interest and request to attend.

12   And I would also request the plaintiffs to

13   make sure and inform your -- and inform your fellow

14   plaintiffs' lawyers to channel everything through you

15   pursuant to the existing order.

16   MS. WEAVER: That has just been done.

17   SPECIAL MASTER GARRIE: Well, just to

18   communicate it accordingly, because now that judge --

19   Well, we'll go off the record now. We're

20   done.

21   (Whereupon, proceedings adjourned at 5:28 p.m.)

22   ---oOo---

23

24

25

1   STATE OF CALIFORNIA   )

)

2   COUNTY OF YOLO   )

3   ---o0o---

4   I, Katy E. Schmidt, a Certified Shorthand

5   Reporter, do hereby certify:

6   That said proceedings were taken before me at

7   the time and place therein set forth and were taken down

8   by me in shorthand and thereafter transcribed into

9   typewriting under my direction and supervision;

10   I further certify that I am neither counsel

11   for, nor related to, any party to said proceedings, and

12   am not in any way interested in the outcome thereof.

13   In witness whereof, I have hereunto subscribed

14   my name.

15   Dated: February 18, 2022

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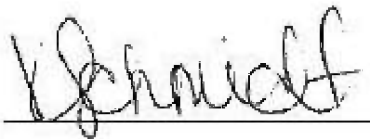
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21   _____

22   Katy E. Schmidt

             RPR, RMR, CRR, CSR 13096

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Exhibit M

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HIGHLY CONFIDENTIAL—ATTORNEYS EYES ONLY

March 7, 2022

VIA JAMS ACCESS

Special Master Daniel B. Garrie
DGarrie@jamsadr.com

Re: *In re Facebook Consumer Privacy User Profile Litigation*, JAMS Ref No.
        1200058674

Dear Special Master Garrie,

Pursuant to the Hearing Order Regarding Plaintiffs' Motion To Compel Production of Plaintiff Data dated February 21, 2022, we submit this response on behalf of Facebook. We also thank the Special Master for granting an extension of our time to respond to allow us to provide responses that we believe would assist the Special Master in expediting resolution of the issue set forth by Judge Corley in her January 12, 2022 order: "[W]hat, if any, data from [systems other than DYI] should be produced consistent with Federal Rule of Civil Procedure 26(b)."

I.   USER DATA IN DYI

The Special Master's first two questions seek information about what user data is included in DYI. We welcome the opportunity to address that issue to correct and clarify statements made throughout these proceedings which seem to have created the impression that the DYI system is limited to the first category of "discoverable user data" identified by Judge Corley in Discovery Order No. 9. As explained below, the DYI system includes *all three categories* of data: (1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, and (3) data inferred from a user's on or off-platform activity. So the issue is whether Facebook should produce *more data* in categories (1), (2), and (3) from systems other than DYI, which we understand is the focus of the Special Master's remaining questions.

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> **Question #1.** Engineer documentation for the process of generating the DYI file for a Facebook user, including data flow diagrams that explain how the data is retrieved, data schemas, and the individual fields for each data type in the schema.

The following DYI engineer documentation is attached as **Exhibit A**.

- **Your Information Schema (DYI)**. This schema describes each of the categories and types of data included in DYI.

- **Eng Guide: Adding to DYI Wiki**. This document provides step-by-step instructions for engineers from product teams to add data to DYI, including instructions regarding where data should live in the DYI taxonomy and DYI schema fields.

> **Question #2.** A statement clarifying whether information available via the DYI tool "includes user data provided by third parties to Facebook, e.g., data relating to users' off platform activity."

Yes, DYI includes user data provided by third parties to Facebook, which is the second category of "discoverable user data" identified by Judge Corley in Discovery Order No. 9. Since this data is stored as raw logs of event data in Facebook's data warehouse, Facebook had to build data pipelines from the data warehouse to production to (a) aggregate and group this event level data on a per user basis sorted in chronological order and (b) transform raw logs of event data in the data warehouse into a human readable information. This effort required complex and time-extensive engineering efforts.

This question from the Special Master highlights a broader factual issue, which we believe should be clarified to assist the Special Master in resolving the issue before him. In Discovery Order No. 9, Judge Corley identified the following categories of "discoverable user data": (1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, and (3) data inferred from a user's on or off-platform activity. Plaintiffs repeatedly have asserted that DYI contains *only* data in category (1), citing a statement by Facebook's counsel during a status conference before Judge Corley.[1] In fact, the full exchange with Judge Corley makes clear that Facebook's counsel was explaining that the DYI tool does not contain *all* data in categories (1), (2) and (3), which is further demonstrated by the answer to this question confirming that DYI includes

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[1] Pls' Sept. 28, 2020 Mot. Compel at 7, Dkt. 526; Pls' Oct. 18, 2021 Mot. Compel Production of Named Pls' Content And Information at 3.

Special Master Daniel B. Garrie
March 7, 2022
Page 3

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data in category (2). Plaintiffs also have cited documents produced by Facebook that they claim prove Facebook's production is limited to *only* data in category (1), most notably, a document referring to "Native Data," "Appended Data," and "Behavioral Data."[2] Again, this is incorrect. **Exhibit B** attaches the primary document Plaintiffs cite for this assertion and a table that describes how the Native, Appended, and Behavioral Data described in that document is either included in DYI or relates to features that were deprecated before this case was filed.

For completeness, we explain below the data in categories (1), (2), and (3) that are included in DYI, and attach as **Exhibit C** summaries of the data that has been produced for each of the named plaintiffs.

Category (1): Data collected from on-platform activity. DYI includes data provided by users and data observed by Facebook on the platform.

User-provided data includes profile data, user-generated content (e.g., posts, videos, photos, comments, stories), message content, friends, location check-ins, linked accounts in the Facebook family of products, and language choices.

Observed data includes clicks, profiles, Pages, Groups, and Events a user has visited, usage data, device data, networks and connections, data about user's activity level, advertisers with which the user has interacted, pages (user pages, pages a user liked or recommended, pages a user follows, pages a user has unfollowed), IP address when sending a message, users that a user has chosen to "see less" or "see first" in News Feed, time spent watching from a page, people whose profile a user has visited, last location, last active time, whether a user viewed someone's birthday story, people a user blocked on Messenger, page notifications, pages a user recommended, time zone, email address verification, Marketplace notifications, and interactions.

Category (2): Data collected from off-platform activity. DYI includes information provided to Facebook by third-party advertisers, app developers, and publishers about user interactions.

User interactions are things like opening a third-party developer app that integrates Facebook business tools, and visiting websites that integrate the Facebook business tools providing information about the user viewing content, searching for items, adding an item to a shopping cart, or making a purchase. Third parties share this off-platform activity with Facebook using "business tools," which are technologies designed to help website owners

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[2] Pls' Sept. 28, 2020 Mot. Compel at 8, Dkt. 526.

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and publishers, app developers, advertisers, and others, integrate with Facebook, understand and measure their products and services, and better reach and serve people who use or might be interested in their products and services. Business tools include Facebook Pixel, Facebook SDK, Conversions API, Offline Conversions, and the App Events API. Facebook also receives impression data through Facebook Social Plugins (e.g., Like and Share buttons) and Facebook Login.

Facebook also receives contact lists with user information uploaded by advertisers for the purpose of serving ads to those users through what are referred to as custom audiences. These lists include hashed information about users (e.g., email addresses, phone numbers) that is used to try to match people on the list with Facebook user accounts; matched users are placed in the custom audience. This hashed information is discarded after the matching process.

Category (3): Data inferred from a user's on or off-platform activity. DYI includes data that is derived from a user's on or off-platform activity.

DYI includes information regarding ads interests; music recommendations based on genres of music a user has interacted with on Facebook; "your topics," which is a collection of topics determined by a user's activity on Facebook that is used to create recommendations for users in different areas of Facebook such as News Feed, News, and Watch; primary location; primary public location; friend peer group; creator badges (including labels like "visual storyteller" or "conversation starter" based on activity in Groups); time zone; language preferences (including preferred language for videos, languages you may know, preferred language); and mobile service provider and country code.

Plaintiffs' DYI Data. Summaries of the DYI files for each named plaintiff showing that they include all three categories of "discoverable user data" identified in Discovery Order No. 9 are attached as **Exhibit C**.

II. OTHER USER DATA AND SYSTEMS

The Special Master's remaining questions focus on understanding what other systems contain user data and, as Judge Corley stated the issue, "what, if any, additional data should be produced consistent with Federal Rule of Civil Procedure 26(b)." To be sure, the DYI file does not include all data related to users, but that does not mean that production of that data is consistent with Rule 26. For example, as explained above, DYI includes data received from third parties regarding a user's off-platform activity on apps and websites, such as viewing content and adding an item to a shopping cart, but does not include data identifying

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the specific content that was viewed or the item that was added to a cart for reasons that engineers will be prepared to explain at the hearing.

> **Question #3:** A statement identifying systems that coordinate and schedule jobs that run against the Hive (a process that accesses table data in the Hive and aggregates user data to produce a meaningful data set). For each job that may involve user data, Facebook is to describe the data extracted in the job and where the job saves the data.

The majority of batch data processing of Hive data at Meta is handled by a system called Dataswarm, which is described below. The remaining minority of batch data processing is coordinated by FBLearner, which is a similar system derived from Dataswarm.

Dataswarm works by having employees (1) define atoms of computation called tasks and then having employees (2) explicitly state the dependency relationships between these tasks so that the system can initiate a task's computations after the preceding tasks have completed their execution. These tasks are treated as black boxes: the system knows nothing about what the task does beyond the rough type of computation performed. For any given task, Dataswarm does not know what data is used as inputs to the computations it orchestrates or what data is produced as outputs by these computations.

Facebook's current approach for identifying what data is consumed as inputs by a job and is generated as outputs by that job is a time-consuming manual process. Because Dataswarm performs millions of tasks each day, it is not possible to complete this manual process for all Dataswarm tasks. To respond to the Special Master's request, Facebook completed this manual process for a sample of 10 tasks run in Dataswarm on February 15, 2022. This sample is attached **Exhibit D**. Approximately five million Dataswarm tasks were run on February 15.

> **Question #4**: A statement identifying the internal identifiers Facebook uses to track users across the Facebook platform, including a description of which Facebook systems use each identifier, how each system uses each identifier, and how Facebook maps identifiers to users.

Facebook primarily uses four types of internal identifiers for user data: (1) a user identifier (UserID), (2) Replacement ID, (3) Separable ID, and (4) App Scoped Identifiers. Each is described in more detail below.

UserID. Facebook uses an industry-wide technique called pseudonymization to represent users on the Facebook platform. In essence Facebook creates a canonical unique

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identifier that encapsulates information about the user (such as First Name, Last Name, email, phone numbers, etc). The encapsulation can be accessed by an identifier called a user identifier (or UserID); this is similar to a row being stored in a database table with the primary key being the userid and information of the user being values in the other columns. UserIDs are unique in Facebook's systems, such that two users cannot have the same UserID, and they are not recycled, meaning even after a user deletes their account, no other user can have the same UserID. The User ID is the canonical identifier to represent a Facebook user and is used in nearly all Facebook systems.

Replacement ID (RID). The RID is an identifier that supports Facebook's deletion practices by irreversibly disassociating data from a user. Every user is assigned an RID for the lifetime of their account. In data systems that do not support deletion (e.g. Hive), any user data retained for more than 90 days can only be retained with an RID. When a user deletes her account, Facebook deletes the record connecting the UserID to the RID so that data stored with that RID can no longer be connected to that user. Like the UserID, the RID represents a single user. Two users cannot have the same RID, and RIDs are not recycled.

Separable ID (SID). The SID is similar to the RID, but allows Facebook to permanently disassociate Off Facebook Activity data from a user. Data Facebook receives from third parties about a user is associated with an SID (rather than UserID), and Facebook maintains a separate mapping between SIDs and UserIDs that can be accessed when data is processed. Through Facebook's Off Facebook Activity tool, users are able to clear their Off Facebook Activity. When a user does this, Facebook removes the mapping between the users' SID and UserID, which irreversibly dissociates the data stored with an SID from the user. Facebook then generates a new SID to be associated with the user's account moving forward. More information about SID's is available at this link: https://engineering.fb.com/2019/08/20/data-infrastructure/off-facebook-activity/

App-Scoped ID (ASID). The ASID is an identifier that is sent to the third-party developer when a Facebook user has chosen to use the Facebook Login product to login to the services of the third-party developer. The App-Scoped ID also serves as a privacy protective identifier that Facebook created with the purpose of preventing different third-party apps from sharing data or amassing profiles of users across apps. This is why the App Scoped ID is created on a per-user per-app basis, such that different third-party developers do not receive the same identifier for the same Facebook user.

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> **Question #5**: A statement identifying the sources from which Graph API pulls user data, including a high-level description of each source and the engineers that own each source.

      TAO. The Facebook production infrastructure is centralized around a distributed data store for the social graph, called TAO (The Associations and Objects), which is the primary source from which Graph API pulls data (including user data). TAO is a high-performance service for storing, caching, and querying the graph for nodes and associations, by providing a clean interface for internal and external developers to integrate into the social graph, abstracting away many of the complexities of developing and maintaining a data storage at scale.

- **For more information about TAO**: https://engineering.fb.com/2013/06/25/core-data/tao-the-power-of-the-graph/
- **Technical Point of Contact**: ████

TAO provides a layer of abstraction to describe objects and relations through EntSchema and Node. The underlying technology that is used to store these data models is a collection of technologies such as MySQL, Manifold, ZippyDB/Akkio, Memcache, and Laser. In limited cases, and for specific purposes, other systems may access these systems directly.

      MySQL: MySQL is TAO's backbone. It provides transactional and availability properties to columnar data. For example, a user's comment can be stored in a MySQL database as a row in a table, where the comment id is the primary key and the comment is a text field. As another example, the fact that someone liked a comment can be represented by an association with the type like from the comment id and the user id, this could be represented as 3 columns in the table, with comment id, user id, and type of reaction.

- **Technical Point of Contact**: ████

- **Technical Points of Contact**: ████

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ZippyDB/Akkio: ZippyDB is a persistent key-value storage service that provides reliable, scalable, geo-replicated storage for high throughput applications. ZippyDB provides very efficient key value lookups, faster than MySQL but are not transactional in nature. Akkio operates on top of storage services like Zippy. Akkio splits the data sets into units with strong locality, which can then be geographically placed close to where they are most likely to be accessed.

- **For more information about ZippyDB/Akkio**:
  https://engineering.fb.com/2021/08/06/core-data/zippydb/ (ZippyDB);
  https://engineering.fb.com/2018/10/08/core-data/akkio/ (Akkio).

- **Technical Points of Contact**: ▌ (ZippyDB), ▌
  ▌ Akkio)

Memcache: Memcache provides a cache to the TAO service, the cache ensures that queries that have recently run are available quickly through the cache, as the response time of a cache are orders of magnitude quicker than a lookup in a MySQL database.

- **Technical Point of Contact**: ▌

Laser: Laser is an indexing service that provides low-latency (typically a few milliseconds) read access to specific sets of Data Warehouse data. Data in the Data Warehouse is not indexed on a per user basis, but some Facebook products need to surface the calculations that the product performs to the production systems so a GraphAPI can request the data. Laser is only used to support first-party (i.e. Meta) products.

- **Technical Point of Contact**: ▌

There are other technologies that keep TAO operational that ensure the service is performing at a high-performance.

Question #6: Any agreements relating to user data that Facebook has with each of the following entities: ▌ Microsoft, and ▌

Facebook will submit via email to the Special Master and Plaintiffs contracts relating to user data with ▌, Microsoft, and ▌ that have been produced in this case. Facebook will separately submit to the Special Master contracts with these entities that have not been produced to date in camera, to provide Facebook an opportunity to fully analyze

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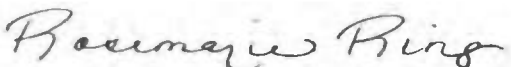
and comply with any notice provisions in these agreements. Once Facebook has completed this analysis and complied with any notice provisions, Facebook will produce the contracts to Plaintiffs, consistent with Facebook's agreement to search for additional contracts Plaintiffs recently requested.

Facebook notes that Meta Platforms, Inc., ███████ Microsoft, and ███████ are some of the largest technology companies in the world. These entities are parties to a very large number of agreements, the vast majority of which are confidential business agreements and outside the scope of this litigation. Should Facebook identify additional agreements with these entities that are responsive to the Special Master's request, Facebook will provide them.

Question #7: Update list of 149 systems identified in the Declaration of David Pope.

In discussing the topics and questions to be addressed during the hearing on Wednesday, March 9, 2002, the engineers who will be attending the hearing have explained to counsel that the list of 149 systems and categorization discussed during the hearing with David Pope on January 14, 2002, are not an effective way of assisting the Special Master in understanding the user data that exists in Facebook systems. Instead, they approach this question from the perspective of a Facebook engineer building product experiences or conducting data analysis who think of user data in terms of production systems and the data warehouse. As these engineers will explain at the hearing, ██

Sincerely,

Rosemarie Ring

Rosemarie T. Ring

Exhibit N

1   UNITED STATES DISTRICT COURT

2   NORTHERN DISTRICT OF CALIFORNIA

3

4

5 IN RE:) MDL No. 2843

)

6 FACEBOOK, INC. CONSUMER) Case No. 18-md-02843-

  PRIVACY USER PROFILE   )   VC-JSC

7 LITIGATION   )

  _____)

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                  HIGHLY CONFIDENTIAL

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                ATTORNEYS' EYES ONLY

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        SPECIAL MASTER: DANIEL GARRIE

12

13   REMOTE HEARING

14   (Via Zoom Videoconference)

15   Wednesday, March 9, 2022

16

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18 REPORTED BY: Michelle Milan Fulmer

               CSR No. 6942, RPR, CRR, CRC

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 1              UNITED STATES DISTRICT COURT

 2            NORTHERN DISTRICT OF CALIFORNIA

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 5   IN RE:                      ) MDL No. 2843

                                 )

 6   FACEBOOK, INC. CONSUMER ) Case No. 18-md-02843-

     PRIVACY USER PROFILE      )           VC-JSC

 7   LITIGATION                 )

     _____)

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 9

10        Remote hearing taken before Michelle Milan

11   Fulmer, a Certified Shorthand Reporter for the

12   State of California, commencing at 10:20 a.m.,

13   Pacific Standard Time, Wednesday, March 9, 2022.

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     ALSO PRESENT:
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          Michael Mann
 8        David Ko
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1   Wednesday, March 9, 2022

2   10:20 a.m. - 2:28 p.m.

3   * * *

4   MR. GARRIE: We will go on the record.

5   We will take breaks for the court reporter's sake

6   every 45 minutes to an hour basis. I lose track of

7   time, Michelle. So you need to tell me because I

8   get engrossed in something and time becomes

9   irrelevant. So if you would just kindly remind me.

10   It's not that I don't want to give anybody a break.

11   It's just that I get -- I lose track of time. So I

12   apologize.

13   So on the record, let's just test

14   everybody's audio for the record.

15   Mr. Patel, just say a couple words.

16   MR. PATEL: Hello, everybody.

17   MR. GARRIE: Court Reporter, we're good?

18   THE COURT REPORTER: Yes.

19   MR. GARRIE: Okay. Mr. Zarashaw.

20   MR. ZARASHAW: Good morning.

21   MR. GARRIE: We're good.

22   Mr. Mitchell.

23   MR. MITCHELL: Good morning.

24   MR. GARRIE: Mr. Clark.

25   MR. CLARK: Good morning.

1   MR. GARRIE: All right. This is

2 Special Master Daniel Garrie.

3   The purpose of today's hearing is to

4 discuss, and only today, hopefully no further

5 hearings are necessary, regarding named plaintiff

6 data that was the order that was issued and

7 attempting to identify and figure out what are the

8 appropriate scope of data within the discoverable

9 data pursuant to the court's order relating to the

10 named plaintiff data that is to be produced in this

11 litigation.

12   Today's format is I will largely be asking

13 questions of the engineers. I have invited counsel

14 for Facebook to object if I go into anything of a

15 privileged nature as well as instructed the

16 witnesses to ask if they have any questions, to ask

17 any clarifying questions; if they think something

18 they're saying may be privileged, to ask to speak to

19 counsel. We have breakout rooms. We'll go

20 accordingly and have those conversations.

21   With all of that said, I first want to just

22 officially on the record recognize and thank

23 Facebook for accommodating an accelerated timeline

24 for a very complex set of problems. I don't want

25 to -- I realize litigation has been going on for

1   some time. I realize there's a lot of history here,

2   but I also recognize that two weeks isn't a lot of

3   time to answer all of the questions, or even a month

4   to answer in detail the technical questions that

5   I've asked.

6   So the answers and data that has been

7   provided is very helpful. I want to thank Facebook

8   for making that effort, making the engineering

9   resources available. It's certainly helping

10   expedite things and move things along and I wanted

11   to officially recognize that on the record.

12   With that said, counsel will not be asking

13   questions. If there is a burning desire for counsel

14   to ask a question, you can raise your hand and I

15   will, when I'm done with my questions, invite

16   questions accordingly and, if I think they're

17   appropriate, then we will ask them. Nobody will ask

18   the engineers questions, but me.

19   I did invite counsel for plaintiffs to

20   provide questions and material and I reviewed them.

21   Some of them I think are relevant. Some I do not.

22   I will use them accordingly. I do want to thank

23   plaintiffs as well for going out of their way to

24   help identify appropriate questions as it relates to

25   this issue we have before us now.

1   With all of that said, I'm going to jump

2 right in to lay out the format of how I'm --

3   MS. WEAVER: I apologize for interrupting,

4 but do you want to swear in the witnesses?

5   MR. GARRIE: I will. Thank you for

6 reminding me. I often forget. There's usually a

7 court reporter and I'm not the one usually doing it.

8 So there's usually --

9   Would the court reporter swear in? I guess

10 I don't know if we can group swear in, but whatever

11 is comfortable, however the court reporter thinks

12 best, swear in the witnesses.

13   THE COURT REPORTER: Okay. And,

14 Mr. Garrie, are you going to be asking questions

15 of Mr. Patel, and then the next time Mr. Clark,

16 et cetera?

17   MR. GARRIE: Oh, no.

18   THE COURT REPORTER: Oh, okay.

19   MR. GARRIE: It's going to be a

20 free-for-all. I'm not sure who knows what. So I

21 don't want to -- they know way more about Facebook

22 and the engineering systems than I ever will. So I

23 don't know which one of the four will be best

24 situated. So I'll direct the question to who I

25 believe and they can go around and say, "I have

1 something to add."

2   THE COURT REPORTER: So, Mr. Zarashaw, will

3 you raise your right hand to be sworn?

4

5   EUGENE ZARASHAW,

6 called as a witness, having been first duly sworn by

7 the Certified Shorthand Reporter, was examined and

8 testified as follows:

9

10   THE COURT REPORTER: Mr. Patel, will you

11 raise your right hand to be sworn?

12

13   MAYUR PATEL,

14 called as a witness, having been first duly sworn by

15 the Certified Shorthand Reporter, was examined and

16 testified as follows:

17

18   THE COURT REPORTER: Mr. Mitchell, will you

19 raise your right hand to be sworn?

20

21   BEN MITCHELL,

22 called as a witness, having been first duly sworn by

23 the Certified Shorthand Reporter, was examined and

24 testified as follows:

25

1   THE COURT REPORTER: Mr. Clark, will you

2   raise your right hand to be sworn?

3   I think he froze.

4   MR. GARRIE: When Mr. Mitchell rejoins, the

5   JAMS -- Mr. Mitchell is here.

6   When Mr. Clark rejoins -- thank you,

7   Mr. Mitchell -- the JAMS moderator hopefully is

8   still here and will -- here he is. I'm admitting

9   him now.

10   MS. RING: May I say, Special Master

11   Garrie, I just want to be clear, I guess, in

12   response to the free-for-all comment.

13   These witnesses have been prepared to

14   address specific topics. So I just want everyone to

15   be aware of that and I want to give them comfort

16   that they're not going to be expected to guess to

17   things that they don't know. Right.

18   MR. GARRIE: Well, I was going to -- to

19   your point, Counsel Ring, what I was going to say is

20   if any of the engineers -- it's completely okay not

21   to know something. You guys have millions of lines

22   of software code and areas of specialty and teams

23   you lead and it's completely acceptable to say, "I

24   don't know." I don't expect you to know everybody.

25   I just don't know if you worked on in the

1   past in certain areas or something else. But please

2   say -- if you don't know something and it's

3   completely unacceptable to answer, just say, "I

4   don't know." I don't expect you to know the answers

5   to everything and we'll go through it like that.

6   Just if you have anything to add to a particular

7   question, then, you know, you'll add; and if not,

8   you won't.

9   Is that all right with you, Counsel Ring?

10   MS. RING: Yes. Thank you, Special Master

11   Garrie. I just wanted to be -- you know, I want

12   them to feel comfortable and they've been -- we've

13   been talking to them for a long time and they're

14   prepared to answer your questions. I just wanted to

15   be clear about what we've prepared them for and

16   discussed with them.

17   MR. GARRIE: Oh, 100 percent. Yeah.

18   That's my expectation. I just -- they're the

19   engineers and I'm not. So that's why I just sort

20   of give them. And project mana- -- at some point

21   we're engineers, maybe more or less than. I don't

22   know.

23   But the point is, Mr. Clark, if we can just

24   quickly swear you in, and then we can kick it all

25   off.

1   MR. CLARK: We had a power outage. So I'm

2   on my phone.

3   THE COURT REPORTER: Okay. Can you raise

4   your right hand to be sworn, Mr. Clark?

5

6   MIKE CLARK,

7   called as a witness, having been first duly sworn by

8   the Certified Shorthand Reporter, was examined and

9   testified as follows:

10

11   MR. GARRIE: Okay. We've gone through all

12   the formalities.

13   With that said, before we jump into

14   everything, the way I'm going to approach today is

15   I've presented a series of questions. I'm going to

16   go through the questions and I've read the responses

17   and I have additional clarifying information I'm

18   looking for regarding the responses to your

19   questions. So if you have anything else you --

20   So what I'm going to do is I want to ask

21   my, at least, one question, and then if you guys

22   want to add any further clarifications or any other

23   statements or other things, I'm going to welcome

24   them. I do want to appreciate -- thank you for

25   categorizing them.

1   And for the record, Counsel Ring, I also

2   agree and recognize that a different way of

3   approaching the data than looking at all 149 systems

4   is definitely the way to go, but I wanted to finish

5   off the initial task so we have a complete record

6   for that, but I do fully agree with you and that's

7   what I'm hoping we can start and finish today.

8   With that said, I'm going to read out just

9   so we have a clear record of what I'm talking about

10 so there's no ambiguity.

11   It says, "Accordingly, the court rules,"

12 this is Judge Corley, "rules the discoverable user

13 data at issue includes (1) data collected from a

14 user's on-platform activity, (2) data obtained from

15 third parties regarding a user's off-platform

16 activities, and (3) data inferred from a user's on

17 or off-platform activity."

18   So I just -- so when I say in the letters

19 and the back and forth, there's one, two, and three

20 constantly going back and forth, that's when we say

21 one, two, or three what we're referring to so

22 there's no ambiguity here.

23   With that said, I think we'll kick off with

24 the first question and the first question really was

25 talking about the DYI file and how it's generated

1   and the information, you know, and the answers, but

2   what I saw -- sorry. I'm just looking at my

3   outline. Actually I did quite a bit of homework

4   myself. What I saw and in my review of it -- and I

5   had a chance to read it. I luckily don't need a lot

6   of sleep. But I had a chance to read it and, from

7   what I could tell, it describes how data is tagged

8   and to be included in the DYI export, but not how

9   data is extracted by the DYI file generation

10 process.

11   So, you know, what I'm trying to understand

12 is where the data comes from and how it's filtered

13 to only include tagged fields and what other fields

14 it is to exclude.

15   So in Exhibit A, the access, in the

16 engineering guide I think it's Page 29. Let me make

17 sure we're talking apples to apples. Page 29.

18 So on Page 29 in there, the engineering guide,

19 there's this thing called Access your Information

20 and can someone explain -- okay, I think I know

21 who to ask, but I'll keep it broad for now --

22 you know, explain how Access your Information is

23 different from DYI?

24   Mr. Clark, we'll start with you.

25   MR. CLARK: Yeah. Of the transparency

1   products that we have, a DYI is allowing you to

2   download your file. AYI is meant to be an

3   interactive version that is live on the site and not

4   downloading every single bit of information that's

5   included in the DYI file. And so its function is

6   slightly different in that it is set and populated

7   with a similar, but not as a complete cut of data.

8   MR. GARRIE: DYI -- does AYI data--

9   I guess a way of thinking about it, is AYI

10 small and then DYI contains all the AYI data?

11   MR. CLARK: Plus more.

12   MR. GARRIE: Well, yeah. So AYI and then,

13 bigger, all of DYI has AYI plus whatever else.

14   MR. CLARK: That is correct.

15   MR. GARRIE: Okay. So then the AYI is

16 just -- how is that -- is that working to do what?

17 You said it was real-time data that they're looking

18 at or --

19   MR. CLARK: Well, DYI is somewhat real

20 time, but it takes time to cue up. I've got a long

21 Facebook usage history, and so mine takes the better

22 part of a couple days and is many gigs in size even

23 with low-resolution photos.

24   AYI allows me to click through that

25 information live on the site and be able to look at

Page 15

1 that content on the Facebook site.

2   MR. GARRIE: It's basically re-skimming the

3 data effectively.

4   MR. CLARK: Correct. And not putting it in

5 a downloadable format.

6   MR. GARRIE: Yeah. Okay.

7   So then the reference is ███████████████

8 ███████████████████████████

9   I think, what is the Activity Log? I

10 didn't see the definition of what an Activity Log is

11 and I was hoping you could clarify what is the

12 Activity Log.

13   MR. CLARK: Sure. There's a very -- in

14 fact, they're very similar and some of the things

15 that you click on in AYI actually ███████████

16 ███████████████████████ Activity Log is meant

17 to be much more like the Facebook site itself as

18 opposed to sitting outside of the site.

19   When you interact with the content in

20 Activity Log, you can in some cases delete it or

21 archive it right from the Activity Log. It is a

22 ████████████████████████, but it is meant to

23 be the logging of your interactions and the content

24 that you've uploaded and those specific things

25 inside of Activity Log that you can interact with

1   more so than you can in AYI. AYI is meant to read

2   only. Activity Log I can actually interact with the

3   content.

4   MR. GARRIE: Okay. I'm just writing it

5   down.

6   So then where is the Activity Log data

7   itself stored?

8   MR. CLARK: In ███████████████████████

9   MR. GARRIE: So I think you gave me every

10 single system you have.

11   When you say ███████████████ you're

12 referring to a particular one? I know it's

13 aggregated, backed up, and distributed.

14   So when you say ████████████████ can we

15 define what is a ██████ -- you have -- ███████████

██ ████████ becomes this very large list of things which

17 I don't really need to touch on as long as it's the

18 same and there's nothing new in the ████████████

██ ████████ if that makes sense.

20   MR. CLARK: Yeah. I have a response up on

21 my screen; but since I can't see it, I'm going to

22 defer to Mayur to help answer and clarify, Mr. Patel

23 to help answer and clarify your question on, like,

24 where some of that content may be.

25   MR. PATEL: All right. So just to answer

1 the question, to understand the question, you're

2 asking where does Activity Log data reside, in which

3 specific data store?

4   MR. GARRIE: Yeah. Like where is it

5 actually stored?

6   MR. PATEL: Yeah. So it's stored in -- if

7 you have the 149, it's stored in ██████████ In

8 order to make it effective to produce the results in

9 real time, we need to ██████████████████████████

   ██████████ and so we have a specialized store

11 called ██████████

12   MR. GARRIE: Okay. And so that's a

13 dedicated system, I assume, just --

14   MR. PATEL: Correct. Just for this

15 purpose.

16   MR. GARRIE: Do you guys differentiate

17 between those? I notice in the answer there's a

18 distinction between a couple milliseconds, a

19 millisecond and other things, and that makes a

20 little more sense.

21   Okay. So then how is the Activity Log data

22 used by -- is Activity Log data used by ██████████

   ██████████ beyond the AYI, DYI piece?

24   MR. PATEL: ██████████████████

25   MR. GARRIE: Oh, this is an important

1   preface to tee it off.

2   Generally speaking, I'm not looking for

3   absolute. 95 percent is sufficient. Just tell me

4   it's not absolute, but more likely than not. Right?

5   I realize that there's a very loose definition of

6   the control of some -- that underlie some of the

7   systems and who can access and what gets put in

8   them.

9   MS. RING: Special Master Garrie, if I may

10   on that topic.

11   I appreciate you saying that and just,

12   again, for the comfort of the people who are here

13   testifying today and so that they can be as helpful

14   to you as possible, Mr. Patel isn't responsible for

15   generating the Activity Log. So when he says, you

16   know, he's ███████████████████████████████, I

17   just want him to feel comfortable to make the point

18   I think you're trying to make, which is he doesn't

19   know, but he's trying to tell you, you know, his

20   understanding.

21   MR. GARRIE: Which is a lot better than

22   mine.

23   MS. RING: What?

24   MR. GARRIE: Which is a lot better than

25   mine.

1   MS. RING: Oh, your understanding?

2   MR. GARRIE: Yeah.

3   MS. RING: Yeah. I know the feeling.

4   Okay. Thank you.

5   MR. GARRIE: I mean, he knew it's in

6   ██████████████ So he's ahead of me.

7   All right. So then I read the engineering

8   process for adding data to the DYI, AYI, and

9   Activity Log. I notice that there's a very

10   prescriptive process, which there's quite a bit of

11   thought.

12   But how do engineers determine if they need

13   to add to DYI, AYI, and Activity Log; right? How

14   does an engineer actually say, "Stick it here, not

15   here. Put it there"?

16   MR. CLARK: I'll start. If anybody has

17   more to add, they can.

18   That's, first of all, part of having our

19   broad privacy program that we have. Every employee

20   and every engineer is trained in privacy and have to

21   recertify on a regular basis. Every product they

22   build must go through a privacy review or a review

23   for a variety of things.

24   As part of both that privacy program and

25   the privacy review process is checks and evaluations

1   on data that's being added and where and how it

2   should be mapped. And what we provided to you is as

3   products are built or as products are being

4   developed, the technical process for an engineer to

5   actually add it to those product surfaces or to

6   those product areas, AYI, Activity Log, and DYI.

7   MR. GARRIE: So then is it the engineer who

8   makes the determinations of what goes in there?

9   MR. CLARK: █████████████████

    ███████ ███████████████████

    ████████████████████████████

    ████████████████████████████

    ██████████████████████████████████

    ███████████

15   MR. GARRIE: That's why I was wondering.

16 Right.

17   How does an engineer know if it's a

18 duplicative cookie or not a duplicative cookie

19 unless they are intimately familiar with the entire

20 data structure of DYI, AYI? So I thought there may

21 be a process for the engineer to determine or make

22 that determination.

23   MR. CLARK: And █████████████████

    █████████████████ ██████████

    ██████████████████ in the pages that

1 you have for the types of --

2   MR. GARRIE: Yeah. Yeah.

3   So that gives them the framework. I'm just

4 wondering -- they don't know the file; right? So at

5 some point the engineering team or the DYI group has

6 got to be consulted, I assume, because you don't

7 want to load the file with duplicative data.

8   MR. CLARK: Correct.

9   MR. GARRIE: Are there any other reasons

10 why an engineer wouldn't include data in the DYI

11 file then or the Activity Log?

12   MR. CLARK: You know, there are a couple of

13 examples.

14   I think one example might be that the data,

15 for instance, being used may not be -- may not

16 actually include the user or like actually know that

17 it belongs to the user. I think those are two

18 different areas. The data may not be associated

19 with that user. Like, for instance, somebody takes

20 a picture of you and I and you upload it and never

21 tag me. There's a photo of me, but I don't know

22 that that photo of me ever exists and so no one does

23 since it was never tagged. And, therefore, that

24 wouldn't be.

25   The data may not be human readable. There

1 might not actually be something to show.

2   MR. GARRIE: When you say human readable,

3 all words are readable to me. So I always find

4 human readable to be this ephemeral concept.

5   So for an engineer, human readable is

6 something lawyers will never be able to read. Like

7 you give a lawyer a for loop, a while loop, a

8 do-while, variables, class files, whatever,

9 that's -- I've had multiple lawyers tell me that is

10 unreadable.

11   So how do you define human? When you're

12 saying human readable, what are we saying, like?

13   MR. CLARK: Maybe a good concrete example

14 might be like as things travel between multiple

15 models or multiple classifiers, the model itself may

16 attach a short-term or a transient -- a transient

17 tag from an associative perspective that, you know,

18 is still tied, but ultimately isn't even meaningful

19 to the engineer that built the model.

20   MR. GARRIE: Is that the same for all data,

21 mobile, everything, you know, TVs? I mean, you guys

22 have all sorts of hardware; right? You have picture

23 frames and TVs and all of this.

24   MR. CLARK: I don't think TVs, for the

25 record.

1   MR. GARRIE: Well, it's accessible on a TV,

2   I believe.

3   MR. CLARK: Sure.

4   MR. GARRIE: I guess you might treat that

5   just as a normal screen with a web API. I don't

6   know how you treat it. But like you have the

7   frames, right, or you have a mobile device. Right.

8   So there are 513 different versions of Android that

9   are currently supported just in North America. So,

10   I mean, everybody may have a different flavor.

11   So how are we defining machine readable,

12   like? So are we saying, like, is a hash value

13   non-mach- -- is that hash value, as an example, like

14   you hash something, is that non-readable?

15   MR. PATEL: It depends what you're hashing.

16   Sorry.

17   MR. CLARK: No. Please, Mr. Patel.

18   MR. GARRIE: So I'm just trying to figure

19   it out because is it more the way the data is used

20   or is it because a hash value is machine readable or

21   does it include -- or hashes -- hashes would be

22   non-DYI or DYI or how does that work?

23   MR. PATEL: So a hash of a picture, for

24   example, photo DNA or something like that, we

25   provide the original content that you uploaded to

1   Facebook. And so, therefore, any hash is a

2   derivative of it in that sense.

3   MR. GARRIE: But there's metadata embedded

4   in the photo. Like photos have -- you know, can

5   have GPS. They can have -- depending on how fancy

6   your camera is, it can have all sorts of things in

7   it. But do you include that then in the DYI file?

8   MR. PATEL: I do not believe --

9   MR. GARRIE: The hash of a photo.

10   MR. PATEL: The hash of the photo we do not

11   include in DYI. The original photo we do. The

12   original photo also could be resized. Like if you

13   upload a 16 meg photo, you know, we may not retain

14   the 16 meg photo. We may retain a smaller version

15   of it.

16   MR. GARRIE: I assume you'd resize it and

17   put it in your blob and drop it into your photo

18   system and archive it.

19   MR. PATEL: Correct.

20   MR. GARRIE: Yeah. So that's what I'm

21   trying to figure out from the engineering side of

22   the house what --

23   I guess what I'm really trying to figure

24   out is how things get in the DYI and not in the DYI,

25   but I think so then --

1   MR. CLARK: There are a few more things

2   that don't go in DYI. I think there's -- there's

3   some classifications both from like ████████████

████ ██

5   For instance, if we believe you're ██████

██ ██

██ ██████████████████████████████ might be one example

8   of that.

9   MR. PATEL: And just going back to the

10 hashing question.

11   The photo that you upload, when we provide

12 that back to you, the hash of it, and especially

13 photo DNA, should produce the same hash value. So

14 it is effectively -- like, you can generate your own

15 photo DNA hash from it.

16   MR. GARRIE: As long as you don't use -- as

17 long as you embed data. It just depends. Yes. I

18 agree. I do forensics work on photos.

19   MR. PATEL: Oh, okay.

20   MR. GARRIE: Perfect.

21   MR. PATEL: Yeah. I believe we strip the

22 excess information if we do hash.

23   MR. GARRIE: So, yes. I believe you are

24 correct having done forensics on Facebook photos

25 myself.

1   Okay. So then I guess my question is, so

2   when I read over the document, is there an

3   independent from the engineer review of whether the

4   data point is or is not added to the DYI, AYI or

5   Activity Log?

6   MR. CLARK: ███████████████████████████

7   ██ ████████████████████████████

8   MR. GARRIE: And that's independent of the

9   engineer?

10   MR. CLARK: ████████████

11   MR. GARRIE: All right. That makes sense.

12 All right.

13   And then a ███████████████████████, I

14 notice that's the instrument that's needed to add

15 data to the DYI; right? So how does the ████████

16 ████████████ work itself? Because that wasn't in

17 there.

18   MR. CLARK: For the sake of clarity, that

19 is the same team as the ███████████████ The ███

20 stands for █████████████████ and that is the prior

21 name of the ███████████████

22   MR. GARRIE: ██████████████████ is the

23 same as the one in the document?

24   MR. CLARK: Correct. ████████████

25   MR. GARRIE: ███████████ But how does the

1   process then --

2   So when a ███████████████████████████████

███

4   How does the ████████████ do that work? Because

5   that wasn't in there.

6   MR. CLARK: Sure. The initial product team

7   building the product, part of what they're trained

8   on on a regular and consistent basis and certify to,

9   they create a path within ████████████████████████

███

███

████████████ ██████████████████████████████

███████████████████████████ ███████████████

███

███

███

████████████████████

18   MR. GARRIE: So as an engineer, does anyone

19   actually make a -- sorry.

20   ██

███

████████ I'm not saying engineers aren't the most

23   amazing people in the world. I'm just saying is

24   there any checks and balances behind the process?

25   MR. CLARK: There are checks and balances

1 behind the process, which is part of why ████████

█ ███████████████████████████████

█ █████████████████████ It's part of why the

4 ██████████ exists. It's part of why like

5 everybody is trained on it and agree to those

6 obligations to even become an employee at Facebook

7 or continue to be an employee of Facebook.

8   And so we take that program serious. So

9 there is follow-up and there are checks and balances

10 built into that.

11   THE COURT REPORTER: Mr. Garrie, I couldn't

12 hear you.

13   MR. GARRIE: That's kind of funny. I was

14 going to strike my comment anyway.

15   Off the record and we'll go back on.

16   (Discussion held off the record.)

17   MR. GARRIE: We'll go back on the record.

18   So then one other thing I didn't understand

19 is what are the possible decisions? Because I tried

20 to figure out what are the possible decisions that

21 come out of the ██████████; like approved,

22 denied, incorrect. I was trying to figure that

23 out.

24   MR. CLARK: So approved or denied or an

25 incorrect.

1 ████████████████████████

██ ███████████████████████████████████

██ ███████████████████████████████████

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██ █████████████████████

8   MR. GARRIE: Okay. What about schema and

9   location or stuff like that? I saw that referenced

10 as well.

11   MR. CLARK: As part of -- and I think

12 having worked on systems for way too long, when I

13 think of schema in traditional systems terms, it's

14 here's the exact pointer to where it's sitting on

15 blocks on disks.

16   Where schema is referred to here, rather,

17 what it's pointing to is what -- we have a process

18 we call ██████████████████████████████

██ ██████ -- sorry -- ████████████████████████

██ ███████████████ And when we talk about █████████

██ ████████████████████████████████████

██ ████████████████████████████████████

██ ███████████████████████████████████

██ ███████████████

25   MR. GARRIE: ████████████████████

1 ████████████████████████████; right?

2   MR. CLARK: That is correct.

3   MR. GARRIE: Okay. Thank you.

4   MR. CLARK: I made the technical

5 assumption.

6   MR. GARRIE: No. No. I agree. I just

7 want everybody.

8   So ███████████████████████

   █████████ Okay. We're good.

10   So then ████████████████████

11 right?

12   MR. CLARK: That is my understanding, yes.

13   MR. GARRIE: All right. And then there's

14 ████████████████████████ Okay. That makes

15 sense to me. All right.

16   I welcome any other --

17   MR. CLARK: I don't know that that last

18 statement is accurate.

19   MR. PATEL: I don't think the last

20 statement is correct.

21   MR. CLARK: I wanted to correct that.

22   There aren't things that live in DYI that

23 aren't in DYI. DYI is the more complete set.

24   MR. MITCHELL: ████████████████████.

25   MR. GARRIE: Perfect. I get that. That

1   answered that question.

2   So then there was a lot of discussion about

3   DYI. So I read in your information schema. It

4   looks like there was a lot of resources devoted to

5   that.

6   I guess my question to you gets more to --

7   So question two is about what is in the

8   DYI.

9   Is there anything else that anyone else

10   wants to add to what we discussed so far about

11   question one?

12   I got all my questions answered.

13   Plaintiffs, now is the time to raise your hand if

14   you have a question.

15   Going to the next question. All right.

16   The second question. I read the answer and I have

17   follow-on questions to that.

18   As I understand from the answer, the data

19   is stored as raw, logged with event data in

20   Facebook's data warehouse. Facebook then builds

21   data pipelines from the data warehouse to

22   production.

23   If I understood that right, what is the

24   data warehouse called? I mean, you have dozens of

25   data warehouses and, I assume, that's only a

1 fraction.

2   So in the response it says data warehouse,

3 but we don't say which one.

4   MR. ZARASHAW: It is synonymous with ████

5   MR. GARRIE: And then when you say data

6 pipelines, is that like a data pipe- -- like how are

7 you defining a data pipeline?

8   MR. CLARK: Let's have Mayur, Mr. Patel,

9 answer that.

10   MR. PATEL: Yeah. So a data pipeline is

11 effectively processing -- a processing unit on top

12 of the storage system.

13   So in our case ██████████████████████████

██ ███

15 We also use other ones like Spark and Presto at the

16 company.

17   MR. GARRIE: How are data pipelines

18 themselves built?

19   MR. PATEL: Data pipelines are built by

20 development.

21   MR. GARRIE: And particularly for the data

22 warehouse and particularly for the raw logs and

23 event data in Facebook's ████   The data in the

24 ████ you build data pipelines. How are those data

25 pipelines built for the ████

1   MR. PATEL: Yeah. So the most common one,

2   and I'm just speaking for the generalized version of

3   it, are built by data engineers or software

4   engineers on top of ████ using these three

5   processing pipelines that I talked about: ████

6   Presto or Spark.

7   The language used for them is mostly SQL.

8   So it's really easy to understand. I'm sorry. It's

9   not standard SQL. It's not ANSI SQL.

10   MR. GARRIE: SQL. I can't remember. I've

11   seen it.

12   But basically the Facebook SQL query

13   language is used to build these pipelines? Is that

14   what we're --

15   MR. PATEL: Yeah. Correct. It potentially

16   is Presto SQL. It's not Facebook SQL, but it's not

17   ANSI SQL. It's not the standard SQL that you know.

18   MR. ZARASHAW: Let me make a correction.

19   It is not Facebook SQL. There is an SQL

20   which was -- that was a query used -- format used

21   for the older versions of the developer platform and

22   this is not it.

23   MR. GARRIE: So you're using Presto? You

24   said Presto SQL?

25   MR. PATEL: Yeah. Primarily it's Presto

1 SQL. I believe ███ is fully deprecated and Spark

2 is a future version of what we may use.

3   MR. GARRIE: How are the data pipelines

4 executed?

5   MR. PATEL: They're executed by a scheduler

6 called Dataswarm. So people write Python scripts

7 that describe effectively what a unit of task is

8 and what the interdependencies are. So an

9 interdependency, for example, wait on table X to

10 get data before you can process this meaningful

11 task because if you don't have data in table X, you

12 can't really go and query table X in your current

13 task.

14   MR. GARRIE: Are they sequential? Because

15 I looked at the ones of the list you gave me and

16 some are repeated; right? So we'll talk about the

17 exhibit itself.

18   But, I mean, the bottom line is they're run

19 by Dataswarm effectively. It's a scheduler?

20   MR. PATEL: Correct.

21   MR. GARRIE: Okay. And then where is the

22 data pipeline -- I might regret. Well, I don't know

23 how else to ask this.

24   So where is the data pipeline's output

25 stored?

1   MR. PATEL: The developers can choose where

2 to store it. You know, most likely, they're storing

3 it in another dataset to then be consumed by other

4 data pipelines or then to be moved over somewhere

5 else. But it's not uncommon for emailing stuff or,

6 you know, like if you just want to email the output

7 of a result or something like that.

8   MR. GARRIE: ████████████████████████

███████████████████████████████████████

███████████████████████████

11   Are ███████████████████████████████

████████████████████████████ or something

13 like that?

14   MR. PATEL: ██████ ██████████████████████

██████████████████████████████████████

16   MR. GARRIE: And then so where is -- can

17 they store it anywhere? Do they store it in the

18 █████? Is it stored in a subset of systems? Is

19 it --

20   MR. PATEL: Primarily I would say most of

21 it goes back into ██████

22   MR. GARRIE: And then other parts of it, I

23 assume, go to TAO, to other?

24   MR. PATEL: ██████ ████████████████████

███████████████████

1   MR. GARRIE: Got it.

2   MR. PATEL: So we --

3   MR. GARRIE: Go ahead.

4   MR. PATEL: Go ahead.

5   MR. GARRIE: No. Go ahead.

6   MR. PATEL: ███████████████████████

█   ████████████

8   MR. ZARASHAW: Pardon me for jumping in. I

9 do have to clarify.

10   ██████████████████████████████

█ ████████████████████████████████

█ ████████████████████████████████████

█ █████████████████████████████████████

█ ██████████████

15   For example, for computing -- we do a very

16 █████████████████████████████████

█ ████████████████████████████████

█ ███████████████████████████████████

█ ██████████████████████████████████

█ ████████████

21   There are certain cases where -- cases

22 █████████████████████████████████████

█ █████████████████████████████

24   MR. GARRIE: So then basically a dataset's

25 a table in the █████████ For lack of a better, is that

1 the equivalent of what we're -- and then it's

2 cheaper to do it there than to do it elsewhere, I

3 guess, from a computation perspective.

4   MR. ZARASHAW: Exactly. So once in █████

5 per day or per week, and then redo it as many times

6 as needed.

7   MR. GARRIE: So then returning back.

8   When you said the dataset, Mr. Patel,

9 that's a table. Is that what we're talking about?

10   MR. PATEL: Yeah. That's a table. That's

11 effectively another ██████ table.

12   MR. GARRIE: I technically get it.

13   MS. RING: Special Master Garrie, I'm

14 sorry. I'd like to clarify something.

15   Mr. Patel has worked on these pipelines, I

16 mean, for OFA, so in response to actually

17 Question Number 2. So I feel like we're kind of

18 talking in very general terms here, but this is just

19 for OFA and the pipeline that was created from █████

20 into DYI for OFA. I just want to be clear about

21 that and that they're talking about, you know,

22 internal Facebook engineer developers and not

23 third-party developers. So...

24   MR. GARRIE: Are third-party developers

25 allowed to access the ██████

1   MS. RING: What?

2   MR. GARRIE: I didn't think any third-party

3   developers are allowed to touch the █████

4   MS. RING: They are not. That's the point

5   I'm trying to clarify.

6   MR. GARRIE: Yeah. I'm assuming that

7   anybody that's touching these dataset tables or data

8   in the ████ is an authorized Facebook engineer doing

9   some product-based specific activity for on-platform

10 work or some analysis or something. Nothing to do

11 with third parties at all. However, they're not

12 allowed to touch it. They may have a contract and

13 ask an engineer to do something and they may run

14 something, but the Facebook engineer is running

15 that. But I'm just trying to understand big picture

16 for the languages we saw.

17   So then is there a list of the existing

18 data pipelines? I mean, I got the five million, but

19 is there an actual list?

20   MR. PATEL: Sorry. A list for all the

21 pipelines at Facebook or the OFA pipeline?

22   MR. GARRIE: The OFA pipeline would be a

23 good place to start.

24   MR. PATEL: Yeah. Yeah. We could

25 potentially produce that.

1   MS. RING: I'm sorry. I have to clarify

2   that.

3   Do you mean the name of the pipeline? I

4   just want to be clear.

5   MR. GARRIE: No. I'll get to the points I

6   want.

7   MS. RING: Okay.

8   MR. GARRIE: I haven't decided what I want

9   yet or what I don't want. I just want to know what

10 is possible.

11   MS. RING: Got it.

12   MR. GARRIE: Don't take any question here

13 as a determination or direction of what I'm doing.

14 I'm just learning here.

15   MS. RING: Yes.

16   MR. GARRIE: So then what about can you

17 provide what data they can soon produce then for the

18 data pipelines?

19   MR. PATEL: Oh, we could -- yeah. We could

20 produce the SQL code.

21   MS. RING: Again, Mr. Patel is speaking

22 only to the OFA platform. Okay?

23   MR. GARRIE: Yeah. I got it loud and

24 clear.

25   MS. RING: I just want to be clear. I

                                                    Page 40

1   mean, they're sworn. We need to be clear about what

2   they are actually here to talk about.

3   So got it. I will shut up now. Thank you.

4   MR. GARRIE: I am assuming that we are

5   speaking in very specific terms, but I assume

6   someone else, since there is an engineer that did

7   build the data pipeline, for whatever it is, can

8   produce, that somewhere someone has the ability, it

9   sounds like. There's tables, good news, and there's

10   SQL, well, Presto SQL, and you have input and you

11   have output and there's an engineering resource that

12   did create that whatever -- whatever they're running

13   in sequence that run are managed by the Dataswarm.

14   Someone had to schedule it, approve it, and put it

15   in and I get that.

16   MR. CLARK: And there's such a long list

17   because you can create a pipeline for temporary

18   data access. It's not generating new data. It's

19   only using existing data. So you can do that for,

20   as you mentioned earlier, research, trying to help

21   diagnose something that may be going on or like the

22   example that Mr. Patel is referring to with OFA is a

23   great example operationally to look at.

24   MR. GARRIE: They can literally do it for

25   whatever.

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1   MR. CLARK: Correct.

2   MR. GARRIE: It's like basically a data

3   junkyard.

4   MR. CLARK: Yes, it is, but it's also very

5   governed under the privacy program where the

6   biggest part of the training is what access to

7   data you have as an employee and how you are

8   supposed to treat and handle that access to data as

9   well. So --

10   MR. GARRIE: I agree. There's a privacy

11   construct. Like you said, all the engineers get

12   trained and when they come on they sign these

13   compliance, they got to recertify. They got lots of

14   paperwork regarding the process on data privacy

15   management. I'm just trying to understand. So

16   there's not -- I'm not assuming anything bad. I'm

17   just trying to understand where it all sits and how

18   complicated these tasks are.

19   So then jumping in. Category 1,

20   on-platform. So this is user-provided data. Is all

21   user-provided data included in the DYI tool? I

22   mean, user provided. So I'll be very clear.

23   MR. CLARK: To the best of my knowledge,

24   yes, the user-provided data is.

25   MR. GARRIE: Okay. Are there individual

1 fields from schemas that are not included in the DYI

2 file?

3   MR. CLARK: Would you repeat that question?

4   MR. GARRIE: Are there individual fields

5 from schemas that are not included in the DYI file?

6   MR. CLARK: I do not know.

7   MR. MITCHELL: I'm just clarifying.

8   Are you asking if we have a table that has

9 a series of columns about a particular user or are

10 we excluding a particular column? Is that what

11 you're trying to get at?

12   MR. GARRIE: A column. A value. I mean,

13 you guys call them -- yeah. In essence, like, I

14 don't know how -- yeah, a schema. Like a schema can

15 have columns, rows, depending on how you define the

16 object; right? I mean, it's all relative to the

17 design of the object and how you put the tables and

18 link the tables and everything else.

19   But the question is, they're fields that

20 don't make it in. I mean, so here's my -- my --

21 well, let's actually differentiate because my next

22 question is about cold tables.

23   I'm talking about schemas. So field values

24 versus tables; right?

25   So because are there -- so like a schema --

1 a field in a schema is like a -- I don't know how

2 you guys refer to tables and datas and rows and

3 values. But an individual entry, okay, from that,

4 are those things not included in the DYI file?

5   MR. CLARK: I believe if we look at the

6 process for an engineer to add --

7   I apologize. I can't just scroll through

8 it.

9   MR. GARRIE: I know.

10   MR. CLARK: So part of the ██████████████

██ ███

██ ███

██ ███

██ ██████████████████

15   I think what you're asking, and this is why

16 I'm asking from a clarity perspective, is --

17   MR. GARRIE: It's okay.

18   MR. CLARK: -- if there's something that's

19 stored raw in that row, that there's some other set

20 of data that may not go with that.

21   MR. GARRIE: Yeah. At a field level and

22 then at a table level.

23   MR. CLARK: I'm not aware of any, but my

24 better answer would be I don't know.

25   MR. GARRIE: Okay. We'll stick with I

1   don't know and we can double-check because that

2   will be -- because there's an engineering review

3   process and I assume that -- well, I don't know --

4   to Ben's point, to Mr. Mitchell's point, I don't

5   know how you refer to it, but I'm talking about a

6   schema being a user's an object. My eye color's

7   hazel, my height, all of those things, right,

8   however you put, like, the eye color or the

9   circumference of my eye would be a field value and

10   then maybe the whole table describing my eye, just

11   as an example; right? So --

12   MR. MITCHELL: Yes. So as I called out in

13   my declaration, like there are certain types of

14   things that we don't include deliberately. So it is

15   possible that there is a column that contains a

16   trade secret and that column -- and so we would not

17   include that in DYI. Right.

18   MR. GARRIE: Right.

19   MR. MITCHELL: And we're not going to

20   discuss on this call what those trade secrets might

21   be obviously, but like I think -- so it is certainly

22   possible that there are things that are excluded at

23   the field-by-field level.

24   MR. GARRIE: All right. And so that's not

25   user provided.

1   MR. MITCHELL: Fair enough.

2   MR. GARRIE: Users aren't providing trade

3   secrets. I'm only talking about user provided.

4   MR. PATEL: Yeah. We provide all user

5   provided. If you wrote in -- yeah. If you -- if we

6   had an option for eye color, we would provide that

7   in DYI and the user chose that.

8   MR. GARRIE: Yeah. We'll get to the other

9   ones in a second.

10   MR. MITCHELL: Okay. Yeah.

11   MR. GARRIE: Because you guys

12   differentiated it in your answers, user provided,

13   non-user provided. So I'm just going through it

14   that way rather than -- yeah.

15   MR. MITCHELL: Okay.

16   MR. GARRIE: And everything I give comes

17   in. Okay.

18   Counsel Weaver, what question do you have?

19   MS. WEAVER: I would be interested in the

20   definition of user provided and this is the reason.

21   For example, if I went on a website and off

22   platform, but on my Facebook log in and put

23   something in a shopping cart, but then never

24   purchased it, that is information that we do not see

25   in the Download It Yourself tool that our experts

                                        Page 46

1   have said is certainly some information that

2   Facebook collects, but maybe that's not determined

3   to be user provided.

4   MR. GARRIE: You don't have to answer the

5   questions directly.

6   How are you -- I thought you provided the

7   definition of user-provided data, but how are you

8   defining user-provided data? Is it any different

9   than what was provided?

10   MR. CLARK: I'm going to refer to the

11 definition that we included where it was directly

12 user provided from the first-party platform itself,

13 from Facebook.

14   MR. GARRIE: That's what I understood it

15 as well. I was using the definition that you

16 provided.

17   So that would not be defined,

18 Counsel Weaver, as user-provided data.

19   MS. WEAVER: Right. I mean, and let me be

20 clear.

21   With first-party and third-party cookies,

22 arguably Facebook could have said if they use a

23 Facebook login, that's a first-party data point, but

24 I hear their definition here is saying it is not.

25 Is that correct?

1   MR. GARRIE: Well, you can read -- I mean,

2 if you read their answer, they have the written

3 definition in the engineering.

4   MS. WEAVER: Okay.

5   MR. GARRIE: And I don't know what page

6 it's on, but I'm certain I've read it.

7   MS. WEAVER: I've read it. It's just

8 unclear to me, but I understand the position they're

9 taking. Okay.

10   MS. RING: I'm sorry to interject, but the

11 question that Counsel Weaver asked, I mean, what

12 you just described there and, you know, Mr. Patel

13 is here. He worked on the OFA. It's just -- it's

14 not in the first category, but it's in the off

15 Facebook.

16   MR. GARRIE: I know. We're going to get to

17 it. That's why I'm not worried about it.

18   MS. RING: Okay. I just didn't want to

19 leave the impression it's not in the DYI file. It's

20 just not called user provided.

21   MR. GARRIE: Yeah. I get it. I'm fully on

22 board. You guys worked hard at this. I'm just

23 going through methodically the different pieces.

24 But her question was specifically about how user

25 provided is defined and we're only talking about

1   on-platform; right? So we're still in Category 1,

2   on-platform. We haven't even departed.

3   So observed data. Okay. So that's the

4   next bucket here. How is observed data collected

5   from the on-platform activity?

6   MR. CLARK: Yeah. I think we tried to

7   outline that like exactly with concrete examples and

8   exactly for what it is.

9   It includes interactions like clicks, what

10   profile, pages, groups, and events the users have

11   visited, the usage data, the device data, for

12   instance, data about the user's activity level,

13   advertisers with which the users interacted, IP

14   addresses, IP address, where they have users that a

15   user has chosen to see less or see first in news

16   feed, time spent watching from a page of the watched

17   product, people whose profile a user has visited,

18   last location, last active time.

19   I could keep going through lists, but we

20   tried to provide like a good set of examples of what

21   are observed.

22   MR. GARRIE: All right. So I'll get to

23   Counsel Weaver's question in a few minutes.

24   But what I don't understand is how are you

25   collecting it? Are you using like API? Like I

1 guess what I'm trying to understand is, there's a

2 lot of data you can observe. Right. There has to

3 be -- is there a table schema? I mean, is there

4 some -- I mean, are you collecting it into tables?

5 I'm just trying to understand how is it actually --

6   I appreciate the examples. They were

7 helpful.

8   What I'm trying to understand is, how is it

9 actually being collected from an on-platform

10 activity? Is it being stored to, like, the -- like,

11 how is it actually working?

12   MR. CLARK: Through the series of examples,

13 they're all not stored in one place. Like, they are

14 part of the product.

15   So ███████████████████████████

███

███████████████████████████████████

18   Examples like █████████████████████

████████████████████████████████████

███

██████████████████████████

22   MR. GARRIE: But there's no unified

23 perspective of where all of the user observed data?

24 Like, there's no observed data table set or object

25 or schema or -- because I guess by product,

1   different data is -- by different use of the

2   product, different data is observed. But a user,

3   based on the products they use, there's -- is it in

4   a schema?

5   I mean, how is the observed data being

6   collected? Is it going into a schema, in a table,

7   and then associated or on the platform or is it by

8   product? Is that how that's working?

9   MR. CLARK: █████████████████████

10   MR. PATEL: Yeah. I was just going to --

11   MR. CLARK: Mr. Patel.

12   MR. PATEL: Yeah. Like, ████████████████

     ███████████   ████████████████████████████

     ██

     ███████████████   █████████████████████████

     ██████████████████████████

17   And what we do is the ones that are -- like

18   the ones that we have access to, like that's the

19   whole ████████████ question that you had, we're able

20   to produce those in Activity Log. While we're also

21   producing those in Activity Log, we can produce

22   those in DYI.

23   So some examples of it, you know, █████████

     ███

     ███

1   ████████ for eventually to be downloaded in DYI.

2   MR. GARRIE: Okay. So then is the observed

3   data generated from the warehouse via data

4   pipelines? Is that how that's working on a

5   product-by-product basis or --

6   MR. PATEL: I don't know the intrinsic,

7   like, pipeline of the pages you may use. I don't

8   know if Eugene knows it. But I would suspect that

9   ██

   ██ ████████████████████████████████

   ██ ████████████████████████ ████████████

   ██ ████████████████████████████████

13   MR. ZARASHAW: I could try to help you out.

14   There are a number of different

15   infrastructure pieces that can be used for this

16   purpose. Each product team decides at the time

17   they're implementing the product what outcome

18   they're trying to achieve and, therefore, which

19   pieces of the infrastructure can best match the

20   outcome.

21   So if I could use a couple examples. One

22   would be, let's say, you like a page on Facebook.

23   That specific example happens to immediately go

24   into ████ but the fact that you liked the page is

25   recorded in ████████████████████████████

1 because in order for this to work, you need to also

2 be able to see that you liked that page next time

3 you reload that page, which means there has to be

4 immediate real-time access to the fact that you

5 liked it available through the web content.

6   There are other cases where we might have

7 observed data like, let's say, the IP address a

8 person is visiting from. We might not even use it

9 and it ends up in ███ as a log and that might be

10 the end of it. It just sits in ███

11   So it really depends on somebody coming up

12 with the scenario for how the data is to be used

13 before anything is done with it.

14   MR. GARRIE: Based on the product usage

15 effectively, and then from that you can find the

16 observed data by the product that's used by the

17 user.

18   MR. ZARASHAW: Exactly. And how that

19 product team chose to implement that specific

20 observed data.

21   MR. GARRIE: And then observed data sounds

22 like can come from pretty much anywhere. I couldn't

23 tell from the examples.

24   From what I could tell, I'm just trying to

25 list out where observed data is collected from about

1   a user, and it looks like it comes from lit- --

2   like, based on my examples, you cover pretty much

3   everything.

4   MR. CLARK: Yes. That goes back to like

5   that's why we walk through those in ███████████

6   And even just looking through my own, like, I have a

7   very, very consistent observation. Like, that is

8   the intention of the observed data.

9   MR. GARRIE: But observed data can be

10 stored based on how the product is built and

11 architected. It may be stored in the █████   It may

12 be stored in █████   It may be stored in ████████

13 Like, I don't think it's directly to ████████ but

14 somewhere it ends up in ████████ somehow that goes

15 to the social graph or MySQL or whatever the

16 engineer and the privacy team thinks is the

17 appropriate resource and it controls for that

18 observed data to treat it accordingly and store it

19 accordingly.

20   So then how much -- so then the other thing

21 I'm trying to figure out is how much observed data

22 is stored? For example, like how many page visited

23 are stored, how many group visits are stored, how

24 many devices is the data stored about? You know,

25 sort of, is there any limit?

1   MR. CLARK: Could you clarify what you mean

2   by that question?

3   MR. GARRIE: So observed data, you can

4   observe all sorts of things; right? The question

5   is, how much observed data is actually stored about

6   a user and how many pages -- do you know how many

7   pages are stored? Like, is that stored for how

8   like -- like, is there anybody that would know or is

9   it on a per-product basis?

10   MR. CLARK: It's -- because of our scale,

11   that's going to be ███████████████ ██████

███

███

███████████████

15   And are you looking for the quantity of

16   like how many clicks were tracked or are you looking

17   for the number of places?

18   MR. GARRIE: What I'm looking for is, so

19   let's say you deprecate how many clicks are tracked.

20   Right. How many -- like how many -- I guess how

21   much do you store, like for a user is actually

22   stored, but it sounds like that's determined by the

23   product and then the product defines the amount of

24   observed data and the timeline it will store and

25   capture it for. Is that it?

1   MR. CLARK: ███████████████████████

██████████████████████████████████████

██████████████

4   MR. GARRIE: So then my next question is,

5   I'm reading over the DYI and AYI. So then -- well,

6   I'll give you a practical example.

7   For a while I was pretty good at losing

8   phones, like masterful actually. So, I mean,

9   believe it or not, I don't know if I'm on my 20th,

10 but let's just pretend I am. I'm on my 20th phone

11 and do you have all of them or just the last or is

12 that product specific?

13   MR. CLARK: I can share, based on my own

14 AYI file, I observed multiple devices that I've

15 switched over time.

16   MR. GARRIE: But I guess it depends on the

17 product; right? The mobile ████████████████

██████████████████████████████████

███████████████████████████████████

███████, then says this belongs in the DYI file. So

21 it's sort of driven that way rather than ██████

██

██████ ████████████████████████████████

██████████████████████ I mean, people have Palm

25 devices still, so...

1   MR. CLARK: There are ███████████████

2   ███████████████████████████████████████ and

3   part of that as well.

4   MR. GARRIE: So there are ███████████████

5   ███████████████████████████ as well?

6   MR. CLARK: I cannot specifically say for

7   observed data versus other kinds of data. I███

8   ████████████████████████

9   MR. GARRIE: █████████ ████████████████

10   ███

11   ███

12   MR. CLARK: I could not speak directly to

13   that, but --

14   MR. GARRIE: That's okay.

15   MR. CLARK: -- ████████████████████████

16   █████████

17   MR. GARRIE: I understand.

18   And so then I guess my other question I

19   was trying to figure out, is all observed data

20   included about a user included in the DYI file, the

21   DYI tool? Sorry. You called it a tool. The DYI

22   tool.

23   MS. RING: I think Mike is locked up.

24   MR. GARRIE: My kids do that when we're in

25   school sometimes. When they're having remote

1   school, they pretend to freeze like this.

2   MR. CLARK: I didn't know if that was you

3   freezing or me freezing.

4   MR. GARRIE: That's fine. Okay.

5   So the question I asked is, is all observed

6   data included in the DYI tool? I couldn't tell.

7   MR. CLARK: There are -- you know, I can

8   talk to some principles on why we would not include

9   something. And I think an example of something that

10 might be observed might be some behavior that, you

11 know, ███████████████████████████████████

    ██████████████████████████████████████

    ██████████████████████████████████████

    ██████████████████████████████

15   There is some observation that, you know,

16 you ████████████████████████████████████

    ██

    █████████████████████████████████

19   MR. GARRIE: There's data in the observed

20 data bucket that's not in the DYI file. It will

21 vary based on product basically is what you're

22 saying.

23   MR. CLARK: Based on product and based on,

24 like, the set of -- you know, it's we can associate

25 directly to you or, you know, it's something for

1 ████████████████████████████████

2   MR. GARRIE: So is there any way to know

3 what is excluded?

4   MR. CLARK: The items that meet those

5 criteria, but I don't have an answer beyond that.

6   MR. GARRIE: And then because I'm just

7 wondering like if there are individual fields that

8 are excluded from the schemas or there are entire

9 tables that are not included for observed data. Not

10 trade secrets. Observed user data.

11   MR. PATEL: We've included the most

12 meaningful ones that we believe that users want.

13 Like, there's obviously product experiences that

14 we've kind of excluded out.

15   For example, if you -- we have a product

16 like Marketplace. If you open Marketplace for the

17 first time, we may show you an introduction to

18 Marketplace and, like, what all the -- this is

19 hypothetical. So like an intro screen to like what

20 all the buttons on Marketplace are I believe we

21 provide when you open Marketplace, but we wouldn't

22 provide you with the information that you went

23 through; the tour, for example. That seems to be

24 meaningless. It's also duplicative in that sense.

25 But that is for the product experience

1   specifically.

2   MR. GARRIE: So then there's no delineated

3   way to determine what individual fields in tables

4   from the observed data per product have been

5   excluded from the DYI file as we sit here today

6   unless you go to each product and figure it out;

7   right?

8   MR. PATEL: Yeah. Correct.

9   MR. GARRIE: Again, no decisions are being

10   made here just to head off any questions. I'm just

11   asking questions.

12   MS. RING: Special Master Garrie, I was

13   going to suggest maybe a break, but I was also

14   wanting to maybe let you get through. I know you're

15   going category by category. So I don't want to

16   interrupt that flow.

17   MR. GARRIE: Counsel Weaver, you have a

18   question.

19   We are going to take a break. Well, first

20   we're going to take Counsel Weaver's question.

21   MS. RING: Oh, okay.

22   MR. GARRIE: Then we're going to take a

23   break.

24   Just so we're all clear, the next category

25   is off-platform, Category 2. So we want to keep our

1   questions limited to Category 1, on-platform.

2   That's what we're talking about.

3   Counsel Weaver.

4   MS. WEAVER: Understood.

5   For on-platform activity just

6   descriptively, would drafts of posts or drafts of

7   messages be included?

8   MR. CLARK: I would not know.

9   MR. GARRIE: Wait. I was -- I was going to

10   say I -- no. It's all right, Mr. Clark. I get

11   engineers want to answer questions. I'm the same

12   way. When my wife asks me questions, I just

13   automatically answer them. Well, for many

14   additional reasons, which I just answer. I guess

15   it's the fastest way to avoid pain.

16   But the point being is, I was interested in

17   that question as well. So if you wouldn't mind

18   answering, Mr. Clark, the question or anybody else.

19   MR. CLARK: With that specificity, I would

20   not know without needing to do further research.

21   MR. GARRIE: I mean, it's a

22   product-by-product basis; right? And there's a ton

23   of deprecated products and I assume, based on the

24   size of the datas that we're looking at, there's a

25   lot of it and it's compressed and everything else.

1   So they would need to go back and look on a

2   product-by-product basis.

3   MS. WEAVER: I would just state

4   Facebook Messenger is Facebook's own product and I

5   think that would be helpful.

6   MR. GARRIE: We're only talking about

7   Facebook, though.

8   MS. WEAVER: Okay. Fine.

9   And then the second question is the time

10   period overall, Special Master Garrie. It would

11   be -- I don't know if we're talking present when

12   you're receiving your answers. Maybe you are, maybe

13   the witnesses aren't, but it does seem like there's

14   some ambiguity.

15   MR. GARRIE: I'm assuming we're only

16   talking as of today, not anything deprecated in the

17   past.

18   Is that an inaccurate assumption, Mr. Clark

19   or Mr. Mitchell or Mr. Patel or Mr. Zarashaw? We're

20   talking about the way it exists today, not the way

21   it existed in the past; right?

22   MR. CLARK: That is accurate and correct.

23   MR. ZARASHAW: Correct.

24   MR. PATEL: Correct.

25   MR. GARRIE: You got to say yes,

1   Mr. Mitchell, because they won't transcribe it

2   otherwise.

3   MR. MITCHELL: Yes.

4   MR. GARRIE: I give thumbs up, too, and

5   then people get confused when they read the

6   transcript.

7   All right. So we're going to take a

8   five-minute break, if that's okay with everybody,

9   and then we'll adjourn. I appreciate it.

10   Is that all right? Do you guys need more

11   than five minutes? Do you want ten minutes?

12   MS. RING: Maybe ten just because by the

13   time we get, whatever, and people can go get a drink

14   or whatever.

15   MR. GARRIE: Yeah. Hopefully the JAMS

16   moderator is here and everybody can go to their own

17   rooms. If not, that means I got to assign

18   everybody. I'll just open all rooms, then I'll

19   close them all.

20   THE COURT REPORTER: Are we off the record?

21   MR. GARRIE: Go off the record and strike

22   the last three sentences.

23   MS. RING: I'm not sure you can do that,

24   Mr. Garrie.

25   (Recess taken.)

1   (Off the record at 11:36 a.m. Back on the

2   record at 11:54 a.m.)

3   MR. GARRIE: We'll go back on the record

4   and get started. Back on the record.

5   We finished Category 1, on-platform

6   observed data, and we're now going to Category 2,

7   off-platform.

8   So my question here, and I did my best to

9   try to understand the information that was provided

10   in the prior information and all of that so I keep

11   it efficient, what type of third parties provide

12   off-platform activities? Like, I couldn't figure

13   out based on my look through the DYI file.

14   So I want to know what type of third

15   parties provide off-platform activities?

16   MR. CLARK: Third-party developers. So

17   that could be third-party developers using the SDK.

18   It could be third-party developers integrating with

19   the ads API.

20   MR. PATEL: Mr. Garrie, it's specifically

21   developers that have integrated our business tools.

22   So it's not any app. It is basically developers

23   have chosen to integrate the business tools. Like

24   app SDK, Pixel is another example, Facebook social

25   plug-ins, CAPI is another one, conversion API --

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1 apologies for that acronym -- and the ads API.

2   MR. GARRIE: Is there a list of all of

3 the -- you gave me a list of products, but what I

4 couldn't figure out is, so it's integrating the

5 integrates to Facebook's app business tool API.

6 Does that include deprecated?

7   MR. PATEL: What do you mean by deprecated?

8   MR. GARRIE: I can walk you through the

9 license --

10   MR. PATEL: What do --

11   MR. GARRIE: -- (inaudible) community.

12   MR. PATEL: Sorry?

13   MR. GARRIE: Ones that you no longer want

14 to offer to the development community, but people

15 have built against and have invested substantial

16 resources and time to integrate into, but you don't

17 want to make it available to other new people, but

18 you keep it around for deprecated. Like Windows 95

19 still works. It's completely unsupported and

20 there's no patching for it, but you can still turn

21 on a Windows 95 computer and still use Windows.

22   MR. PATEL: Maybe I'll walk you through how

23 a developer integrates the Facebook business tool

24 because I don't understand the analogy with

25 Windows 95.

1   MR. GARRIE: All right. So basically I'll

2   give you a specific example based on what I read

3   from what you guys gave me.

4   Say I was ███████ five years ago and I

5   integrate into a now no longer available Facebook

6   business tool. Five years ago there were business

7   tools available that are no longer available today,

8   but I've had substantial resources to integrate

9   that. You've turned off -- you no longer offer

10   that service to the marketplace, but you have an

11   agreement with ██████ that says we're going to

12   provide this SDK to integrate. You agree to do

13   this, we agree to do that and we will continue to

14   support it, but you no longer offer that as a

15   developer SDK for any net new people or companies.

16   I mean, I can cite interrogatories. You

17   have literally lots of them.

18   MR. PATEL: In your question, would that

19   database be in OFA?

20   MR. GARRIE: Well, my question is, do you

21   still -- do they -- when you said business tools,

22   my question was is it deprecated business? Is it

23   just business tools today or is it business tools

24   since 2007?

25   MR. PATEL: It would be --

1   MR. ZARASHAW: There are a number of --

2   Go ahead, Mayur.

3   MR. PATEL: No. Go ahead, Eugene.

4   MR. ZARASHAW: There are a number of

5   platform APIs we have fully deprecated over the

6   years where we -- one of the changes in platform

7   1.0 to 2.0 was the introduction of a deprecation

8   process where, for a lot of the APIs, they truly

9   stopped working after a certain number of days after

10   being deprecated and, yes, it meant that all persons

11   have to update their software to deal properly with

12   it, but we don't leave every single integration in

13   API running in perpetuity.

14   MR. GARRIE: My question is, when you say

15   Facebook business apps that they integrate to the

16   SDK, do you have a list of which apps? Like,

17   because those were available in the marketplace, but

18   there are ones that are no longer available that, I

19   assume, you still have agreements with developer

20   third parties where you have to continue to support

21   it at some level.

22   MR. ZARASHAW: ████████████████████████

██   ████████████   ███████████████████████████████████

██   ██

██   ███████████████   ████████████████████████████████

1 ██

2 ██ ██

3 ██ █████████████████████████████ for certain features of

4 the developer platform there is just a very simple

5 sign-up process that does not require review unless

6 they want access to the features that do require

7 review.

8 So an example would be if a website wanted

9 to put a light button there, anyone is free to

10 register an app ID on Facebook and put a light

11 button on their website and that would be an

12 integration or an app.

13 MR. GARRIE: That's how I understood it as

14 well.

15 So my question then becomes, at a practical

16 level, third-party -- and I guess we'll get to this.

17 You know, one of the business tools listed

18 is off-line conversions. So that's what I have a

19 particular question about because I didn't

20 understand what that tool actually does.

21 But before we get to that, I guess there's

22 no easy way -- well, you at least have --

23 So anybody that integrates with Facebook

24 APIs or SDKs as a third party may be providing

25 off-platform activity back in some level?

1   MR. ZARASHAW: Yes.

2   MR. GARRIE: Just at a high level, where is

3   data collected via the business tool stored?

4   MR. ZARASHAW: So that goes back to the

5   pattern from earlier, which is the business tools

6   are an external facing set of interfaces, i.e., the

7   Graph API and some other tools, that front a number

8   of products.

9   So depending on the product represented,

10   the storage could be different. It's however that

11   product chose to store the data that's relevant.

12   MR. GARRIE: The data that's collected via

13   business tools, is it extracted and processed all on

14   the data pipeline from the warehouse? Is that how

15   that works?

16   MR. ZARASHAW: Not necessarily. Again, it

17   would depend on the product. So some specific

18   products may use ███████████████████ for the right

19   immediately. Some products may use ██████████████.

20   Some products may have ████████████████████

█   ███████████

22   MR. GARRIE: And these products will define

23   how the data is extracted and processed and where it

24   gets stored?

25   MR. ZARASHAW: Yes.

1   MR. GARRIE: Okay. And then so I

2   understand the off-line conversion, what is that,

3   business tool?

4   MR. PATEL: The off-line conversion

5   business tool -- and I'm not an admin engineer, but

6   I will give you a high-level summary of what it

7   is -- is when an advertiser advertises on our

8   platform and wants to understand store sales, so not

9   specifically website sales that they may have, they

10 can upload information about purchases that happened

11 in their store with specific PII and we would

12 attribute it back to users that may have seen their

13 ad in order to provide them with a return on ad

14 spend.

15   MR. GARRIE: Yeah. So you're basically

16 giving them the Holy Grail of walk in the store, see

17 a digital ad, can I connect it to a sale.

18   Okay. And then is there documents -- I'm

19 trying to think of a better --

20   Each business Facebook business tool, does

21 it have its own documentation about -- about what

22 data is collected? And not just today, but for

23 whatever is -- not only what you offer today, but

24 what has been offered; what is still available, not

25 necessarily offered.

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1   So I'm distinguishing between offered and

2   available. Offered means we promote this in the

3   marketplace. Available means you know it exists, we

4   got permission to use it, it's available to you. So

5   I'm distinguishing between the two.

6   So my question is, for any business

7   product, is there documentation -- for each business

8   product that is available, is there documentation

9   about where the data is collected and stored?

10   MR. CLARK: So tying to that question, for

11   each of the business products -- and I hope this is

12   answering your question, Special Master Garrie.

13   For each of the business product

14   integrations, we do have very extensive

15   documentation for those business products that

16   instruct the engineer or developer or third party on

17   how to integrate in detail on the data that is part

18   of that integration and how to use that and all of

19   that is public documentation.

20   MR. GARRIE: Yeah. I looked at the

21   engineering website.

22   So is that for anything that's available or

23   only what is offered?

24   MR. CLARK: So we're talking specifically

25   about the business products integrations here. We

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1 have our third-party developer platform, which you

2 probably saw that documentation as well.

3   MR. GARRIE: They're different, though.

4 They're completely different.

5   MR. CLARK: They are completely different.

6 That is correct.

7   MR. GARRIE: Yeah. I mean, called

8 Search and State. They're different objectives

9 and, I mean, both code. We can both agree they're

10 software code, so -- and APIs, but they're

11 different. Right.

12   So the business products that are

13 available, is that true for all of them that are

14 available or only --

15   MR. CLARK: So for all of those programs,

16 that documentation is available. That is not to

17 say that there are not additional APIs that are

18 developed as part of this, but those -- like, for

19 instance, I think a good example of this might be

20 the measurements API, which is available to a

21 limited number of folks to help with ad measurement,

22 for instance. But those, any APIs that are

23 developed, I'm going to broken record it a little

24 bit, like are part of both█████████████████

█ ████████████████████████████████ that goes

1   through and reviews any additions or changes how

2   people integrate any data, read or write, that is

3   shared to make sure that we have proper consent and

4   everything else in addition to ███████████████,

5   which would make sure that that data would end up in

6   DYI.

7   MR. GARRIE: I'm just thinking about the

8   answer.

9   MR. CLARK: Oh, yeah.

10   MR. GARRIE: Are there private APIs for

11 business?

12   MR. CLARK: I am aware of the business

13 products API platform, but I -- I personally don't

14 know of any. That doesn't mean that they don't

15 exist.

16   MR. GARRIE: They would have to be

17 documented at some point.

18   MR. CLARK: Correct.

19   MR. GARRIE: There would be some process.

20   Who has the -- so then who has the master

21 list, so to speak? Who runs the API, ████████████

    ██   ████████████████████████

23   MR. CLARK: The ████████ is run by our

24 developer platform team and they do the reviews of

25 those.

1   MR. GARRIE: They would have a list, I

2 assume, of the work they do; right?

3   MR. CLARK: ███████████████████████

███

███████████████████████████████████████

███████████████████████████████████████

7   MR. GARRIE: I'm not saying I want any

8 list, just to repeat myself again. I'm just trying

9 to figure it out.

10   And then for the off-line conversion tools,

11 I guess there's a specific person at Facebook for

12 each of these tools that would tell me where --

13 what's collected, where it's stored, where it's

14 extracted, and where it's processed. Is that an

15 accurate assumption or can somebody here answer the

16 question?

17   MR. CLARK: For that full life cycle, that

18 would be product by product. I believe for some of

19 the OFA components, which is the acronym we use for

20 off-line activity, that Mayur can speak to elements

21 of the life cycle of that data and how we present

22 that back.

23   MR. GARRIE: So then for off-line -- for

24 off-line conversion tools, where is that data

25 stored?

1   MR. PATEL: Yeah. The data that's pulled

2 or basically effectively brought into the OFA

3 transfer, which then would be brought into DYI, is

4 stored in ██████ We store it on a ████████████████

5 ██ We then

6 ████████████████████████████ as well as

7 ██████████ and then ████████████████████████████████

8 ██████████████████ and ████████████████████████████

9 and that's what we effectively upload into OFA and

10 then eventually to DYI.

11   I don't know if that answers your question

12 or what you're looking for.

13   MR. GARRIE: So you store it in the ████████

14 and then you use Dataswarm to schedule and that

15 runs the processes that then pipes the data out

16 into --

17   MR. PATEL: It has to be -- it has to be

18 ██████████████████████████ Because you could

19 think of it the data is stored at that level. ████████

20 ██

21 ██

22 ██████████████████████████

23   MR. GARRIE: ████████████████████████ ████

24 ██████████████████████████

25   And that's done in ████████ and then piped out

1   to -- where is that piped to?

2   MR. PATEL: That's then ████████████████

██

██

████████████████   That is, since all the data is

6   now on a ████████████████████████████

████████████████████████████████

8   MR. GARRIE: And the data is stored in --

9   (inaudible).

10   THE COURT REPORTER: We can't hear you.

11   MR. PATEL: Sorry, Special Master Garrie,

12   we lost you.

13   MR. GARRIE: Sorry. I was just thinking.

14   So then ████████████████████████████████

██

████████████████████████ I guess?

17   MR. PATEL: Yeah. Correct. Like, you can

18   think of the data, when you store the data in ████████

19   you're storing it on commodity kind of hardware, so

20   like think of hard disks; and then when you're

21   storing it in ██████ you're storing it -- and I'm

22   going to speculate here. I don't know the exact

23   internals of ██████ but I assume you're storing it

24   ██

████ ████████ ████████████ ████████████████ I'm

1 not exactly sure, but it's not a hard drive.

2   MR. GARRIE: So then -- so then is there

3 then documentation about how Facebook processes the

4 data they get from business tools or is it by

5 product?

6   MR. PATEL: It is by product.

7   MR. GARRIE: There is documentation for the

8 conver- -- off-line conversion business tool that

9 explains what you just said effectively?

10   MR. PATEL: What I explained is how we take

11 and summarize the data in a manner that can be

12 produced back through DYI and the OFA tool. There's

13 a lengthy process that goes into matching users.

14 That's not part of, like, my expertise there.

15   MR. GARRIE: Okay.

16   MR. PATEL: You are effectively taking the

17 output of what the team is -- the product team has

18 done and producing a summary of it.

19   MS. RING: If I may, Special Master Garrie,

20 just again going to kind of what Mr. Patel focuses

21 on and I don't know if this is clear, the

22 distinction between.

23   Do you know what the OFA tool is? I don't

24 know if that's ever been discussed with you. That's

25 what Mr. Patel is referring to. It's another

1   transparency tool that contains a subset of OFA

2   information. So everything is -- you know, the OFA

3   information that goes into DYI, the OFA tool has

4   like a subset of that data, but I just want it to be

5   clear.

6   MR. GARRIE: Yeah. It's an off-line -- I

7   mean, I thought that was the acronym for the

8   off-line activity.

9   MS. RING: It is. It is.

10   MR. GARRIE: It's different than the

11   off-line conversion tool we're talking about.

12   MS. RING: Well, the off-line tool.

13   Off-line conversions are one thing, then there's

14   off-line tool.

15   MR. GARRIE: I know. That's what I was

16   talking about. Yeah. I get it.

17   MS. RING: Okay.

18   MR. GARRIE: But I'm talking about off-line

19   tool. I'm talking specifically about the business

20   tool, off-line tool that was identified in the

21   answer.

22   MR. PATEL: Sorry. Maybe I'm not getting

23   this straight.

24   Like, the off-line conversions tool is just

25   an API that advertisers can call into.

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1   MR. GARRIE: Okay.

2   MR. CLARK: Let's step back for one second

3   and we'll walk through this. That way we'll make

4   sure we're all on the same page.

5   So one of the business products that

6   somebody can integrate with is actually called

7   off-line conversions. Off-line conversions means I

8   either have an event or a store and I provide sets

9   or details or create a custom audience from that

10 off-line event to drive that. We have documentation

11 on that process and how to do that on the business

12 tools page.

13   In the same way, we have on-line

14 conversions that can be measured or that can be

15 implemented via SDK, whether -- I mean, there's

16 different types of calls and things associated with

17 both visiting that advertiser and certain kinds of

18 events.

19   From a transparency perspective and going

20 to the other side for what we provide to the

21 consumer, we have a product called OFA.

22   MR. GARRIE: That part I get.

23   MR. CLARK: Okay. And subsets of -- and

24 sorry.

25   All of OFA is included in DYI. Some of OFA

1   is included in AYI. I just wanted to make sure we

2   were all talking about --

3   MR. GARRIE: No. No. That was the

4   documentation. That was the documentation you gave

5   me. Yeah.

6   I was specifically interested in the

7   off-line conversion tool because you referenced it

8   and I was just wondering, but it's an API

9   basically.

10   What I wanted to know isn't about the OFA

11   tool. My question, sorry, I should have been clear,

12   off-line conversion business tool is -- what I was

13   trying to figure out is how does -- it collects

14   data, right, from off-platform?

15   MR. PATEL: Yeah. Just one clarification.

16   Like, Facebook receives the data from the

17   advertiser. Right. Like, there needs to be an

18   action of a coral command run or an upload of an

19   Excel sheet. Like that's -- that's a distinction.

20   MR. GARRIE: That's what I thought.

21   So if you have to upload it, do you know

22   where -- where is it stored? Like, that's what I'm

23   wondering is where is that information stored? Is

24   it stored in the Hive or is it stored somewhere

25   else?

1   MR. PATEL: ██████ ████████████████████

██ ████████████████████████████████ which is

3   a source for the OFA tool is what I explained.

4   MR. GARRIE: I get it. I get it. Yeah.

5   So I get that part.

6   I'm interested in the off-line conversion

7   tool itself, not the OFA part, because the off-line

8   conversion tool is collecting data. Basically I

9   understand you collect data. I upload. I run a

10 business. I upload -- put all these widgets to

11 whoever. I upload a spreadsheet. You map it to

12 whatever digital ad units, whatever. That then gets

13 displayed back to me as the business owner, so to

14 speak, to have my strategic ad spend.

15   I'm not sure exactly how it works, but some

16 ROI that makes you want to buy more ads effectively

17 in some way or add some ROI to the process of the

18 money I'm spending and I'm just wondering where does

19 that data actually get stored that they're uploading

20 for that tool?

21   MR. PATEL: Yeah. So it would be a variety

22 of systems. Like, our return on ad spend, for

23 example, is probably stored in some of our ████

██ ██

██ ████████████████████████████

1   MR. GARRIE: No. I get it.

2   So the off-line conversion tool, when they

3   upload their data into the system, what I'm trying

4   to understand is what data is being -- so that's

5   data being collected via a business tool, right, as

6   well as the ad.

7   MR. PATEL: Uh-huh.

8   MR. GARRIE: But that data being collected

9   is data that the user's uploading.

10   So my question is, is the data collected --

11   is that -- that particular off-line conversion tool,

12   is that data being collected and processed, like

13   extracted and processed on all of the data pipelines

14   via the ████ is my question?

15   I was just trying to figure out how that

16   tool ran. If you don't know, it's completely

17   acceptable.

18   MR. PATEL: No. I wouldn't know the

19   internal workings of it.

20   MR. GARRIE: That's fine. You're talking

21   about OFA and off-line conversion.

22   All right. Next. So then broadly speaking

23   in the answers, I'm moving forward, how many

24   advertisers provide content lists for generating

25   custom audiences? Like, do you track that or how

1   that comes through? I couldn't figure that out.

2   MR. CLARK: Let me see if I can clarify

3   this because I think -- and I'll go back to that

4   lens of like as a consumer when I download DYI, I

5   can see every custom audience that my information

6   was attached to or who were the advertisers that

7   did that. We don't actually see your information.

8   We match your information because we receive it

9   hashed.

10   MR. GARRIE: So then is there documentation

11   on how Facebook processes the data they get from the

12   advertiser?

13   MR. CLARK: There is -- so I'll answer this

14   in two ways.

15   There is clear documentation on the

16   business tools page on how to upload and build your

17   custom audience and how to work with that part of

18   the process. And so that -- that documentation does

19   exist, how to set all that up and what fields are

20   accepted.

21   I believe the other part that you're asking

22   for is, is there a document that explains how that

23   works internally and where it's stored. This is

24   going to be another -- like, it's product by

25   product. So we'd need to get a specific engineer in

1 that space to talk about that.

2   MR. GARRIE: I got it.

3   So my question -- so to give you an

4 example. I'm a user. I get uploaded. That gets

5 distributed to Facebook. So it sounds like that

6 product specifically has made -- is input into a set

7 of schemas that is product specific that then

8 aggregates itself out basically.

9   MR. CLARK: Correct. Especially since it's

10 not access -- we don't -- you know, my email

11 mike@mike.com is not going to be what Facebook

12 receives.

13   We will receive a hash. And so that

14 matching, like, occurs. So that one especially is

15 processed in its own unique way and we'd want to

16 talk to the product engineer from that space.

17   MR. GARRIE: And do we know where the

18 storage location for custom audiences is? That was

19 the other thing I couldn't -- I know it ends up in

20 the DYI file at some point, but where is it actually

21 stored?

22   MR. CLARK: I don't have that answer off

23 the top of my head. I would need to clarify -- I

24 would want to clarify that, unless you do, Mayur.

25   MR. PATEL: Yeah. So custom audiences are

1   stored in ████   It's just a different type of

2   ████████████████

3   MR. GARRIE: And are the custom audiences

4   then stored per advertiser or how are they stored?

5   MR. PATEL: That I wouldn't know. Like, I

6   wouldn't know the schemas of how these audiences

7   are. I just have a general idea of, like, that

8   system stores them.

9   MR. GARRIE: But are all the -- and the

10   reason why I'm asking, what I'm trying to figure

11   out, and maybe I should have asked this first, are

12   all custom audiences included in the DYI tool in

13   total, all of them?

14   MR. CLARK: That you are a part of or

15   associated with. I think specifically in the tool

16   it's advertisers using your activity or information

17   and, to the best of my knowledge, that is the

18   complete set of custom audiences that you are

19   matched to.

20   MR. GARRIE: I just want to make sure I

21   understood it.

22   If I'm a user and I end up in 20 different

23   custom user -- custom audiences, every single one of

24   them is included in the DYI file?

25   MR. CLARK: Correct. To the best of my

1   knowledge, yes. And we classify it as a list

2   uploaded or used by the advertiser in the DYI file.

3   MR. PATEL: Yeah. There's a second

4   category, too. Website or a custom -- website or

5   app event activity.

6   MR. CLARK: That is correct. Interactions

7   you may have had with the advertiser's website, app

8   or store, which would include your off-line

9   information that you're referring to.

10   MR. GARRIE: Yeah. Exactly.

11   So then you get off-line information from a

12   third-party integrated product about whatever.

13   That's stored by product somewhere in the ███

    ██   █████████████████████ And then from there, whether

15   it's from a third party or on platform, I get -- if

16   I get tagged in a custom audience, all of that's in

17   the DYI file.

18   MR. CLARK: Correct.

19   MR. GARRIE: All right. That was

20   Category 2, off-platform.

21   Do plaintiffs have any questions they wish

22   or further clarifications they think would be? I

23   see no hands, so I assume no.

24   Okay. So then could you write a query, out

25   of curiosity? Well, I guess --

1   So then inferred data, how is inferred data

2   actually computed? Because I could not figure that

3   out from the answer.

4   MR. CLARK: So it's derived and it's

5   derived depending on the type of things. I think

6   like there's -- I'll use a couple concrete examples

7   because I think it will make it easier to

8   understand.

9   I think one is your primary location. We

10   don't ask you your primary location, but based on

11   your location, we can derive that that is your

12   default or primary location.

13   Your time zone, we don't ever ask you

14   specifically for your time zone, but we're able to

15   derive that based on your primary location and based

16   on other sets of information.

17   And interests is one that's in the list as

18   well that based on -- based on information, we're

19   able to derive a set that matches to that. Even

20   language, like watching -- or being able to derive

21   what your preferred language is or language you may

22   know based on responding in comments using other

23   languages, able to derive a set of information like

24   that.

25   MR. GARRIE: Is there a list of the data

1 sources used that identify the derived datasets?

2 Because derived data varies by definition, but it's

3 another data; right? So is there --

4   MR. PATEL: Is there a particular type of

5 data that you're interested in?

6   MR. GARRIE: Well, for all of us, the judge

7 said all data on derived. It wasn't limited.

8 Derived data was very broadly defined. So I would

9 welcome any insights, whether narrow or broad. The

10 judge did not delineate derived data from geo

11 location or from phone or from third party. It

12 wasn't delineated.

13   MR. PATEL: ██████████████████████

██ ████████████████████████████████ ██████

██ ████████████████████████████ ████████████

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██ ██

██ ████████████████ I'm not the expert in that. ██████████████

1 ██

2 ██████████████████████████████ and we want to

3 make sure that, you know, we produce the right

4 communication mechanism back to the user there as

5 well, the right language.

6   So these are just broad set of examples.

7   MR. GARRIE: So I guess what I'm trying to

8 figure out is, what is the source of the data that

9 is derived data? It's all -- like, is it -- I mean,

10 I get it's computed based on some algorithmic

11 analysis that you perform.

12   MR. CLARK: It connects back to one. Like,

13 my on-platform activity, that is the mix of --

14 that's both -- from a category perspective, that's

15 both the user-provided data, the things like

16 preferred location, like the first place is what do

17 you put as where you live right now, but also

18 observed data and that observed data is IP address,

19 it is everything else that I interact with.

20   So I believe -- I believe mine currently

21 says that I live in -- my location as it says in my

22 DYI is Denver, which is accurate, but I believe my

23 profile says I live in Oakland. So it's based on

24 this combination of first-party activity as we

25 outlined in one for this derived data.

1   MR. GARRIE: What about off-platform

2 activity as well? Does the off-platform activity

3 factor into derived data analysis?

4   MR. CLARK: Not --

5   MR. GARRIE: Because you put examples in

6 there about like music or recommendations.

7   MR. CLARK: A couple of things that we

8 refer to as -- and this is where, like, defining on

9 or off platform, things that aren't Facebook, like

10 the portal, the frames that we talked about, my

11 voice interactions are derived data that I have

12 access to. It's a product that we make, but it's

13 not on the Facebook platform.

14   MR. GARRIE: So I think I know where this

15 goes. I think I've finally figured out what Mayur

16 was telling me before.

17   But once a data point about me is derived,

18 where does it usually end up? I assume it's either

19 the TAO or Hive, but I don't know that.

20   MR. ZARASHAW: So ███████████████████

██ ██

██ ████████████████████████████ Usually the

23 decision is based on ██████████████████████████████

██ ██

██ ██

1   ██████████████████████ So, for example, ████ If

2   it's something that will only be used for ████████

     ████████████████████████████████ such as

4   ██████

5   MR. GARRIE: I mean, would it be a fair --

6   is there a list of all -- is there a list of all the

7   derived data points being calculated for a user?

8   MR. ZARASHAW: It, once again, ends up

9   being something very product specific. I'll build

10   on Mike's earlier new user experience example.

11   You can imagine that you can do a big

12   pop-up experience the first time a user visits

13   Marketplace to walk them through every aspect of

14   how Marketplace works and it's going to be an

15   intrusive experience because you are keeping the

16   user from using the product until they go through

17   the tour and it would be rather annoying for a

18   person if that popped up every single time they went

19   to Marketplace after the first.

20   So one piece of derived data would be has

21   the person gone through that tool before. Whoever

22   is implementing it on the Marketplace team would

23   decide how should they store that so that every

24   single time the person comes to Marketplace we check

25   it; and if the person has already gone through the

1   tour, we don't pop it every single time.

2   MR. GARRIE: That would be stored in ████

3   right?

4   MR. ZARASHAW: Exactly. So, most likely,

5   ████ because we would not be able to ██████████████

     ██ ██████████████████

7   MR. GARRIE: Yeah. So to repeat my earlier

8   statement, I'm not looking for 100 percent accuracy

9   here. I'm just looking for the systems that, most

10   likely, have -- like, it sounds like every piece of

11   data you have would -- is a draconian process for

12   an individual person, but it sounds like it either

13   ends up in ████ or some subset of tables in

14   the (inaudible).

15   THE COURT REPORTER: I'm sorry.

16   Mr. Garrie, we can't hear you.

17   MR. GARRIE: Okay. Yes.

18   So depending on █████████████████████████

     ██ ██████████████ it, more or less, will sit in ████ or

20   ██████

21   MR. ZARASHAW: I wouldn't say ████████████

     ██ ██

     ██ ██████████████ Yes, most of the time it will end up in

24   ████████████████████

25   MR. GARRIE: And you would need it

1 sometimes ███████████████████████████

   ██ ███████████████████ and you would need that data and

3 you wouldn't want to ████████████████████████████

   ██ ██████████

5   MR. ZARASHAW: Precisely.

6   MR. GARRIE: Does Plaintiff have any

7 further questions about Category 3, inferred data?

8   MS. WEAVER: I think that we do, but I

9 think we need to caucus and we'll circle back. But

10 you should move on, Special Master Garrie.

11   MR. GARRIE: I'm going to keep going. When

12 we take our next break, that will be an opportunity

13 to caucus and I'll consider the questions at that

14 point.

15   MS. WEAVER: Thank you.

16   MR. GARRIE: Can we keep going? Is that

17 okay for everybody? It's good for me. Is it good

18 for everyone else? Say if it's not, then we'll go

19 from there.

20   MS. RING: Yes.

21   MR. GARRIE: Perfect.

22   Now we're getting to, so there's this

23 paragraph and I don't know, it's a question I had,

24 which is what are the reasons for not including

25 content specific data in the DYI tool?

1   MR. MITCHELL: Could you clarify what you

2   mean by content specific data?

3   MR. GARRIE: I could read you as it was

4   described to me in the answer and then I will.

5   It says -- I just want to be -- I want to

6   be --

7   Like what item I added to the cart.

8   Remember that earlier example about I'm shopping and

9   I add that to the cart. That doesn't end up in the

10   DYI file, but it's shared back to you guys.

11   MR. CLARK: So perhaps the place to start

12   is looking at what is in the DYI file.

13   MR. GARRIE: I did that actually. So I got

14   that down.

15   MR. CLARK: Okay. So when you look, and

16   I'm just going to look at my own personal one,

17   the -- I'll go to Luluemon and I will see that I

18   have page click. I will also see that I have, well,

19   page view, initiate checkout, and purchase as event

20   names, I have the date and time that those were

21   received on, and then I have an identifier.

22   And going back to the documentation on the

23   business tools that we have, there are primary

24   things that we map that are translatable that we can

25   interpret based on how the information is given to

1   us and that information are the fields. We know

2   that this -- like, one, it's tied to myself as a

3   user. There is an IP to this event. That event

4   included the initiate checkout and received on.

5   We do have custom fields, but we don't have

6   control over what the person puts in those custom

7   fields nor are they translatable to us. If you've

8   gone and looked at examples yourself, they don't map

9   to specific schema.

10   MR. GARRIE: Yeah. But it does not include

11   data identifying the specific content that was

12   viewed for the item that was added to a cart.

13   So my question is, what are the reasons for

14   not including --

15   You asked me specific content. So I'm

16   giving you examples.

17   So what are reasons for not including

18   content specific data in the DYI tool?

19   MR. PATEL: It's not interpretable by us.

20   It could be any random string that the advertisers

21   could send. Also, the events that are in place,

22   like the view content, the add to cart is something

23   that the developer builds. Right. Like, not all

24   developers have the same competency as Luluemon.

25   There could be developers that accidentally just

1   say you purchased everything instead of viewing

2   content. We can't verify all the inputs there, and

3   so it's really, like, unintelligible to us to

4   explain that to users.

5   MR. GARRIE: Okay. So that I understand.

6   MR. PATEL: Okay.

7   MR. GARRIE: But you do -- but the company

8   provides you that data and I get that, the integrity

9   of the data, the quality of the developer, and the

10   other factors you've explained. My question is more

11   different.

12   So that data is stored somewhere; right?

13   And so what's the decision -- how is the decision

14   made about the content specific data provided by

15   like Luluemon is a great example that there was a

16   decision made that, okay, this could go in the DYI

17   file, but the other person, who knows, whatever,

18   didn't make it in? So like content specific.

19   MR. CLARK: We don't filter out by -- like,

20   Costco and United and Luluemon are all there and

21   we're not filtering out anybody that sent events if

22   that's -- I want to make sure, Special Master

23   Garrie.

24   MR. GARRIE: No. I'm saying content

25   specific. So I'm not saying you're filtering out

1   by vendor.

2   Is there any content specific things that

3   aren't included in the DYI tool that you get that

4   isn't included?

5   MR. PATEL: Yeah. So there would be the

6   event names if you have custom event names are the

7   content. We have standard names like view content,

8   purchase, add to cart, leave, and there's a few

9   others. I can't name them all off the top of my

10   head.

11   MR. GARRIE: But they're documented.

12   MR. PATEL: They're documented in the

13   public API, the public documentation. But an

14   advertiser, if you think of it, a Pixel Fire or an

15   app event is just a coral call. Like, it's just an

16   HTTP request that goes over and can be modified to

17   anybody as well. Right. Like, you can add a

18   custom -- like, is this a JSON log or maybe it's in

19   the query params, but you can add any kind of event

20   name that you want. It's not -- if you choose, you

21   want to call it add to cart without the underscores,

22   that's up to you. But we provide a standard set of

23   features. And if we get something that's not in the

24   standard for the event name, we call it custom

25   events because we just don't know what's in there.

1   And similar for content we provide. Yes,

2   you come and say what the value is, what the

3   currency is as well as what -- what content you may

4   have added as well as the name, but we can't verify

5   that at that point.

6   MR. GARRIE: That doesn't end up in the DYI

7   file.

8   MR. PATEL: Correct.

9   MR. GARRIE: So I'm just thinking about it.

10   It's just a lot of information and I just want to

11   make sure I understood.

12   So then are there any reasons besides it

13   not being intelligible, or it's not it's not

14   intelligible, they didn't tell you, not including

15   content specific data in the DYI tool?

16   MR. PATEL: No. Besides that, no.

17   MS. RING: Special Master Garrie, I just

18   want to clarify.

19   When you said not intelligible, they tell

20   you, what they're saying is what they tell us is not

21   intelligible. So I just wanted -- I want to clarify

22   if you're thinking these are two different things

23   or --

24   MR. GARRIE: They didn't tell --

25   MS. RING: -- let them explain something.

1   MR. GARRIE: What happened is they didn't

2 bother to tell Facebook what they're doing, and so

3 Facebook doesn't know how to interpret the custom

4 values and, therefore, it doesn't stick them in the

5 DYI file. So it's unintelligible to Facebook

6 because nobody's told Facebook what the data is that

7 they're getting from the third party because they

8 have no way to verify because they have a standard

9 set of APIs that are public that say this is how it

10 works, but they have custom events or JSON. I don't

11 think it's JSON, but they have custom events that

12 could be called and that information, they don't

13 know what it is, isn't included in the DYI file, but

14 Facebook gets the data.

15   MS. RING: But the data is gibberish

16 sometimes. I just want to make sure that

17 distinction is not lost.

18   MR. GARRIE: Gibberish means that it's not

19 intell- -- to the person that's providing it, it

20 makes sense. To Facebook, it doesn't make sense

21 because nobody told Facebook what it is.

22   MS. RING: I defer to the engineers on

23 that, but I think what we saw is gibberish. So I

24 don't know. How would you guys explain it? Sorry.

25   MR. CLARK: I would assume it has meaning

1   to the person that wrote that integration.

2   MR. GARRIE: Yeah. I mean, I would assume

3   that's why they wrote it.

4   I mean, the real question, I guess -- I

5   mean, maybe there are developers that just

6   write gar- -- yeah, it's probably true there are

7   developers that just write garbage for writing code,

8   but assuming there are developers that --

9   I mean, the real question is, you store all

10 custom event data that is -- I mean, or do you

11 discard it is the question, I guess, for the user?

12   MR. CLARK: I would want to -- unless Mayur

13 has a specific answer, I would actually want to talk

14 to -- I'd want to -- like from this -- this is the

15 extent of my understanding on that process and

16 product and how it worked on it. I'd want to talk

17 to that product team specifically.

18   MR. GARRIE: Unless we can get a quick

19 answer. No. I'm kidding. No pressure.

20   So we'll talk to the product team and we'll

21 go from there. All right. That makes sense to me.

22   All right. So then question number three,

23 I promise not all of them will -- they will speed

24 up. But at the beginning and hopefully we don't

25 have to do it again. So better now than do it

1 twice.

2   What are some examples of the Dataswarm

3 tasks? I saw about 10 of them. If you want, we can

4 go through. Just at a high level, what are some

5 examples, and then we can look at --

6   MS. RING: Special Master Garrie, none of

7 these engineers here are specialists or, you know,

8 deal with the Dataswarm. We were just answering

9 this question, and so we put together -- we were

10 trying to answer the questions. We put together --

11 we first tried to identify what the system was, and

12 then we gave you the samples just so we can show you

13 what's there, but none of the engineers that are

14 here today, since that wasn't one of the categories

15 for engineers, focuses on Dataswarm.

16   MR. GARRIE: Okay. I'll just tee up the

17 questions I do have so you can --

18   MS. RING: Okay.

19   MR. GARRIE: -- at least figure out.

20   MS. RING: Okay.

21   MR. GARRIE: So, you know, does a task

22 operate on a single data point or on multiple rows?

23 That's one question I'm interested in.

24   Is there documentation on task dependency

25 chains that were created for specific purposes?

1   Based on what I've heard, I'm pretty certain there

2   are because it sounds sequential at least for some

3   of it, but I could be wrong.

4   And then under that is how does Facebook

5   keep track of what each task is used for? Because

6   it is -- you know, and are tasks ever modified?

7   And then are dependency -- this is

8   something that -- are dependency chains ever

9   removed to reduce the amount of computing that is

10   done?

11   And then how does Facebook keep track of

12   what all the Dataswarm tasks accomplish?

13   And then is there a task -- and I don't --

14   well, I'll ask the question.

15   Is there a task for each Hive table that

16   serves as a start task, in quotes, like a start

17   task? ███████████████████████████████████

     ██

19   And then do Dataswarm tasks write data to

20   other systems or only back into the Hive? I think I

21   know the answer based on what we've talked about,

22   but it would be good if there was someone that

23   could.

24   And then is the data in the Hive used by

25   production systems? I think -- yeah.

1   And then how do production systems query

2 data in the Hive? I think it's ███████ Maybe not.

3 I don't know. And if so, you know, I have a couple

4 questions about ██████ because this all writes

5 directly to the -- eventually this is all user data

6 that's being operated on in the Hive.

7   And then how is data from the Hive

8 transferred to other storage that can be queried? I

9 think I got some of the ways. Sounds like they can

10 do it any way they want, but maybe I'm wrong.

11   So those are sort of the questions I had

12 about the Hive and ██████ if my assumption's right.

13   Well, that was fast. Let's go to question

14 four.

15   So I guess, broadly speaking, before we go

16 to question four, does Facebook retain user activity

17 that doesn't end up in the DYI file?

18   MR. CLARK: As I walked you before, like

19 there are specific cases of data where like that

20 association isn't -- like we can't fully determine

21 or guarantee that it's that user and wouldn't want

22 to give them somebody else's data.

23   MR. GARRIE: So like a constant event

24 basically.

25   MR. CLARK: I don't know that. That may

1 not be the example, but if that helps a mental model

2 to think about it.

3   MR. GARRIE: Okay. So there's basically

4 the same answers you told me in the beginning. I

5 get it.

6   MR. CLARK: Yes.

7   MR. GARRIE: Question four, the user ID. I

8 guess, does the information -- I don't know -- I

9 don't know if this is the right person, but is the

10 information about the user, first name, last name,

11 email, phone number, stored in one specific

12 location?

13   MR. PATEL: Only one specific location or

14 do you mean a specific location that you can go look

15 up?

16   MR. GARRIE: One or the other.

17   MS. RING: Wait. I'm sorry.

18   Just so it's clear, question four is about

19 identifiers. So like identifiers. Not information

20 about --

21   MR. GARRIE: But a user ID -- but a user ID

22 is information about the user, such as first name,

23 last name, email, phone number that would be

24 associated with the user ID, but it could match

25 their user table.

1   MS. RING: I just want to clarify that, you

2   know, this is not what the question was about, but I

3   think they were asked to answer internal identifiers

4   that Facebook was using, just to be clear.

5   So you're asking if Facebook uses name or

6   phone number as an internal identifier?

7   MR. GARRIE: No. Maybe I shouldn't have

8   said name.

9   My question is, is the information about

10   the user ID stored in one specific location?

11   MS. RING: Okay. So it's about

12   identifiers.

13   Do you guys know?

14   MR. ZARASHAW: So user IDs are 64-bit

15   integers where a set of databases that are back in

16   ███ are used to generate the user IDs and they are

17   used as a foreign key everywhere else to refer to

18   that user.

19   There is a primary place where that user ID

20   and some information about a user is stored, which

21   is ███   However, the information may also be stored

22   in ███████████████████

23   MR. GARRIE: That makes sense.

24   So my question is, is there a master user

25   ID table, I guess? It sounds like there is.

1　There's 64-bit characters and you're running out of

2　them. So you must have been there.

3　　　　　MR. ZARASHAW: ██████████████████

██　██████████████████　██████████████████

██　████████████████████████████████████

██　████████████████████

7　　　　　MR. GARRIE: I forgot you're so big. Yes.

8　I know there's a given size. Yes. Just like ████

9　the extraction layer in itself.

10　　　　　So then do any other systems store this

11　information or do they only store user ID?

12　　　　　MR. PATEL: And when you mean information,

13　do you mean the first name, last name?

14　　　　　MR. GARRIE: It's whatever you're putting

15　in the user ID.

16　　　　　MR. PATEL: Yeah. The data could be

17　███████████████████████, for example, when we're

18　doing analysis.

19　　　　　MR. GARRIE: And what other systems can

20　access? Do you know a way of figuring out what

21　other systems can access the user ID information?

22　　　　　MR. ZARASHAW: Special Master Garrie, what

23　do you mean by access the user ID in this case?

24　　　　　MR. GARRIE: Well, if you use it and

25　extract it to ████ right, ████ is -- I guess from

1   what I understand is -- if there's a master user

2   table and then that's extracted to like a user ID

3   table, is it protected information; right? Is the

4   user ID information limited access, I guess?

5   MR. CLARK: So across all of our systems --

6   MS. RING: Sorry. I just want to clarify.

7   I didn't hear anyone say a master user

8   table. I just want to be really clear what we're

9   talking about.

10   MR. GARRIE: User ID.

11   MS. RING: There's a table that has user

12 IDs, but no one -- I mean, I just want to make sure

13 we're being clear.

14   MR. GARRIE: Well, it's a 64-bit

15 ████████████████

16   MS. RING: That's for the user ID, but --

17   MR. GARRIE: Correct.

18   MS. RING: Okay.

19   MR. GARRIE: But the user ID is associated

20 with user information. No?

21   MS. RING: I don't -- I think what we

22 heard, there's no one here that knows exactly

23 whether that's the case.

24   I think Eugene was just saying that the

25 user ID is stored as a 64-bit. I can't even repeat

1   it, Eugene. I'm sorry. But I just want to make

2   sure that we're not, you know, misunderstanding here

3   what actually is being talked about, especially when

4   we're talking about then what privacy safeguards are

5   applied to it.

6   MR. CLARK: I have a caveat because, you

7   know, part of -- part of having ███ as that

8   extraction layer is to manage access like for any

9   kind of data access, you know, that goes back to as

10   engineers design systems, like they are trained in

11   specific things that they are supposed to build,

12   and before we can access certain kinds of data or

13   have any kinds of things, those things have to be

14   defined and mapped. And so that -- that mapping is

15   to the structure, but not necessarily the data in

16   it, and that data is accessed as needed for the

17   functionality of the product.

18   MR. GARRIE: So then who owns the user ID?

19   MR. CLARK: It's no one and everyone.

20   MR. GARRIE: Well, who gets fired if you

21   lose the table?

22   MR. CLARK: Well, that's part of being able

23   to operate at this scale, ████████████████████

██   ████████████████ -

25   MR. GARRIE: It's ██████████ Right.

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1   Sorry. No. No. Sorry. I keep forgetting it's

2   ███████████ to like where --

3   So the user ID that you guys offer as a

4   definition is Facebook uses an industrywide

5   technique called pseudonymization to represent users

6   on the Facebook platform. You create a 64-bit

7   string.

8   Who owns that process? So there should be

9   a single source of truth for mapping the UID to --

10   no? Isn't there a single source?

11   MR. ZARASHAW: ████████████████████

     ████████████████ ████████████████████████████

     ██

     ██████████████████████████████████████

     ████████████

16   MR. GARRIE: Yeah. What I'm asking is

17   what's the single source of truth for mapping?

18   MR. ZARASHAW: ██████

19   MR. GARRIE: █████ But that's for every --

20   that's your ██████████████████████████████ but

21   that's it?

22   MR. ZARASHAW: Yes.

23   MR. GARRIE: That's your single source of

24   truth?

25   MR. ZARASHAW: █████ So if you go to

1   Facebook and to sign in and we go to validate your

2   password and so on, that will go from ███

3   MR. CLARK: If you're an engineer building

4   your primary storage interface as we talked about

5   like looking at the 95 percent case, that

6   interaction is going to be through ███

7   MR. GARRIE: So moving to the replacement

8   ID or the RID. It's very interesting.

9   So as long as the RID to user ID mapping is

10   not deleted, can the data in the ███ be mapped to a

11   specific user?

12   MR. PATEL: Yes. If the account is not

13   deleted.

14   MS. RING: Okay. Sorry. Are you saying

15   all data, Mayur, all data in ███? Let's just be

16   really precise especially on this topic because

17   we've spent so much time on it previously.

18   MR. PATEL: Yeah. Any data associated to a

19   non-deleted user if it's stored within RID can be

20   associated back.

21   MS. RING: Right. If it's associated.

22   Again, let's just be clear about what we're talking

23   about.

24   MR. GARRIE: That's what I said. No,

25   Counsel Ring.

1   MS. RING: Okay. I didn't hear that. I

2   don't think it was phrased exactly that way. So I

3   just wanted to --

4   MR. GARRIE: It was.

5   MS. RING: If that's what you meant and now

6   we're on the same page, great.

7   MR. GARRIE: So let me repeat my question

8   so there's no confusion.

9   So as long as the RID to user ID mapping is

10   not deleted, can the data in the ███ be mapped to a

11   specific user? I assume the answer is yes, which is

12   why you built it that way.

13   MR. ZARASHAW: So it's complicated because

14   it depends for a specific ████table what is its

15   schema. ████████████████████████████████████

██

██

██

████████████████

20   MR. GARRIE: I get that.

21   I'm asking if RID to user ID is not

22   deleted.

23   What I'm saying is if that mapping still

24   exists -- I'm not talking about all the scenarios

25   you're talking about. I'm talking about RID to user

1   ID mapping is not deleted, meaning that it exists,

2   can the data in the ███ be mapped back to a

3   specific user?

4   MR. ZARASHAW: I'd like to get a little

5   more precise about which data in the ███ because

6   even if you --

7   MR. GARRIE: Say the ███ is --

8   My question is, tables in RID columns. Not

9   all tables.

10   MR. ZARASHAW: Okay. That makes sense.

11   As long as the mapping still exists, the

12 user still exists, and a table contains an RID

13 column, yes, it can be mapped.

14   MR. GARRIE: Yeah. Okay. So all right.

15   MR. CLARK: And the 90 days is the

16 commitment for that deletion. That can happen

17 sooner.

18   MR. GARRIE: But there's no way to verify

19 across -- do you have processes that run across the

20 ███ to validate, verify deletion is happening?

21   MR. CLARK: ███

22   MR. GARRIE: Across the entire ███

23   MR. CLARK: Well, no. ████████████

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1 ████████████████████████ ██████████

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  ████████████████████████

5   MR. GARRIE: Yeah, which you know about.

6 Yeah. You have to know about it.

7   MR. CLARK: Correct.

8   MR. GARRIE: Okay. So then moving on to

9 the SID, the separateable which, by the way, who

10 thought of that, a separateable ID? That was --

11 that was -- I've seen a lot of people try to -- I

12 don't think lawyers appreciate how that's a very

13 nice -- that's an interesting approach.

14   So is the SID tasked in by the off-platform

15 system or is it mapped before writing data to the

16 ██████   I couldn't tell.

17   MR. PATEL: We do not receive SIDs from

18 third parties. So it would be the latter.

19   MR. GARRIE: Is then the UID passed in as

20 well?

21   MR. PATEL: Passed in where? Sorry.

22   MR. GARRIE: So is UID passed in then and

23 then you store it as the SID? Is that how that

24 works out?

25   MR. PATEL: Yeah. We match to the UID. So

1 this is on Facebook.

2   MR. GARRIE: Yeah, on Facebook.

3   MR. PATEL: We do not get UIDs from third

4 parties. We match to a UID and convert it to an

5 SID. Yeah. The difference is it's similar to an

6 RID. Where the RID is the lifetime of the account,

7 the SID is basically -- is recycled when the control

8 is executed.

9   MR. GARRIE: What do you receive then from

10 the third parties?

11   MR. PATEL: What we receive from the third

12 parties depends on the business tool. It ranges

13 from cookies to device identifiers and, in your

14 off-line conversions case, PII. Hashed PII just to

15 be clear on that.

16   MR. GARRIE: Then is it possible to

17 determine the list of ███ tables that contain UID,

18 RID or SID as a column value?

19   MR. PATEL: It is possible.

20   And your question is for off-Facebook

21 activity specifically?

22   MR. GARRIE: Just generally.

23   MR. PATEL: Yeah. So we do have schemas

24 and developers are annotating columns in███ for

25 whether or not there is a UID present or an RID

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1   present.

2   MR. CLARK: Individually per table across

3   many, many millions of tables. And so could we look

4   in the phone book and find Mike Clark? Yes. Could

5   we look in a warehouse of? And so there becomes a

6   technical feasibility because not all that storage

7   that sits in ████ is online. And so that would --

8   it becomes a technical feasibility challenge to do

9   that full discovery across everything.

10   MR. GARRIE: I didn't say what anybody was

11   going to do yet, but I get there are millions of

12   tables.

13   MR. CLARK: No. I was just clarifying that

14   last bit.

15   MR. GARRIE: No. I understand. I just

16   want to know if it's -- like is it possible and

17   whether or not it's economical or reasonable or any

18   of that. I understand that there are millions of

19   tables and et cetera.

20   Counsel Weaver, do you have a question?

21   MS. WEAVER: Yes. And maybe this is

22   further in the outline.

23   But with regard to hashed PII and

24   conversion and cookies received from third parties,

25   it might be helpful to know what cookies, if they

1   are Facebook cookies and if the cookies contain

2   identifiers that Facebook can decode and any

3   identifiers or cookies that are used for mapping or

4   matching purposes.

5   MS. RING: Sorry. Counsel Weaver, I didn't

6   hear the first part.

7   Cache did you say?

8   MS. WEAVER: He said hashed PII.

9   MS. RING: Hashed. Thank you. Okay.

10   MS. WEAVER: Like corned beef.

11   MS. RING: Got it. Okay. Got it.

12   I don't know if any -- you know, the people

13   that we have here today focus on those things. I

14   don't think so. So...

15   MR. PATEL: Yeah. I'm not a measurement

16   tabs engineer.

17   MR. CLARK: I wouldn't be able to speak to

18   that either.

19   MR. ZARASHAW: I wouldn't either.

20   MR. GARRIE: You've got to -- you've got to

21   weigh in here, Ben. You got to turn mute off.

22   MR. MITCHELL: Sorry.

23   I can't speak to that either. I didn't

24   realize that was actually an explicit question.

25   Sorry. No.

1   MR. GARRIE: Your counsel is making a

2   point. So I just wanted everybody to answer.

3   Okay.

4   THE COURT REPORTER: Mr. Garrie, whenever

5   it's convenient, can we take a break?

6   MS. WEAVER: Of course. We'll take a

7   10-minute break. We'll go off the record.

8   (Recess taken.)

9   (Off the record at 1:09 p.m. Back on the

10 record at 1:31 p.m.)

11   MR. GARRIE: Back on the record.

12   So question five. Starting with TAO, my

13 first question is, is there documentation of TAO

14 objects and associations and their schemas?

15   MR. ZARASHAW: In this case, TAO is

16 self-documenting like a lot of the code in that we

17 look at the definitions of the TAO schemas inside

18 TAO itself as the documentation. The challenge is,

19 otherwise, documentation tends to drift and not get

20 updated in time. So the systems get updated,

21 schemas and TAO will get updated; but if we have

22 separate documentation, it would never be up to

23 date.

24   MR. GARRIE: But there is documentation of

25 the objects and associations and their schemas.

1   They're not embedded there.

2   MR. ZARASHAW: █████████████

     ████████████████   ███████████████████████████

     ██

5   MR. GARRIE: ███████████████

6   MR. ZARASHAW: ██████████   ████████████████████

     ██

     ███

     █████████

10   MR. GARRIE: Is there a key?

11   MR. ZARASHAW: ████████████████████████████

     █████████████████████████████████████

     ██

     █████████████████████████   ████████████████

     ██

     ██

17   MR. GARRIE: How many tables are there in

18   TAO?

19   MR. ZARASHAW: I do not know the answer.

20   Anybody else?

21   MR. PATEL: I do not know offhand.

22   MR. CLARK: I do not.

23   MR. GARRIE: So then --

24   MR. ZARASHAW: It's one of those things

25   where every product team -- very similar to Hive,

1   any product team can just go and create one.

2   MR. GARRIE: So then how many systems --

3   well, this comes to my next question, which is how

4   many systems -- how many systems write data to

5   individual objects and/or associations? Like how

6   many systems create posts or so on and so forth?

7   MR. ZARASHAW: I would -- this would be a

8   complete guess, but I would guess ███████████

     ██████████ ████████████████████████

     ████████████████████████████████████

     █████████████

12   MR. GARRIE: So is there a comprehensive

13   list of the systems that write to TAO?

14   MR. ZARASHAW: ████████████

15   MR. GARRIE: ██████████████████

     ██████████████████████████████████

     ████████████████████████████████ I

18   mean, we can start broadly or we can get specifics.

19   MR. ZARASHAW: ████████████████

     ████████████████████████████████████

     ███████████████ to download all your information.

22   MR. GARRIE: But, I guess, do the systems

23   have their own storage as well in using TAO, I

24   guess?

25   MR. ZARASHAW: To my knowledge, ██████████

1 ████████████████████████████████

██ ████████████████████████████████

██ ████████████ ████████████████████

██ ████████████████████████████████

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██ ██████████████████████████████████

██ ████████████████████

8   Effectively, it's a way of giving you

9   distributed database like storage, graph database

10   like storage that automatically scales to a very

11   high level without the product engineers having to

12   think about the scaling challenges at all.

13   MR. GARRIE: Is the data in the DYI file a

14   subset of data in TAO?

15   MR. ZARASHAW: Mike? Mayur?

16   MR. CLARK: I'm trying to get that.

17   ██████████████████████████████

██   ████████████████████████ for -- as you deem

19   more to the example of this is where ██████████████

██   ██████████████████████████████████

██   ██████████████████████████████████

22   MR. ZARASHAW: Blob storage; right?

23   MR. CLARK: That is correct. ████████████

24   MR. GARRIE: Okay. So ██████████████

25   And then did you want to add something,

1   Mayur?

2   MR. PATEL: Oh, all right. So I guess for

3   ███████ it's just a storage system that lives

4   under ████ Right. It's really -- you know, the IDs

5   that you have for that photo are accessed through

6   ███ and eventually pulled from ███████

7   MR. GARRIE: And is TAO cued to UID?

8   MR. ZARASHAW: ████████████████████

     ██ ████████████████████████ ██████████████

     ██ ████████████████ ████████████████████

     ██ ██████████ █████████████████████

12   MR. GARRIE: So then can you describe

13   Ent schema and Node? I didn't quite understand how

14   that's operating.

15   MR. PATEL: You're on mute, I think.

16   MR. CLARK: That will definitely not get

17   reported if I talk on mute.

18   Ent and Node are software frameworks and

19   they're software frameworks that are specifically

20   built to help identify what kind of data can be

21   accessed. Ent and Node depend on schematization of

22   a data system in order to know how to operate and

23   interact with it. The instruction per table --

24   MR. GARRIE: How do you --

25   MR. CLARK: Sorry.

1   MR. GARRIE: Maybe a different way then.

2   How does someone use Ent schema if I'm an

3   engineer, concrete example, or Node?

4   MR. CLARK: So I'll finish explaining what

5   they are because that will help you explain how an

6   engineer might use them.

7   So, for instance, details about what can be

8   accessed are included in that schema and Ent and

9   Node as software frameworks are what enforce that.

10   Ent is used specifically for the hack programming

11   language and Node is for all the other programming

12   language that we have at Facebook.

13   And so I, as a developer, when I go to

14   write something, if I'm using one of the existing

15   software frameworks, they automatically integrate

16   with Ent and Node; but also as part of privacy

17   programming training, if I'm writing from outside

18   of one of the existing frameworks, I'm required to

19   use Ent or Node in accessing the data and it makes

20   that determination.

21   Eugene or Mayur, anything else you'd add?

22   MR. PATEL: Yeah. There is a set of

23   privacy rules that you also set, like who can view a

24   piece of content as well as the deletion rules on

25   how a piece of content is deleted.

1   So, for example, if you have a comment on a

2   photo, if you delete the comment, you shouldn't

3   delete the photo, but you should delete any comments

4   that were below the comments or like, I guess if you

5   look at it in a tree, comments that were for that

6   comment, not comments that were associated to the

7   photo specifically, and those rules are then defined

8   in the schema in that Ent schema Node.

9   MR. GARRIE: What would be a tangible

10   engineering example of how they use it?

11   MR. CLARK: It's built in so that they

12   don't have to think about how to apply the privacy

13   controls and other elements. I don't have to

14   understand all of the underlying storage or

15   everything that's there. It takes care of that for

16   me. So I don't have to specific call those. It's

17   done with every call, if that makes sense,

18   Special Master Garrie.

19   MR. GARRIE: Yeah, but I need like

20   real-world examples of how it's actually used

21   because I don't understand conceptually, like, how

22   you use it as a developer to manage user data. Like

23   I don't quite understand.

24   MR. PATEL: An example of this is if you

25   created a schema for photos that people upload, you

1   would be required to implement the can see function.

2   And I'm not sure if that's exactly the function, but

3   like can see, we can just assume it's whether or not

4   a user looking at the piece of content can actually

5   view the content.

6   So an example of how you would write it is

7   the author of the content, the photo, so if user ID

8   is equal to the person who created it, great, show

9   on the piece of content. And then you would go down

10   the privacy settings of the photo. Are we allowed

11   to show it to your friends? Are we allowed to show

12   it to the public? Are we allowed to show it to your

13   friends of friends? And that would have to be

14   implemented in that can see function, and so it's a

15   requirement that we enforce these calls.

16   MR. GARRIE: And you enforce it using --

17   like so then -- so let's say that user ID equals

18   this person, show them this content, and then so

19   where does Ent schema and Node come into this?

20   MR. PATEL: Yeah. You could think of it

21   like if somebody were accessing the data directly

22   from ████████ that would be a problem. We wouldn't

23   check the privacy rules, obviously. So to make it

24   scaleable, you have to go through Ent schema. Like

25   that's a requirement.

1   MR. GARRIE: Ent schema is a way to access

2   data. And so getting past all the privacy,

3   whatever, Ent schema is a way to access the photo?

4   MR. ZARASHAW: If I may, it's a privacy

5   preserving ORM layer.

6   MR. PATEL: Yeah. That's a good way to

7   frame it.

8   MR. ZARASHAW: It's an ORM layer on top of

9   a very raw data storage that is the graph database

10 provided by TAO. TAO itself would not implement the

11 privacy checks and the conflict logic of, let's say,

12 if you make a comment on a post, understanding that

13 you, as the author, are able to delete that comment

14 and the author of the original post has the right to

15 delete the comment, but no one else has the right to

16 delete that comment. There are a tremendous number

17 of rules like this all over every Facebook product

18 and surface that it would be very error prone to

19 have developers implement repeatedly.

20   So it's an ORM layer that lets you query

21 the data in TAO and write data to TAO, but

22 implementing all the privacy rules underneath. So

23 no individual developer is not working on it.

24   MR. GARRIE: Got it. That makes sense.

25 All right. That makes sense.

1   Okay. So then is Node the same?

2   MR. PATEL: Yeah. Correct. Node is the

3   same. It's just a different language.

4   MR. GARRIE: It's for all the other ones, I

5   guess. All right.

6   So then does Plaintiff have any questions?

7   MS. WEAVER: I think we're okay.

8   MR. GARRIE: So then MySQL, what

9   associations -- well, what associations or objects

10   from TAO does MySQL store? I didn't quite

11   understand that.

12   MR. ZARASHAW: All of them. It is under --

13   it is the backing store for TAO and we would need to

14   get a TAO expert into the room for the details, but

15   for every -- every piece of data that is stored in

16   TAO is actually being stored in one of thousands and

17   thousands of MySQL servers distributed globally and

18   usually on more than one of them, and any schema

19   updates to TAO match to some schema changes on those

20   MySQL servers. So those MySQL servers are not

21   generally used directly and they are used through

22   TAO.

23   MR. GARRIE: I really like that ORM layer

24   explanation. That cleared up a lot.

25   All right. So MySQL.

1   All right. So then ████████ is there a

2 type of data stored in ████████ Is it binary like

3 images or text like JSON objects?

4   MR. ZARASHAW: It's meant for -- so TAO is

5 not efficient at storing large chunks of anything,

6 binary or text. So once you get over a certain

7 limit that I don't remember what the latest limit of

8 MySQL is, last I saw it was 64K, MySQL performs very

9 poorly.

10   The point of ██████████████████████

█ ████████████████████████████

12   MR. GARRIE: So then if there's JSON data

13 in ████████ can it contain user data?

14   MR. ZARASHAW: ████████ ████████████

█ ████████████████████████████

█ ██████ ████████████████████████

█ ████████

18   MR. GARRIE: Right. And then it would be

19 ██████████████ Got it.

20   MR. ZARASHAW: ████████████

█ ████████████████████████████and

22 the developer would not have to think about it.

23   MR. GARRIE: So is there a list of ████

█ ██████████████████████████

█ ████████

1   MR. ZARASHAW: I'm out of my depth here.

2   Mayur?

3   MR. PATEL: We would have to go look at the

4   configuration and see if that's possible to pull up.

5   Again, that's out of my expertise as well.

6   MR. GARRIE: Okay. Zippy. The Zippy

7   database and Akkio, do you know what associations or

8   objects from TAO that Zippy or Akkio stores?

9   MR. ZARASHAW: I do not know.

10   MR. PATEL: I do not know. We generally

11   understand how Zippy operates.

12   MR. GARRIE: Is Akkio used for -- it says

13   it flips the datasets into units with strong

14   locality, meaning geographical locality?

15   MR. ZARASHAW: Data center locality in this

16   case.

17   One of the challenges where we say is we

18   have many data centers globally, and any time a

19   transaction needs to be replicated to all data

20   centers, it's far more extensive than it would be

21   locally.

22   MR. GARRIE: So then that's geographically

23   placed close to where there, most likely, would be

24   access. Okay. Makes sense.

25   MR. ZARASHAW: Exactly. What I mean by

1   extensively is latency. It takes a long time to

2   commit or write across the continent; but if you

3   only care about coming back to the same data center,

4   it would create a better user experience.

5   MR. GARRIE: And I read through the

6   documentation. Memcache made sense to me. I got

7   that.

8   Laser, do Laser indexes point at the Hive

9   and make the Hive query?

10   MR. ZARASHAW: It's the other way around.

11   So a job will run. So Dataswarm jobs can have a

12   source and a target. So a source for Dataswarm in

13   this case would be Hive. It would run a set of

14   queries or custom code and the target would be

15   Laser. So that job would then populate a Laser tier

16   with the results of a Hive query that could be --

17   the result being potentially quite large.

18   There are other ways to populate Laser as

19   well. It does not have to be from Hive. It could

20   be done from a shelf script if the developer chooses

21   to do so. It could be done from any code that's

22   written, but the common use case would be run an

23   extensive query in Hive and put the results in Laser

24   for very fast lookups of specific rows.

25   MR. GARRIE: And Laser has storage

1 basically.

2   MR. ZARASHAW: It's a cache. It's a cache

3 for storing a precomputation of a large dataset when

4 you only ever want to access a small subset of that

5 dataset.

6   Hive doesn't really offer the ability to

7 access one row. Every operation in Hive ends up

8 touching the entire table and this is one of the

9 challenges we run into any time we are looking for

10 ███████████████████ There's no way in Hive to just

11 quickly grab a subset of the table in Hive. Every

12 single lookup in Hive is a scan of the entire file,

13 of the entire table. It involves the same amount of

14 time to look at all of the data in Laser as to just

15 one row.

16   MS. RING: Special Master Garrie, if I may,

17 actually I forgot that on a break it was asked, they

18 wanted to clarify something that had been talked

19 about about ████████████████████████████ and

20 what it would take to find the data in the tables in

21 ██████████████████████

22   I think, Mike and Mayur, you guys wanted to

23 clarify.

24   MR. CLARK: Well, I think it was in

25 connection to Laser. Like Laser has very specific

1   mapping and, as Eugene just walked through, that's

2   why that one-to-one mapping makes it much more

3   efficient.

4   There is the challenge of when we go to

5   look for things broadly in Hive across tables and

6   where we don't have that preexisting application or

7   dataset mapping, that finding it, and I used the

8   analogy earlier, but not just looking in one phone

9   book or a couple phone books, it's the many

10   warehouses of phone books with millions and millions

11   of them trying to find the same info.

12   MR. GARRIE: So I get that.

13   You guys have five million -- you run

14   through five million every night, every day. On

15   one day you ran through five million. So it's not

16   like you don't have the computational capacity to

17   run it.

18   MR. CLARK: But that's only the

19   computational capacity to map it.

20   What is the challenge is most of it's not

21   actually in warm storage, and so to actually --

22   MR. GARRIE: Well, there's a whole -- so

23   there's a whole separate Hive conversation about how

24   it goes --

25   MR. CLARK: Okay. Yeah.

1   MR. GARRIE: -- outside. There's a Hive

2 specialist because there has been a prior

3 conversation about different tables in Hive and how

4 it's in cold storage and it's compressed and zipped

5 and it's a pain to access and all of that. I

6 assume nobody here has that domain specific

7 expertise.

8   MR. PATEL: We don't have the expertise.

9 We have the general understanding of --

10   MR. CLARK: Yes.

11   MR. PATEL: -- like cold storage and how it

12 operates.

13   MR. GARRIE: I've read -- I mean, there's a

14 lot of previous advocacy around it.

15   MR. CLARK: And the only thing I saw

16 missing in the advocacy was just the amount of time

17 to then manually map all that.

18   MR. GARRIE: Oh, no. They explained that.

19   MR. CLARK: Okay. I didn't know. The

20 stuff I read didn't have that. So apologies,

21 Special Master Garrie.

22   MR. GARRIE: They probably spared you.

23 There was a whole other path that was resolved

24 around tables in Hive to tables in Hive and so on.

25 So I'm fairly familiar with the amount of cold

1 storage sharing on a daily basis and how that's

2 zipped and you have to unzip it and query it.

3   MS. RING: Special Master Garrie, look, I'm

4 sorry to interject again, but we want to really help

5 you understand this and I think you're thinking of a

6 different issue. I've read all that documentation

7 also.

8   When they were telling me this on a break,

9 this is a distinct issue, which after it's pulled

10 then it has to be reviewed, which I don't think

11 we've addressed in prior submissions.

12   But if you don't want to hear about it, I

13 mean, it is an important part of the process for

14 being able to actually -- I mean, you know, Mike,

15 this is --

16   MR. CLARK: It's the longest amount of

17 time. Like it's -- it could take X amount of time

18 to pull it, then it's X time to review it because it

19 is manual because there isn't just a simple way to

20 go technically audit what each of those tables were

21 to then know how they were mapped.

22   MR. GARRIE: That's one big for loop and

23 then someone has to put eyes on the output.

24   MR. PATEL: It's not just one big for loop.

25 Right.

1   MR. GARRIE: I'm generalizing, but I get

2   it. I get it.

3   MR. PATEL: It's a for loop with a whole

4   bunch of technical constraints around, you know, how

5   much cold storage we can move to warm on a single

6   day. It's not that we can move our entire cold

7   storage into warm storage.

8   MR. GARRIE: No. I get that. It's only

9   one day.

10   MR. PATEL: Yes.

11   MR. GARRIE: So I get there's a lot of

12   infrastructure issues because you move it to cold

13   storage, and then you'd have to move it out of cold

14   storage and then compress it, restore it, and that

15   takes quite a bit of time before we even get to the

16   search and all the other pieces of it.

17   MR. ZARASHAW: Sorry. Just one last thing

18   on this point.

19   It's not just a matter of time. It's that

20   we simply don't have enough hard drives to store

21   additional -- to pull data out of cold storage

22   without first deleting data that's already in warm

23   storage that's being used for production.

24   MR. GARRIE: Yeah. I get it. I mean, that

25   was delivered to me in the last train of thought we

1 had, which is why I granted the relief sought by

2 Facebook at the time. So, yeah, I get that. I

3 mean, ██████████ of data isn't chump change. So,

4 you know, that's ████████████████████████

██

██████████████████ Okay. So I fully grasp the

7 magnitude of what we're talking about.

8   I mean, before we get down there, I will

9 return to that conversation, Counsel Ring, and

10 please bring it back up again. I just want to

11 finish my train of thought to what we have.

12   I have specific questions about the product

13 management process and specifically how that works.

14   But before I get to that, what -- so I

15 think what -- you were saying what data does Laser

16 index and I just want you to repeat it one more

17 time.

18   MR. ZARASHAW: I think it might help if I

19 contrast Memcache and Laser because they serve a

20 very similar purpose, but used in two different

21 ways.

22   I'd classify Memcache as a reactive cache

23 in that you do an extensive computation and then you

24 store the single result of that computation in

25 Memcache so that if you within a time period have to

1 do that computation again, it is available for fast

2 access.

3   Laser is more for cases where you cannot,

4 on demand, do that computation. Instead, you do

5 that computation, let's say, once a day in bulk on

6 the entire Facebook user base, so the entire set of

7 an object type and so on, and then you commingle

8 all of it because the amount of time to do the

9 computation for one item is almost the same as to do

10 the computation for the entire universe.

11   So Laser is more of a proactive cache where

12 we will do the extensive computations once in a day,

13 we'll load it into a Memcache-like tier and allow

14 randomized access to the sub-results of those

15 computations.

16   MR. GARRIE: That makes sense. Because it

17 says Laser is an indexing service, but it also has

18 storage.

19   MR. ZARASHAW: Laser is effectively a set

20 of Memcache-like machines plus infrastructure to

21 run -- most of the time run a Hype query and load up

22 the results. So the storage is ephemeral.

23   MR. GARRIE: Okay. So then how is Laser's

24 use restricted to putting first-party only products

25 if Graph API uses Laser to access the data?

1   MR. ZARASHAW: There is no direct access to

2   Laser. So it would have to be through Graph API. I

3   don't know which specific APIs use Laser, but it

4   would be similar to Memcache where Memcache would be

5   used when a specific API can't be fulfilled quickly

6   by getting MySQL or TAO directly.

7   MR. GARRIE: And then are there private

8   internal-only Graph APIs between the two?

9   MR. ZARASHAW: It would not be a Graph API.

10   Graph APIs are externally available. So Laser

11   offers up a drift service for any --

12   MR. GARRIE: Right. If Laser is restricted

13   to supporting first-party only products and if

14   Graph API uses Laser to access the data and it's not

15   done, how does that work?

16   MR. ZARASHAW: So -- I'm sorry.

17   MR. CLARK: Sorry.

18   Mayur, didn't you have a good example of

19   like the OFA process, for instance? Maybe going

20   through a concrete example might actually be helpful

21   in this case.

22   MR. PATEL: I am actually confused with the

23   question. So if the question can be repeated.

24   MR. GARRIE: Yeah. So let me explain as I

25   understood it and then maybe I'm completely wrong,

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1 which is possible.

2   So then Laser's use is restricted I thought

3 to supporting first-party only products.

4   MR. ZARASHAW: That is not correct. We

5 don't think about pieces of infrastructure as

6 designed for first or third-party products. We have

7 an API model for all third-party interactions

8 happening through a set of external APIs, but then

9 each API has product specific implementations

10 because the API is very broad and many of the

11 products we offer have their own APIs and then each

12 API implementation may use different types of

13 storage to accomplish the product outcomes of that

14 API.

15   MR. GARRIE: Okay. So it doesn't really,

16 frankly, matter. Okay. All right.

17   Question six, my question is more about the

18 product process.

19   In the product process, how do these

20 agreements -- how do agreements get made? I still

21 haven't been able to figure this out.

22   Like, you have products and then they sign

23 agreements with the customers for the products. So

24 ████████ Microsoft, whoever. You build a product.

25 Like Facebook builds products and then there are

1   agreements with customers to use features of the

2   products.

3   So what I'm trying to understand is what's

4   the sequence of how that works and then if they're

5   customer specific driven products or projects.

6   I just started reading over some of the

7   agreements. So I'm not exactly sure.

8   MS. RING: So we really don't have someone

9   on here who focuses on that. I mean, I think

10 there's like a business tool and they're subject to

11 standard terms.

12   MR. GARRIE: Well, no. That's my question.

13 So that's my question.

14   You have products that you build and

15 there's a set of -- how does this -- like I'm a

16 business. I want to use your products.

17   MS. RING: So, I mean, look, we don't have

18 anyone on this call that deals with that exactly.

19   I think if it's something -- if it's a

20 business tool and it uses a standard app, you know,

21 they just sign up and use it and it's subject to the

22 standard terms.

23   I don't know for this specific. You know,

24 we provided contracts for ████████ Microsoft,

25 ████████   I don't know the process that's followed

1   and I can say who cares what I know, but we didn't

2   bring anybody who knows that process.

3   MR. GARRIE: And all I'm trying to figure

4   out is the pro- -- I get the products.

5   What I'm trying to figure out is these

6   agreements, are the products -- I'm trying to figure

7   out if there's a process for where products may be

8   tailored, customized, whatever, for a particular

9   customer and if there's a process, a product

10 development process for that. You usually get a

11 project program. Like usually there's a -- in most

12 places there's a project manager. There's a product

13 and there's a project manager assigned to build that

14 out to meet the requirements to tailor that specific

15 need or whatever.

16   Just at a high level for those products, is

17 there a standardized process that's followed?

18   MR. CLARK: At just the highest level, like

19 just to walk through this, there are the primary

20 products. There is the third-party developer

21 platform, the business products that we've already

22 spoken about. For any changes to any of those, they

23 go through both the ███████████████████████

    ████████████████████████ for those checkpoints.

25   MR. GARRIE: But there are agreements that

1   are made with clients like ████████ or with

2   Microsoft, for example.

3   MR. CLARK: And that's where I can talk to

4   the example overall. And when there are specific

5   individual products, I am not an expert in that.

6   MR. GARRIE: But my question is, are they

7   handled -- my -- it's just a broad question and

8   that's all I have for question six is, is there a

9   broad process for when a customer, a third party,

10   Microsoft, Amazon, comes and says we want to do --

11   we're a big boy sitting at the big boy table,

12   right -- I have a six-year-old, so it's a

13   commonly-used phrase in my house -- and they want

14   certain things. Right. You know, I want my red

15   cup. I want my whatever it is and there's a

16   process, you know, that is followed.

17   And my question is at Facebook, what I'm

18   trying to figure out, is there some process that's

19   documented as to how this is done for -- you know,

20   because it's involving -- like if you look at

21   Microsoft, there's user information going back and

22   forth all over the place.

23   Is there a process that's followed for the

24   product that's documented to build it out generally?

25   MR. CLARK: They follow the same process.

1 They follow the same ████████████████████

2   There is a specialized business development

3 team that works on the contracts side and with the

4 product teams, but that is as far as this goes.

5 They follow the same types of constraints and

6 controls and usage of data that all of the other

7 teams do as part of the overall program.

8   MR. MITCHELL: There are no exceptions to

9 our standard development process or deviations.

10   MR. GARRIE: That's basically what I'm

11 getting at.

12   MR. MITCHELL: Yeah. We have a common

13 development process that is utilized by, you know,

14 sort of all products and they all go through the

15 ████████████████████ and, you know, they'll go

16 through all the gates we've discussed at various

17 points over the course of today and there's no

18 exception because you're Microsoft or ██████ and

19 you're a big boy.

20   MR. GARRIE: That's why I'm asking because

21 there's a whole discussion of private APIs and

22 everything else, but it follows -- today it follows

23 that process.

24   When did this process get in place?

25   MR. CLARK: I can't speak to the exact

1   date.

2   MR. MITCHELL: It's before my time.

3   MR. GARRIE: Well, we can work backwards

4   from 2020, but it would be helpful to know when that

5   process came into place given the class period is

6   rather -- because that applies to new things, not

7   old things; right? So one of the questions is --

8   but that's not for now, frankly.

9   So let me keep going in the interest of

10   everybody that's here and the engineering resources

11   that are here.

12   Question seven, how is Hive used? Is Hive

13   used as a data warehouse while building product

14   experiences? I couldn't figure it out from the

15   description.

16   MR. ZARASHAW: What do you mean by while

17   building product experiences? Like for what part of

18   the product experience do you mean?

19   MR. GARRIE: I mean start to finish.

20   MR. ZARASHAW: Most commonly ███████████

     ██

     ██████████████████████████████████████

     ██

     ██

     ███████████████████████████████ and so on.

1   MR. GARRIE: I mean, that makes sense given

2   the amount of data that's being collected.

3   I guess now that I understand a little

4   better, is a query to build experiences assuming

5   you're using, like, Laser? Is that how that works?

6   MR. ZARASHAW: I'm not sure I understand

7   the question.

8   MR. GARRIE: So how are you querying -- I

9   think I --

10   Never mind. You've already answered the

11   question. Because Laser is like Memcache. It's

12   indexed and it's targeted so you can then -- okay.

13   So then is there any clear delineation of

14   any of the Hive data resources that are used in

15   products? Is there a table key or something like

16   that? Not for 100 percent.

17   MR. ZARASHAW: Not that I know. Mike?

18   MR. CLARK: No. And nothing comes directly

19   to Hive. It would -- because it's just wait and

20   see. It's like it's optimized for writes and not

21   for reads and, from a product experience

22   perspective, it would need to go through one of the

23   other layers or some other transformation in order

24   to be usable in a product experience.

25   MR. ZARASHAW: Actually that's a really

1   good point to call out, Mike.

2   Special Master Garrie, on a given -- as of

3   about ████████████████████████████████

    █ ██████████████████████████   It is not anywhere

5   near real time. So at any point it takes somewhere

6   between ███████████████████████████████████

    █ ███

    █ ████████████████████████████████   So it would

9   not work for any production data use that would

10 require us to read data back after writing it.

11   MR. CLARK: You, as a product engineer,

12 would start with ████ and most of the time end with

13 ████

14   MR. GARRIE: All right. So then -- okay.

15 So then on Exhibit B, which, by the way, was

16 helpful, the last row on Page 3 says other datasets,

17 that Facebook occasionally acquires datasets to help

18 inform different user models, blah, blah, blah.

19   Do you see where I'm at?

20   MR. PATEL: Sorry. Which page is this?

21   MR. GARRIE: Page 3, last row.

22   MS. RING: So, yeah. This is --

23   MR. MITCHELL: Page 41 in the pdf.

24   MR. GARRIE: Yeah.

25   MS. RING: Okay.

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1   MR. CLARK: Found it.

2   MR. GARRIE: My question is, while ████████

3   data is not user specific, implications derived from

4   ██████ data would be or is or can be.

5   So what are the data points that are

6   stored? Like where are they stored?

7   MR. PATEL: Do you mean stored with the

8   user at a user level granularity?

9   MR. GARRIE: Derivation from the ████████

10   data. You're deriving data from the ████████data.

11   Where is that data stored?

12   MR. PATEL: Which system are you talking

13   about? Because then we'd probably need an admin

14   engineer to describe like where that data

15   eventually --

16   MR. ZARASHAW: It's like a lot of other

17   situations where the life cycle is usually figuring

18   out what use case we're trying to come up with.

19   Then a product team decides a use case should exist

20   in the world. They go build the use case, which

21   may include acquiring a third-party dataset. Then

22   for the use case they're trying to hit usually based

23   on the read and write patterns, they'll pick the

24   piece of infrastructure or system that makes sense

25   for that use case. And so there's no general

1   principles for where it should be stored, other

2   than what makes sense for the specific project.

3   MR. GARRIE: So I guess my follow-up

4   question to that is, are these implications included

5   in the DYI file?

6   MR. PATEL: The implica- -- if you're

7   talking about the ads targeting criteria, they are

8   in DYI.

9   MR. GARRIE: I'm talking about any of the

10   data. Well, no. You said ads. I'm saying any of

11   the --

12   What I'm being very clear about is derived

13   from the █████ data because you say there's, you

14   know, other datasets and you reference the █████

15   data. I'm saying you can derive data from that

16   information and my question is, is the derived

17   information that you get from that stored or made

18   available in the DYI file?

19   MS. RING: Excuse me, Special Master

20   Garrie.

21   I mean, Mr. Patel, this is -- we talked.

22   This is -- this column is -- this column is

23   referring to something very specific, which is ad

24   targeting options based on income. Those are in

25   DYI.

1   So, Mr. Patel, I mean, can you just

2   describe -- I think it would be helpful to describe

3   this is just an ad targeting option that is created

4   using ████ data we get and that is in the DYI file

5   and people can X out of it, et cetera.

6   MR. PATEL: I mean, you have transparency

7   and control in your ads preferences as well into

8   this.

9   MS. RING: Maybe it's actually --

10   MR. GARRIE: Well, let me make it simpler.

11   Where might it be that I'm rich stored?

12   Where is it stored? I mean, I guess that's what I'm

13   trying to figure out. Right.

14   MS. RING: In your DYI file. I looked mine

15   up and I'm apparently not rich. My ad targeting

16   option was actually for a low -- like a low

17   percentage based on my zip code, I guess. So --

18   MR. PATEL: Yeah. Special Master Garrie,

19   I don't know that answer because it's the ads

20   targeting product team that would know exactly where

21   this is stored. Like, I can just speculate where I

22   would store it, but I cannot tell you for sure.

23   MR. GARRIE: And then because one thing I

24   noticed looking at the APIs, you require data to

25   be -- just returning back to a prior conversation.

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1   In some of the API functions, you require

2   it to be in there and you don't necessarily produce

3   that data in the DYI file every single time and

4   there's -- there are specific elements, but do you

5   have data elements? Like, for example, the

6   Luluemon, you require there to be a value put in

7   there, but it doesn't mean that it will necessarily

8   be returned to the DYI file at least based on the

9   documentation that I looked at.

10   MR. CLARK: I believe, and I'll go back and

11   reiterate what we'd stated before. And you broke up

12   for just a moment in the question, so I want to make

13   sure I'm answering this right.

14   The only required fields are the, you know,

15   time and date stamp that comes in, the event type,

16   and we share that back. There are custom fields

17   that the third party, the business product user

18   company, individual can apply on their own and that

19   is the content that to us is not directly mapped.

20   If they map a page to you, if they map an initiate

21   checkout, those are things that are specifically

22   mapped and meaningful.

23   MR. GARRIE: Okay. I get it.

24   So then what are the other sources of data

25   that Facebook draws implications from?

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1   MS. RING: I think you cut out for me, at

2   least. I couldn't hear. It sounded like there was

3   an echo.

4   MR. GARRIE: What are other sources of data

5   that Facebook draws implications from?

6   MR. ZARASHAW: I think we would need to get

7   somebody from the ads targeting team to answer

8   that.

9   MR. GARRIE: Yeah. It sounds like the ads

10   targeting team will be -- they will be able to speak

11   to the use of cookies that aren't the user, the

12   identifiers, but are different cookie types as well

13   as this area. But, otherwise.

14   And then my last question, on Exhibit C can

15   you just explain to me the last two sentences in the

16   opening paragraph?

17   MR. CLARK: On the spacer page that says

18   Exhibit C?

19   MR. GARRIE: Yeah. In the opening

20   paragraph on Exhibit C. I just didn't understand

21   it.

22   MR. CLARK: Is that a question for us, the

23   engineers, or is that a question for the legal

24   team?

25   MR. GARRIE: The legal. I mean, whoever is

1 best to answer it. I have a feeling the legal team

2 may, but I don't know.

3   MS. RING: I'm sorry. Can you repeat the

4 question? I didn't -- I couldn't -- I'm going out.

5 I don't know if it's mine.

6   MR. GARRIE: The last two sentences in the

7 opening paragraph.

8   MS. RING: Of what page?

9   MR. GARRIE: Exhibit C.

10   MR. MITCHELL: Page 42.

11   MR. CLARK: Is it the thing that says, "On

12 3 DYI includes data that as a factual matter"? Is

13 that what you're referring to?

14   MR. GARRIE: Yeah.

15   MS. RING: What does that mean?

16   MR. GARRIE: Yeah.

17   MS. RING: It just means that inference is

18 not a defined term, and so it has legal meanings in

19 certain contexts and we're just talking about as a

20 factual matter.

21   Like in the table we just looked at at the

22 bottom, those are ad targeting options. Those are

23 in DYI. They're derived from ███████ data and zip

24 code and that's it. And so it's just to say like

25 that's just derived data.

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1   MR. GARRIE: Okay. And then we need to

2 talk to someone on the ads team, it sounds like, to

3 determine what else besides ███████ and how that

4 flows.

5   MS. RING: For ad targeting? Like the ad

6 targeting?

7   MR. GARRIE: Yeah. Besides ██████in

8 Exhibit B.

9   MS. RING: Yeah. I mean, just to be -- you

10 mean -- you mean ad targeting, all those options are

11 in DYI, but you want to know where they're stored

12 within --

13   MR. GARRIE: But, more importantly -- yeah.

14 But, more importantly, what is stored when they're

15 providing -- what data do they get and then what

16 data is going in the DYI? Is it one-to-one or is it

17 a --

18   MS. RING: It's based -- the ad targeting

19 options are derived from on-platform activity, and

20 then the targeting option goes into DYI. I'm sure

21 it's stored somewhere else for use in advertising,

22 but is that the -- so that's the question?

23   I think and, Mayur, you just don't know the

24 answer to that because you're not on the ads team.

25   MR. PATEL: Yeah. I don't know where it's

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1 stored, which specific system.

2   MR. GARRIE: And I have a couple other

3 questions there, but I need to think over the

4 answers that were given before, but I can give them

5 in writing. I have a couple scenarios; but rather

6 than go through the scenarios now, what I'm

7 thinking I'll do is I'll provide Facebook a set of

8 scenarios to explain the specific outputs of where

9 data goes.

10   MS. RING: I'm sorry. You cut out at the

11 end. What did you say? What was the end part of

12 what you said?

13   MR. GARRIE: I'm going to provide a set of

14 scenarios, in all likelihood. I had them written

15 here. Like Plaintiff suggested some, but I actually

16 have my own. But I don't think it -- it would

17 probably take all day to go through the scenarios.

18   So rather than taking everybody's time to

19 go through them, I was thinking about putting the

20 scenarios in writing and letting you guys provide

21 written answers explaining, you know, what data is

22 being collected and where is it going rather than

23 doing it now.

24   MS. RING: That would make it interesting.

25   MR. GARRIE: It wasn't nearly as -- yeah.

1   But, anyways, that's what I'm thinking we'll do

2   rather than doing it in real time right now trying

3   to figure it out, but give you guys a certain time

4   to just review and then give the written answers.

5   Has anybody ever run a disk between TAO and

6   the DYI file?

7   MR. PATEL: I have not. I don't -- I don't

8   think we can. Like, they're two different schemas.

9   MR. GARRIE: You'd have to map them, but

10 you could.

11   All right. I think that covers most of my

12 questions for today, and I think my preference is

13 to provide the written and additional follow-on

14 questions rather than continuing forward.

15   I may have one last -- I need to review

16 what was covered today. We covered a lot, but

17 there's certainly some further conversations about

18 the Hive and the advertising, the cookies and how

19 those -- like you have a range of cookies, how are

20 they incorporated and used into the system.

21   I understand the systems part now. Now I

22 need the data piece on that. Nobody here can speak

23 to DATR cookies or any of the other cookies that are

24 used?

25   MR. PATEL: Sorry. Which cookies are you

1   referring to specifically?

2   MR. GARRIE: There's on-platform Facebook

3   cookies, and there's third-party cookies, and then

4   there are subsets of those as well. I mean, we can

5   run through them if you want, but I didn't think

6   that -- the DATR cookie.

7   MR. PATEL: Yeah. The DATR cookie is

8   primarily used for security purposes. It's to

9   understand whether or not you have previously logged

10   in and the primary purpose to whether or not you've

11   primarily logged in on that browser. So it

12   identifies a browser. And so if you try to log in

13   again -- sorry. If you try to log in the first time

14   with a new DATR cookie, we may checkpoint you there

15   and ask for a confirmation through email or phone in

16   order to continue to log you in. And then if you

17   log out and log back in with the same DATR cookie,

18   we may not ask you again. So that's the reason for

19   the first-party cookie that we have.

20   MR. GARRIE: No. My question was

21   different.

22   Why is it in the DYI file and not other

23   cookies? I understood what it did. We spoke

24   previously about it.

25   MR. PATEL: Oh.

1   MR. GARRIE: My question was more, why is

2 that cookie put in the DYI file and who's making

3 the decision about what cookies are going into the

4 DYI file, what are all the cookies you're capturing

5 and storing in the Hive, how are they associated

6 with the users, and how are they being shared and

7 aggregated to third parties?

8   If you guys can speak to that, we can get

9 into it; but if not, I won't recommend it.

10   MR. PATEL: No.

11   MR. CLARK: No. That is one we would need

12 to get some additional folks engaged with.

13   MR. GARRIE: No. I mean, so I got what

14 it's used for. I'm just trying to figure out why

15 some cookies are. Like, there's a lot of cookies

16 that exist in the world, like a lot, and a user will

17 have many. And so how are they -- what and how is

18 being captured and utilized and passed and shared

19 back and forth and utilized?

20   So I figured I'd table that. So that I

21 have follow-on. I may have follow-on at one single

22 hearing to cover the Hive and those issues, and then

23 send you the scenarios is what I'm thinking.

24   But before I wrap it up, Plaintiff, do you

25 have any questions?

1   MS. WEAVER: No. I think this has been

2 very, very helpful and I think it would be useful

3 for us to read the transcript and be thoughtful

4 before following up.

5   But I wanted to thank everybody, thank

6 Facebook and all of the engineers who came to try to

7 educate us today.

8   MR. GARRIE: Yeah. So thank you to

9 Facebook. Thank you to all four engineers for

10 taking time out of your very busy day. I know the

11 lawyers have their jobs, but your job is not to,

12 per se, participate in these proceedings on the

13 regular. So I really appreciate you taking the

14 time out of your day and the time to prepare to

15 answer these questions and I wanted to thank you for

16 making yourselves available. It was extremely

17 informative and helpful. And I hope we don't talk

18 again; but if we do, then hopefully it will be as

19 instructive and as useful as this time. So thank

20 you all very much.

21   And do we need to do anything,

22 Court Reporter, before we dismiss everybody off the

23 record or anything like that?

24   MS. RING: I think Mr. Solanki is trying to

25 say something.

1   MR. SOLANKI: Sorry. I may have missed

2   this.

3   We had talked, I think, in the last hearing

4   about just designating it as highly confidential

5   given the amount of information that's been

6   disclosed about our systems. So you may have done

7   that already. But if not --

8   MR. GARRIE: I did not. I did not.

9   So he's 100 percent correct. This is

10   highly confidential and should be designated as

11   such and treated accordingly.

12   THE COURT REPORTER: Okay.

13   MS. RING: May I add one last thing,

14   Special Master Garrie, while we have everyone here,

15   including Plaintiff?

16   On the turnaround time for these scenarios

17   or additional questions, we'd appreciate as much

18   time as we can get. It's hard to turn them around

19   and give good and full answers when we don't have

20   very much time.

21   MR. GARRIE: I fully acknowledge and hear

22   you. When I next talk with Judge Chhabria, I'll

23   communicate accordingly. But I agree with you and

24   appreciate and understand how much work and effort

25   is involved here and I will attempt to convey the

1 same, as appropriate.

2   MS. RING: Thank you.

3   Look, the desire is to have a helpful

4 response. It's easier to do that with a little more

5 time. That's all. So thank you.

6   MR. GARRIE: Yeah. Noted for the record,

7 certainly.

8   And we'll go off the record here, unless

9 anybody has anything else to say.

10   * * *

11   (Whereupon, the hearing ended at 2:28 p.m. PST)

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1   CERTIFICATION OF COURT REPORTER

2   FEDERAL JURAT

3

4   I, the undersigned, a Certified Shorthand

5   Reporter of the State of California do hereby

6   certify:

7   That the foregoing proceedings were taken

8   before me at the time and place herein set forth;

9   that any witnesses in the foregoing proceedings,

10   prior to testifying, were placed under oath; that a

11   verbatim record of the proceedings was made by me

12   using machine shorthand which was thereafter

13   transcribed under my direction; further, that the

14   foregoing is an accurate transcription thereof. I

15   further certify that I am neither financially

16   interested in the action nor a relative or employee

17   of any attorney of any of the parties.

18   IN WITNESS WHEREOF, I have this date

19   subscribed my name: Date: March 14, 2022.

20

21

22

23

24   Michelle Milan Fulmer

25   CSR 6942, RPR, CRR, CRC

[& - add]

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zarashaw 5:19,20
9:2,5 33:4 34:18
37:8 38:4 52:13
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67:1,4,22 69:1,4
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Exhibit O

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8   **UNITED STATES DISTRICT COURT**
                     NORTHERN DISTRICT OF CALIFORNIA
9   **SAN FRANCISCO DIVISION**

10

11   IN RE: FACEBOOK, INC. CONSUMER   **MDL NO. 2843**
     PRIVACY USER PROFILE LITIGATION,
12   CASE NO. 3:18-MD-02843-VC-JSC

13   HON. VINCE CHHABRIA
     This document relates to: HON. JACQUELINE SCOTT CORLEY
14   COURTROOM 4 – 17TH FLOOR
     ALL ACTIONS   SPECIAL MASTER, DANIEL GARRIE, ESQ.
15

16   **ORDER FOLLOWING MARCH 9, 2022**
                                                 HEARING REGARDING PLAINTIFFS'
17   **MOTION TO COMPEL PRODUCTION**
                                                 OF PLAINTIFF DATA
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No later than April 5, 2022, Facebook is to submit a proposed protocol for producing named Plaintiff user data pursuant to Judge Corley's Discovery Order No. 9 (Dkt. 557) beyond what has been produced to date. No later than April 11, 2022, Plaintiffs are to submit a response to Facebook's proposed protocol. Facebook's proposal should include, if appropriate, the following types of information.

- Data flow diagrams of the systems from which Facebook searches and produced Named Plaintiff Data.

- Functional descriptions and interdependencies for DataSwarm tasks that process Named Plaintiff Data.

- Descriptions of the schemas, tables, columns, and data types for Named Plaintiff Data that is produced.

Facebook's proposal should identify any Facebook systems and the Named Plaintiff Data that it will not produce from and include an explanation as to why it will not produce from such systems (i.e., burden, costs, duplicative, etc.)

The Special Master Garrie suggests that Facebook's protocol include producing the Named Plaintiff Data from the following.

- **The Associations Objects (TAO)** – Facebook is to the identify and produce Named Plaintiff Data stored in TAO that is not present in the Named Plaintiff's DYI file and it should include, if applicable, the following: (a) the Objects and Associations in TAO associated with the Named Plaintiffs, but are either partially or not included in the DYI file (i.e. Named Plaintiff Data that is not exported in DYI file but stored in TAO). For example, data about a Page (as defined by Facebook) that the Named Plaintiff interacted with is stored in a MySQL table in TAO called Y, which was not included in the DYI file. Facebook identifies table Y and produces the rows/columns from table Y with the Named Plaintiff Data relating to the page.

- **Hive** -- Facebook is to query the Hive to identify the tables that store Named Plaintiff Data using the identifiers including the following: User ID (UID), Replacement ID (RID) Separable ID (SID), App-Scoped ID (ASID). For each table identified Facebook is to search the tables for the associated Named Plaintiff Data. (i.e., tables mapping user identifiers to ad segmentation data such as US Political spectrum segments). For example, a Facebook engineer writes a process that stores user data, including Named Plaintiff Data, in the Hive in table X and the table has a

column "RID." Facebook would produce the Named Plaintiff Data that is stored in table X. This effort should exclude any of the analysis done in relation to DataSwarm below.

- **DataSwarm** -- Facebook is to query DataSwarm Tasks to identify Task Definitions which involve Named Plaintiffs Data, using known identifiers such as User ID (UID), Replacement ID (RID) Separable ID (SID), App-Scoped ID (ASID). Facebook will review each of those Task Definitions and then search the sources/destinations identified in the task for the Named Plaintiff Data. Seе Special Master Hearing Transcript 3/9 p.35 5-13. For example, Facebook queries the DataSwarm Tasks and identifies a Task that uses the UserID to pipe data to Laser and stores that data in table Y. Facebook is to search and produce from table Y all Named Plaintiff Data (columns/row/schemas) that was not included in the DYI file.

Written Questions

Facebook is also to submit answers to the following questions and requests for documentation to the Special Master on or before April 1, 2022.

Hive

- How does ad impression and ad click data for Facebook users get into Hive?

- What tables store ad impression and ad click data for Facebook users?

- What data pipelines[1] are used to analyze ad impression and ad click data for Facebook users? Where is the final output of these data pipelines stored (e.g. Hive table names, TAO, etc.)?

- Identify a list of Hive tables containing columns that store a UID, RID, SID, ASID, or other means of identifying a Facebook user. The list is to include tables that were active during the relevant time period.

- What is the estimated time and cost to produce data for the Named Plaintiffs from Hive?

Ads Interests

- How does Facebook determine ads interests for a user based on what the user views (i.e. are ad interests based on what the user views on Facebook or other Internet activity)?

- Does Facebook track user activity across the Internet using cookies? If so, what cookies does Facebook use? Provide a statement explaining the use of cookies in tracking user activity on and

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[1] Data pipeline as used here refers to an end to end data process using data tasks in a dependency chain.

ORDER FOLLOWING MARCH 9, 2022 HEARING REGARDING PLAINTIFFS' MOTION TO COMPEL PRODUCTION OF PLAINTIFF DATA

off the Facebook platform to create behavioral data about users. Provide documentation on the use of _fbp, _fbc, and DATR cookies. Explain whether the scope of tracking user activity includes on or off platform activity, or both.

- How are ads interests associated with a particular user? Where is ads interests data for individual users stored? Facebook is to describe whether ad interests data can be associated with a specific user via UID, RID, SID, ASID, or other means and whether it is included in the DYI file.

- What is the estimated time and cost to produce ad interests data for the Named Plaintiffs?

Contracts

- Is the data referenced in the contracts with Netflix, Microsoft, and/or YouTube that Facebook provided to Special Master Garrie for *in camera* review in connection with the Named Plaintiff Data hearings included in the DYI file? If not, Facebook is to specify what data is not included and where such data stored.

Scenarios

No later than April 4, 2022, Facebook is to submit documentation sufficient to describe the data collected both on and off platform or provided by Third Parties in the following scenarios and provide written responses to the questions below.

- Exhibit A to Plaintiff's Questions re: Data Collection and Use indicates that Facebook used predictive algorithms to generate five political segments for Facebook users (Very Liberal, Liberal, Moderate, Conservative, and Very Conservative) based on demographic, psychographic, and behavioral signals from Facebook user data.
  - o What are the inputs into these algorithms (i.e. what are the demographic, psychographic, and behavioral signals used to generate the political segments)? Are these inputs provided by users or derived by Facebook?
  - o How are the psychographic signals computed (e.g. how is the psychographic signal "High Dollar Religious Donor" determined)?

ORDER FOLLOWING MARCH 9, 2022 HEARING REGARDING PLAINTIFFS' MOTION TO COMPEL PRODUCTION OF PLAINTIFF DATA

o   Is information regarding identifiable ethic affinities provided by users or derived by Facebook? How is ethic affinity derived?

o   Where is political segmentation data for Facebook users stored?

o   Is political segmentation determined for a Facebook user as part of a data process that runs on a regularly scheduled basis or evaluated in real time when an ad is served?

o   Is political segmentation associated with a Facebook user if possible (i.e. via UID, RID, SID, ASID, or another identifier that can be mapped to a user)? If so, explain how the political segmentation is associated with a Facebook user.

o   Is an individual's assigned political segment part of the DYI file?

IT IS SO ORDERED.

Monday, June 27, 2022

_____
Daniel Garrie
Discovery Special Master

Exhibit P

GIBSON DUNN

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HIGHLY CONFIDENTIAL—ATTORNEYS EYES ONLY

April 18, 2022

VIA JAMS ACCESS

Special Master Daniel B. Garrie
DGarrie@jamsadr.com

Re: *In re Facebook Consumer Privacy User Profile Litigation*, JAMS Ref No.
        1200058674

Dear Special Master Garrie,

        Pursuant to the Special Master's Order Following March 9, 2022 Hearing Regarding
Plaintiffs' Motion to Compel Production of Plaintiff Data, dated March 22, 2022, Facebook
submits this proposal to assist in determining "what, if any" additional named plaintiff data
should be produced, as directed in Judge Corley's order dated January 12, 2022 (Dkt. No.
807), and respond to "Scenario" questions.

Facebook's Proposal For Producing Additional Named Plaintiff Data

        As Judge Corley explained in her most recent order on named plaintiff data, issued on
January 12, 2022, the Special Master is working with the parties to determine "what, if any"
additional named plaintiff data should be produced consistent with Rule 26. Facebook
continues to believe that the named plaintiff data that has already been produced, which
includes data in all three categories of "discoverable user data" identified in Judge Corley's
Discovery Order No. 9, satisfies its obligations under Rule 26. The additional data Plaintiffs
seek is neither relevant to their claims nor proportional to the needs of this case because it
was not shared or made accessible to third parties.

        That said, in an effort to resolve this issue, and consistent with Judge Corley's
Discovery Order Nos. 11 and 12 allowing Plaintiffs to test Facebook's position on whether
there is additional named plaintiff data that was shared or made accessible to third parties,
Facebook proposes the protocol set forth below for producing additional named plaintiff
data.

        As explained in Facebook's March 7, 2022 submission to the Special Master, at a
high level, user data is stored in production systems and the data warehouse. ██████████
██ Accordingly, we
propose to produce additional data from these systems as explained below.

Beijing • Brussels • Century City • Dallas • Denver • Dubai • Frankfurt • Hong Kong • Houston • London • Los Angeles • Munich
New York • Orange County • Palo Alto • Paris • San Francisco • São Paulo • Singapore • Washington, D.C.

TAO. As also explained in the March 7, 2022 submission, TAO is a distributed data store for the social graph. There is an object and associations to that object for all users. *See* Ex. A, Internal Facebook Wiki Regarding TAO Core Concepts. For each named plaintiff, Facebook will produce the user objects and associations to those objects.

Hive. As explained in prior submissions to the Special Master, Hive is Facebook's data warehouse. *See* Ex. B, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For Reconsideration of Special Master's Order Regarding Named Plaintiff Data, ¶ 11.
Id. ¶ 16.
Id. ¶ 17.

Id. ¶ 18.

Id. These searches are subject to many technical and policy limitations which make searching for individual user data unduly burdensome, including that (1)
(*id.* ¶ 20); (2)

(*id.* ¶ 21); (3)
(*id.* ¶ 22); and (4) data in many Hive tables are in cold storage and would have to be restored in order to be searched and analyzed, *see* Ex. C, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For a Protective Order Against Production of API Call Logs, ¶¶ 17-18; Special Master's Nov. 8, 2021 Order Re: Facebook's Motion For Protective Order Against Production of API Call Logs, ¶ 15 ("Special Master Garrie finds that the data in the Mobile Table and Web Table is not reasonably accessible because it is not readily usable in its 'cold storage' state and must be restored to 'warm storage' in order to be searched and analyzed (i.e. usable).").

For these reasons, among others, as reported in its April 11, 2022 submission, Facebook estimates that it would take approximately   or around   of computational cost to search across the entire Hive data warehouse and extract all data about a single user.

Once the searches have been conducted, and data is returned, the data must be manually reviewed to, among other things, confirm that the data is associated with a particular user and does not include personal data of other users (e.g., user blocking another user) or trade secrets, and does not create system integrity or security concerns.

GIBSON DUNN

In light of the above technical limitations and burdens, Facebook proposes to search for and produce the following named plaintiff data from Hive to the extent it exists: (1) specific types of data requested or referenced by Plaintiffs in challenging Facebook's production of named plaintiff data; (2) a sample of data from Hive tables with user identifiers included in Exhibit B to the April 11, 2022 submission; and (3) the only data identified in Exhibit C to the April 11, 2022 submission that has not already been produced to Plaintiffs in the DYI file or otherwise: set permissions (audience controls on a post).

1. Specific Types of Data

- *Any remaining off-platform activity*: DYI includes off-platform activity. Facebook will search for and produce any underlying raw log-level data for off-platform activity provided to Facebook by a third party associated with the named plaintiffs.

- *Any remaining ad interests*: DYI includes ad interests. Facebook will search for and produce any underlying raw log-level data associated with the named plaintiffs.

- *Any remaining ad click data*: DYI includes ad click data. Facebook will search for and produce any underlying raw log-level ad clicks data associated with the named plaintiffs.

- *Ad impressions data*: Facebook will search for and produce ad impressions data associated with the named plaintiffs.

- *Any remaining custom audience data*: DYI identifies third parties who have created custom audiences associated with a user. Facebook will search for and produce any more granular information about custom audiences associated with the named plaintiffs, including custom audience type, whether it was used to deliver ads, and when.

2. Sampling from Hive tables identified in Exhibit A of April 11, 2022 submission

Given that data in Hive tables are not shared or made accessible to third parties, the significant burden of searching for and producing individual user data from Hive as explained in prior submissions, and that Facebook has already produced nearly a million pages of the named plaintiff data from the DYI system, Hive data is not relevant or proportional to the needs of this case. Facebook nevertheless understands that, as Judge Corley found in Discovery Order Nos. 11 and 12, Plaintiffs are allowed to test Facebook's positions on "sharing and accessibility" by obtaining discovery into what data exists and how it is used. To that end, and consistent with the requirements of relevance and proportionality under Rule 26, Facebook proposes a sampling process.

GIBSON DUNN

In addition to the above specific categories of data, Facebook will produce a sample of data in warm storage from Hive tables identified in Exhibit A of the April 11, 2022 submission. Specifically, Facebook will produce data from 200 tables in Exhibit A to be jointly selected by Facebook and Plaintiffs. Facebook will randomly select 100 tables and Plaintiffs will select 100 tables.

3. User data identified in Exhibit B of the April 11, 2022 submission and not in DYI

As shown in Exhibit C of Facebook's April 11, 2022 submission to the Special Master, only two types of user data in the contracts submitted to the Special Master for in camera review are not included in the DYI file: (1) privacy settings, and (2) set permissions (audience controls on a post). (1) has already been produced. Facebook will agree to produce (2) from TAO.

With respect to other Facebook systems, not including TAO and Hive, there are seven systems[1] that did not fall into one of the categories identified by the Special Master in Hearing Order Regarding Plaintiffs' Motion To Compel Production of Plaintiff Data, dated February 21, 2022: ███████████████████ (MySQL), ██████ (MySQL), ████████████ and ██████████ Producing data from any of these systems would be extremely burdensome and is not relevant or proportional to the needs of this case.

- ████████████ *and* ██████ These systems are BLOB and binary storage and are not searchable by user identifiers.

- ████ This system is a real-time aggregation counter and is not searchable by user identifiers.

- ████ *(MySQL),* ████████ *(MySQL),* ████ *and* ████████ These systems contain unstructured data and cannot be searched by user identifiers, except for tables using Ent or Node schemas for which there is a structured deletion plan. Searching other tables for named plaintiff data would require a full text search of all tables that would take many months to complete and generate a significant number of false positives requiring manual review of all data returned.

With respect to Dataswarm, the Special Master suggested that Facebook "query Tasks to identify Task Definitions which involve named plaintiff data" using identifiers,

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[1] ████ should have been put in Category (6) because the data is in DYI. ████ should also have been put in Category (6) because it is duplicative of TAO. MySQL describes the general use of MySQL databases and should not be a separate entry. For example, ████ (MySQL) and █████ (MySQL) are specific uses of MySQL.

Special Master Daniel B. Garrie
April 18, 2022
Page 5

review those Tasks Definitions, and then search for named plaintiff data in the sources/destinations identified. We have investigated the Special Master's suggestion and did not include it in our proposed protocol because it is not feasible. Dataswarm is a collection of data processing operations coded in Python. Task Definitions are the Python code and Tasks are the running of that code. Searching Python code for user identifiers would be done through a syntax-only search which cannot understand the semantic meaning of the data being processed, i.e., whether a column name being processed involves a user identifier. As a result, additional code would have to be developed to understand whether/how identifiers are involved in a particular Task Definition.

GIBSON DUNN

Scenarios

No later than April 4, 2022, Facebook is to submit documentation sufficient to describe the data collected both on and off platform or provided by Third Parties in the following scenarios and provide written responses to the questions below: "Exhibit A to Plaintiff's Questions re: Data Collection and Use indicates that Facebook used predictive algorithms to generate five political segments for Facebook users (Very Liberal, Liberal, Moderate, Conservative, and Very Conservative) based on demographic, psychographic, and behavioral signals from Facebook user data."

1. What are the inputs into these algorithms (i.e. what are the demographic, psychographic, and behavioral signals used to generate the political segments)? Are these inputs provided by users or derived by Facebook?

Answer: As an initial matter, Very Liberal, Liberal, Moderate, Conservative, and Very Conservative are ad interests ("political ad interests"), which are distinct from political segmentation "based on demographic, psychographic, and behavioral signals from Facebook user data" ("political segments"). Political segments are political ad interests that are divided into political segments.

Political ad targeting segments were deprecated for new campaigns in January 2022 and for existing campaigns in March 2022. Based on a reasonable investigation to date, these were ad targeting segments derived from the following on-platform activity (user-provided data and observed data):

Political segments were deprecated for new campaigns in October 2017 and for existing campaigns in January 2018. Based on a reasonable investigation to date, these segments were created by

2. How are the psychographic signals computed (e.g. how is the psychographic signal "High Dollar Religious Donor" determined)?

Answer: Based on a reasonable investigation to date, we believe "High Dollar Religious Donor" was an ad targeting option based on partner categories. We do not know how this partner category was created. Partner categories were deprecated in October 2018.

3. Is information regarding identifiable ethnic affinities provided by users or derived by Facebook? How is ethnic affinity derived?

Answer: Ethnic affinities, also referred to as multicultural affinities, were ad interests created by Facebook based on a user's on-platform activity indicating an interest in content relating to certain communities. Ethnic affinity ad interests were deprecated in August 2020.

4. Where is political segmentation data for Facebook users stored?

Answer: Political segments were deprecated in October 2017 for new campaigns. Existing campaigns using political segments ended on January 1, 2018. Based on a reasonable investigation, we believe that political segments were deleted in January 2018.

5. Is political segmentation determined for a Facebook user as part of a data process that runs on a regularly scheduled basis or evaluated in real time when an ad is served?

Answer: Based on a reasonable investigation to date, we believe political segments were created manually by ███████████████████████████████████████ ██

6. Is political segmentation associated with a Facebook user if possible (i.e. via UID, RID, SID, ASID, or another identifier that can be mapped to a user)? If so, explain how the political segmentation is associated with a Facebook user.

Answer: Based on a reasonable investigation to date, we believe political segments were associated with users by UIDs.
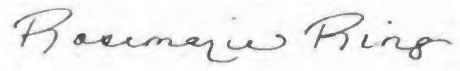
7. Is an individual's assigned political segment part of the DYI file?

Answer: Based on a reasonable investigation to date, we do not believe political segments were included in the DYI file.

Sincerely,

Rosemarie T. Ring

Exhibit Q

April 29, 2022

VIA JAMS ACCESS

Special Master Daniel B. Garrie
DGarrie@jamsadr.com

Re: *In re Facebook, Inc., Consumer Privacy User Profile Litig.*,
JAMS Ref No. 1200058674, Case No. 3:18-md-02843-VC (N.D. Cal.)

Dear Special Master Garrie:

Pursuant to Order Following March 9, 2022 Hearing Regarding Plaintiffs' Motion To Compel Production of Plaintiff Data dated March 22, 2022, Plaintiffs submit this response to Facebook's Proposal for Producing Additional Named Plaintiff Data, submitted April 18, 2022. For ease of reference, Plaintiffs have pasted Facebook's proposal, "highlighted" in gray, into this document and provide responses to its proposal inline. To summarize, Facebook should be ordered to produce the following data.

From **TAO**, in addition to what Facebook offers to produce—for each Named Plaintiff, the user objects and associations to those objects—it should also be ordered to produce the TAO schema and provide answers to questions about what information is "currently maintained" in TAO.

From **Hive**, for each Named Plaintiff: First, Facebook should produce the types of data it identified in its April 18 submission and the additional types of data identified in this response, whether included in the DYI file or not. However, the production should not be limited to data that is associated with a Named Plaintiff. Rather, it should include data that can be associated with a Named Plaintiff. Second, Facebook should produce the schema and an excerpt comprising the top five rows of each of the Hive tables listed in Exhibit B of its April 11 submission. Plaintiffs propose a process for identifying the tables Facebook should be required to search for data that can be associated with a Named Plaintiff.

Finally, for both **TAO** and **Hive**, based on Facebook's response regarding the time period of the data that it can produce from these sources, it should be required to identify the efforts it made to maintain data that could be associated with the Named Plaintiffs.

FACEBOOK'S PROPOSAL FOR PRODUCING ADDITIONAL NAMED PLAINTIFF DATA

As Judge Corley explained in her most recent order on named plaintiff data, issued on January 12, 2022, the Special Master is working with the parties to determine "what, if any" additional named plaintiff data should be produced consistent with Rule 26. Facebook continues

to believe that the named plaintiff data that has already been produced, which includes data in all three categories of "discoverable user data" identified in Judge Corley's Discovery Order No. 9, satisfies its obligations under Rule 26. The additional data Plaintiffs seek is neither relevant to their claims nor proportional to the needs of this case because it was not shared or made accessible to third parties.

That said, in an effort to resolve this issue, and consistent with Judge Corley's Discovery Order Nos. 11 and 12 allowing Plaintiffs to test Facebook's position on whether there is additional named plaintiff data that was shared or made accessible to third parties, Facebook proposes the protocol set forth below for producing additional named plaintiff data.

As explained in Facebook's March 7, 2022 submission to the Special Master, at a high level, user data is stored in production systems and the data warehouse. ████████ ██ Accordingly, we propose to produce additional data from these systems as explained below.

Plaintiffs' Response to Facebook's Introduction:

This is the first time Facebook has conceded that Judge Corley's discovery orders required the production of any Named Plaintiffs' data that Facebook contends was not shared with or made accessible to third parties. Before now, Facebook has consistently taken the position that Judge Corley's discovery orders did not require the production of any Named Plaintiffs' data that Facebook asserts was not shared with or made accessible to third parties. This about-face is welcome and long overdue.

However, Facebook's proposed protocol and answers to the Special Master's inquiry generates more questions than answers. That may be because, as an internal document leaked this week reveals, Facebook does not know where Named Plaintiff data is located (or, indeed, to whom it was disclosed). *See* Lorenzo Franceschi-Bicchierai, *Facebook Doesn't Know What It Does With Your Data, Or Where It Goes: Leaked Document*, Motherboard (Apr. 26, 2022).

According to the leaked document, Facebook "can't enumerate all the data we have - where it is; where it goes; how it's used"—which raises the question, "how can we make commitments about it to the outside world?" The document illustrates the challenge to Facebook using an analogy. "Imagine you hold a bottle of ink in your hand. This bottle of ink is a mixture of all kinds of user data (3PD, 1PD, SCD, Europe, etc.)[1] You pour that ink into a lake of water (our open data systems; our open culture) . . . and it flows . . . everywhere. How do you put that ink back in the bottle? How do you organize it again, such that it only flows to the allowed places in the lake?"

Based on this newly disclosed information, it is possible that the reason Facebook's efforts to determine what data it has that can be associated with the Named Plaintiffs have been so incomplete, unfocused, and confusing is that Facebook does not and cannot know. If it is not

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[1] According to the article, "3PD" is third-party data, "1PD" is first-party data, and "SCD" is sensitive categories data.

able to identify all data that can be associated with the eight Named Plaintiffs, Facebook should clearly state that fact.

TAO. As also explained in the March 7, 2022 submission, TAO is a distributed data store for the social graph. There is an object and associations to that object for all users. *See* Ex. A, Internal Facebook Wiki Regarding TAO Core Concepts. For each named plaintiff, Facebook will produce the user objects and associations to those objects.

Plaintiffs' Response to TAO:

In addition to Facebook's proposal, it should also be ordered to produce the TAO schema referenced on page 2 of Exhibit A in its April 18 submission. Though the reference to the TAO schema exhibit includes a hyperlink, the web page is password protected and inaccessible to Plaintiffs.

In response to Plaintiffs' question about the time range captured by this category of data, Facebook stated that it will search for and produce user objects and associations to those objects "that are currently maintained in TAO which cover the life of the account." Ex. 1. That response raises two more questions. First, what is "currently maintained in TAO"? In other words, for the Named Plaintiffs who are still active on Facebook, are there objects and associations that were once in TAO but are no longer? If so, what has Facebook done to maintain the Named Plaintiffs' objects and associations since the onset of this litigation? Second, what efforts did Facebook make to maintain objects and associations in TAO for the Named Plaintiff who deleted her Facebook account?

Plaintiffs ask that Facebook answer the questions above by May 6, 2022, and that Facebook be ordered to produce the user objects and associations to those objects for each Named Plaintiff, along with the TAO schema, by May 13, 2022.

Hive. As explained in prior submissions to the Special Master, Hive is Facebook's data warehouse. *See* Ex. B, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For Reconsideration of Special Master's Order Regarding Named Plaintiff Data, ¶ 11. ███████. *Id.* ¶ 16. ████████ *Id.* ¶ 17. ████████ *Id.* ¶ 18.

████████ *Id.* These searches are subject to many technical and policy limitations which make searching for individual user data unduly burdensome, including that (1) ████████ (*id.* ¶ 20); (2) ████████ (*id.* ¶ 21); (3) ████████ (*id.* ¶ 22); and (4) data in many Hive tables are in cold storage and would have to be restored in order to be

searched and analyzed, *see* Ex. C, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For a Protective Order Against Production of API Call Logs, ¶¶ 17-18; Special Master's Nov. 8, 2021 Order Re: Facebook's Motion For Protective Order Against Production of API Call Logs, ¶ 15 ("Special Master Garrie finds that the data in the Mobile Table and Web Table is not reasonably accessible because it is not readily usable in its 'cold storage' state and must be restored to 'warm storage' in order to be searched and analyzed (i.e. usable).").

For these reasons, among others, as reported in its April 11, 2022 submission, Facebook estimates that it would take approximately ███████████████ or around ███████████ of computational cost to search across the entire Hive data warehouse and extract all data about a single user.

Once the searches have been conducted, and data is returned, the data must be manually reviewed to, among other things, confirm that the data is associated with a particular user and does not include personal data of other users (e.g., user blocking another user) or trade secrets, and does not create system integrity or security concerns.

In light of the above technical limitations and burdens, Facebook proposes to search for and produce the following named plaintiff data from Hive to the extent it exists: (1) specific types of data requested or referenced by Plaintiffs in challenging Facebook's production of named plaintiff data; (2) a sample of data from Hive tables with user identifiers included in Exhibit B to the April 11, 2022 submission; and (3) the only data identified in Exhibit C to the April 11, 2022 submission that has not already been produced to Plaintiffs in the DYI file or otherwise: set permissions (audience controls on a post).

Plaintiffs' Response to Facebook's Hive Introduction:

Because Facebook elaborates on its proposal to produce three types of Named Plaintiff data from Hive in the following sections, Plaintiffs will respond to its proposal regarding those three types of data inline. Plaintiffs respond here to Facebook's assertion that it will take ███████ ███████ of computational cost to search across the entire Hive data warehouse and extract all data about a single user.

There is no doubt that there is some burden associated with searching across Hive. But Facebook's repeated assertion that of the ███████████████ of computational cost required does not provide sufficient information about the actual burden it faces for two reasons.

First, Facebook is not being asked to search across the entire Hive data warehouse. It only needs to search tables that contain data that can be associated with individual users during the relevant time period for this action.

Second, the mention of the number of CPU days of computational cost is almost entirely meaningless without knowing the amount of computing power in Hive. It is reasonable to assume that Facebook, one of the largest technology companies in the world, has available at least tens of thousands of CPUs—if not hundreds of thousands or even more.

Facebook's response also prompts additional concerns. Plaintiffs are concerned that Facebook does not identify the relevant tables that are in cold storage and when they were placed in cold storage. To the extent that any such table were placed in cold storage during the pendency of this action, Facebook should not be permitted to elide its discovery obligations regarding Named Plaintiff data due to its failure to suspend archiving. And Plaintiffs are concerned about Facebook's repeated framing of what it will produce. Facebook's proposal is limited to data that *is* associated with a Named Plaintiff. It should be ordered to produce data that *can be* associated with a Named Plaintiff. In other words, if Hive contains data that is not directly associated with the Named Plaintiff in a table, Facebook should still produce the data if it is possible for Facebook to associate that data with a Named Plaintiff (e.g., by reference to another table).

1.   **Specific Types of Data**

- *Any remaining off-platform activity*: DYI includes off-platform activity. Facebook will search for and produce any underlying raw log-level data for off-platform activity provided to Facebook by a third party associated with the named plaintiffs.

- *Any remaining ad interests*: DYI includes ad interests. Facebook will search for and produce any underlying raw log-level data associated with the named plaintiffs.

- *Any remaining ad click data*: DYI includes ad click data. Facebook will search for and produce any underlying raw log-level ad clicks data associated with the named plaintiffs.

- *Ad impressions data*: Facebook will search for and produce ad impressions data associated with the named plaintiffs.

- *Any remaining custom audience data*: DYI identifies third parties who have created custom audiences associated with a user. Facebook will search for and produce any more granular information about custom audiences associated with the named plaintiffs, including custom audience type, whether it was used to deliver ads, and when.

Plaintiffs' Response to "Specific Types of Data" from Hive:

Plaintiffs have several concerns regarding Facebook's proposal to produce the above "specific types of data requested or referenced by Plaintiffs in challenging Facebook's production of named plaintiff data."

First, Facebook should not limit its production of these specific types of data based on the specific language Plaintiffs used to describe them. For example, Facebook should not limit its production of ad impressions data to data associated with a specific table, column header, or cell containing the phrase "ad impressions." Unlike Facebook, Plaintiffs do not have access to Hive. Therefore, the "specific types of data requested or reference by Plaintiffs" should be construed broadly as providing descriptive information.

Second, Facebook should not limit its production of these specific types of data based on related data included in the DYI file. For example, Facebook states that ad interests are included in the DYI file and agrees to search for raw log-level ad interest data associated with the Named Plaintiffs. But, as discussed below, Facebook also disclosed it does not believe one type of ad interest the Special Master inquired about—political segments—are included in the DYI files. It is not clear whether any other ad interests may not be included in the DYI file. In addition to the raw log-level data, Facebook should also search for and produce *all* ad interests that can be associated with Named Plaintiffs (not just those already associated with Named Plaintiffs), whether included in the DYI file or not. This example should not be understood to indicate Plaintiffs' interest in ad interests only. Rather, it applies equally to each of the specific types of data identified. For each, it should produce all data capable of being associated with the Named Plaintiffs, whether included in the DYI file or not.

Third, Plaintiffs also request that Facebook produce these additional specific types of data:

i. Ad profile data for each of the Named Plaintiffs. Aldo King testified Facebook created ad profiles for each user, but also testified that they were uncertain about the scope of data that was incorporated. *See, e.g.*, Ex. 2, King Dep. Tr. at 68:14-69:7 (unsure whether visits to third-party websites were incorporated in ad profiles); *id.* at 83:9-20 (unsure whether ███████████████████████████████ were incorporated in ad profiles). Facebook's submission also states that a specific type of ad profile (political segments) was based in part on █████████████." These types of data do not appear to have been included in the DYI files.

ii. The tables containing data that stores, for the entirety of their time on Facebook, the list of apps authorized or installed, and the period of time during which each such app was authorized or installed, by (a) the Named Plaintiffs and (b) each of the Named Plaintiff's Facebook friends (by FBID and username). That information should enable Plaintiffs to use other produced documents, such as the Method Table and the Capabilities Tool, to determine whether any of the Named Plaintiffs' information may have been made available to a third party through friends_* or related permissions.

Fourth, to ensure that there is no miscommunication, Facebook should identify in writing the specific tables identified that include these types of information and how it determined those specific tables (and not others) had these types of information.

Fifth, for each of the tables containing this specific information, Facebook should produce data flow diagrams and schemas. *See* March 22, 2022 Order at 1.

Sixth, in response to Facebook's submission, Plaintiffs asked about the time range of the data Facebook proposes to produce for each of the above categories. In response, Facebook indicated it will produce any *remaining* off-platform activity up to the last two years, any remaining ad interests for "at least 90 days," and "any *remaining* custom audience data." Ex. 1 (emphasis added). Those responses are concerning. The Named Plaintiffs joined this litigation more than 2 years ago, and Plaintiffs are concerned about the apparent insufficiency of

Facebook's efforts to preserve this information. From Facebook's response of "up to two years," it is unclear whether there is some off-platform activity that is not available for even the two-year period. Further, though Facebook's responses regarding the other specific categories are less troubling on the surface—it states it will produce responsive information from 2015—it is unclear whether Facebook could have produced responsive information from earlier time periods if it had made an earlier effort to preserve the information.

By May 6, 2022, Facebook should be ordered to identify the efforts it has undertaken to preserve the specific types of data identified by Facebook and Plaintiffs in this section that can be associated with the Named Plaintiffs. Facebook should be ordered to produce the above-identified information by May 27, 2022.

2.   Sampling from Hive tables identified in Exhibit A of April 11, 2022 submission

Given that data in Hive tables are not shared or made accessible to third parties, the significant burden of searching for and producing individual user data from Hive as explained in prior submissions, and that Facebook has already produced nearly a million pages of the named plaintiff data from the DYI system, Hive data is not relevant or proportional to the needs of this case. Facebook nevertheless understands that, as Judge Corley found in Discovery Order Nos. 11 and 12, Plaintiffs are allowed to test Facebook's positions on "sharing and accessibility" by obtaining discovery into what data exists and how it is used. To that end, and consistent with the requirements of relevance and proportionality under Rule 26, Facebook proposes a sampling process.

In addition to the above specific categories of data, Facebook will produce a sample of data in warm storage from Hive tables identified in Exhibit A of the April 11, 2022 submission. Specifically, Facebook will produce data from 200 tables in Exhibit A to be jointly selected by Facebook and Plaintiffs. Facebook will randomly select 100 tables and Plaintiffs will select 100 tables.

Plaintiffs' Response to Sampling from Hive Tables:

As an initial matter, Plaintiffs believe Facebook intended to reference Exhibit B of its April 11 submission, not Exhibit A. The April 11 submission describes Exhibit A as "a list of data pipelines used to analyze ad impression and ad click data for which we believe output i[s] stored in Hive," and Exhibit B as "a list of Hive tables that" may "store user identifiers with data as it enters Hive."[2]

Facebook's proposal is untenable for two reasons.

First, Exhibit B lists ███████ Hive tables. Facebook proposes that 100 of those tables — fewer than 1% of them — be selected at random for limited production. While Facebook

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[2] Facebook's April 11 submission states that "Exhibit B is a list of Hive tables that store user identifiers with data as it enters Hive," but then states that the tables "were identified using tools that probabilistically identified them as containing user identifiers."

proposes that Plaintiffs be permitted to select another 100 tables, that is not only (again) fewer than 1% of the tables it identified that may contain Named Plaintiff data, but Exhibit B does not contain sufficient information for Plaintiffs to make an informed determination about which tables to select.

Second, the information Facebook proposes to produce from those 200 tables is unduly limited. Facebook proposes that it "will produce a sample of data in warm storage" from the selected. That description is insufficiently specific. What does Facebook mean by "a sample of data"? What data is "in warm storage" (and, equally, what data is not)? Moreover, given the number of tables at issue and the hundreds of millions of users whose information may be contained therein, a sample of 200 tables is exceedingly unlikely to contain Named Plaintiff data. It is far too late in this already attenuated process and far too close to the end of fact discovery for this level of imprecision.

In addition, Plaintiffs are concerned about the extent of Facebook's efforts to preserve Named Plaintiffs' data stored in Hive. In its response to Plaintiffs' inquiry about the time period it would produce, Facebook stated that the "[t]ime range depends on the tables selected." Ex. 1. Plaintiffs need to understand what attempts Facebook made to retain data in Hive that can be associated with the Named Plaintiffs, as well as the standard retention policies for various tables.

Because Facebook's proposal is untenable, Plaintiffs propose the following production protocol.

First, by May 6, 2022, Facebook should be ordered to describe the efforts it undertook to preserve data in Hive that can be associated with Named Plaintiffs and the timing of those efforts. On that date, Facebook should also provide the standard preservation practices applicable to each of the tables it identified in Exhibit B.

Second, by May 13, 2022, Facebook should produce to Plaintiffs and make available to the Special Master the schema and an excerpt comprising the top five rows of each of the Hive tables listed in Exhibit B. This information will help Plaintiffs decide the specific tables to search for Named Plaintiff data.

Third, by June 3, 2022, Plaintiffs will identify to Facebook and the Special Master the tables from which they seek Named Plaintiff data. If Facebook does not agree to produce from the tables identified by Plaintiffs, the parties will have one week to attempt to resolve the dispute, during which time they will be required to meet and confer at least once. If the parties have not reached agreement by June 10, the issue will be submitted, without additional briefing or explanation unless requested, to the Special Master.

Fourth, within one week of parties' agreement on the tables to be searched or the Special Master resolves the issue, the Special Master will enter a rolling production schedule.

3.   User data identified in Exhibit B of the April 11, 2022 submission and not in DYI

Facebook's Statement:

As shown in Exhibit C of Facebook's April 11, 2022 submission to the Special Master, only two types of user data in the contracts submitted to the Special Master for in camera review are not included in the DYI file: (1) privacy settings, and (2) set permissions (audience controls on a post). (1) has already been produced. Facebook will agree to produce (2) from TAO.

Plaintiffs' Response to User Data Identified in Exhibit C of April 11 Submission:

As an initial matter Plaintiffs believe Facebook intended to reference Exhibit C, not Exhibit B. The April 11 submission identified Exhibit C as "identif[ying] user data in the contracts submitted to Special Master Garrie for *in camera* review." Moreover, Plaintiffs' response assumes that Exhibit C accurately reflects all of the types of data in the contracts Facebook submitted to the Special Master for review.

Regarding privacy settings, attached to this response as Exhibits 3 and 4 are the privacy settings Facebook produced. Facebook should confirm that Exhibits 3 and 4 include all of the information Facebook has about each of the Named Plaintiff's privacy settings during the relevant time period. If there is any additional information related to the Named Plaintiffs' privacy settings, Facebook should produce it. Facebook should also describe any limitations on the privacy settings it is able to produce (e.g., it only retains privacy settings for a certain period of time, it does not retain privacy settings for Named Plaintiffs who are no longer on Facebook, etc.).

Regarding set permissions, Plaintiffs agree with Facebook's proposal so long as the production is not limited in any way. Facebook should also describe any limitations on the set permissions it is able to produce (e.g., it only retains set permissions for a certain period of time, it does not retain set permissions for Named Plaintiffs who are no longer on Facebook, etc.).

With respect to other Facebook systems, not including TAO and Hive, there are seven systems[3] that did not fall into one of the categories identified by the Special Master in Hearing Order Regarding Plaintiffs' Motion To Compel Production of Plaintiff Data, dated February 21, 2022: ███████████████████████ (MySQL), ███████ (MySQL), ████████████, and ████████. Producing data from any of these systems would be extremely burdensome and is not relevant or proportional to the needs of this case.

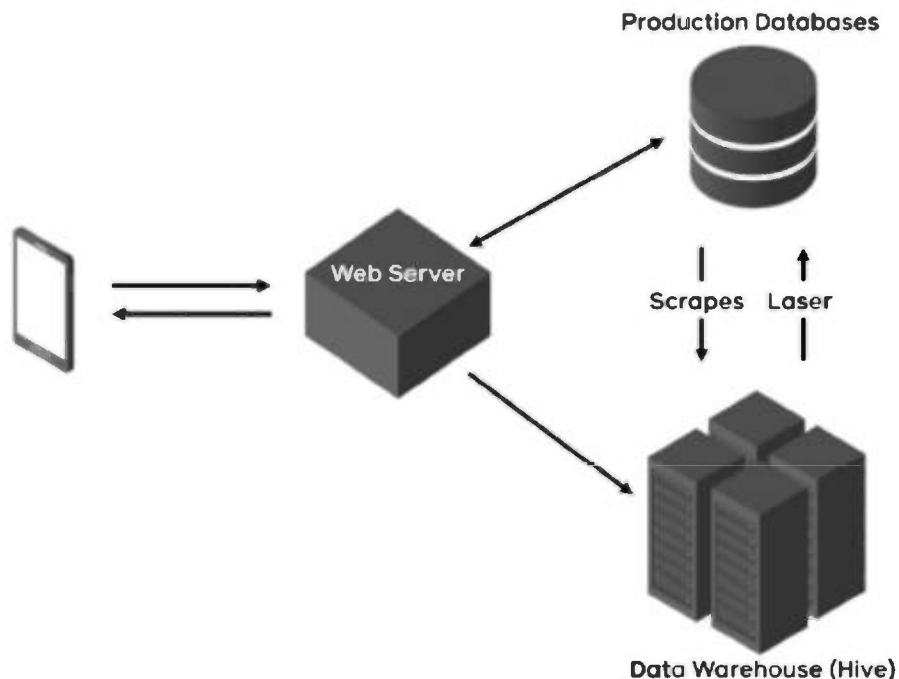- ████████████ *and* ████████ These systems are BLOB and binary storage and are not searchable by user identifiers.

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[3] ███████ should have been put in Category (6) because the data is in DYI. ████ should also have been put in Category (6) because it is duplicative of TAO. MySQL describes the general use of MySQL databases and should not be a separate entry. For example, ███████(MySQL) and ████████(MySQL) are specific uses of MySQL.

- ▮ This system is a real-time aggregation counter and is not searchable by user identifiers.

- ▮ *(MySQL)*, ▮ *(MySQL)*, ▮ *and* ▮ These systems contain unstructured data and cannot be searched by user identifiers, except for tables using Ent or Node schemas for which there is a structured deletion plan. Searching other tables for named plaintiff data would require a full text search of all tables that would take many months to complete and generate a significant number of false positives requiring manual review of all data returned.

Plaintiffs' Response:

Based on the expectation that Facebook's descriptions are accurate regarding what is contained in them and how that data is used and stored, Plaintiffs will not presently seek the data from the seven systems described in this section.

With respect to Dataswarm, the Special Master suggested that Facebook "query Tasks to identify Task Definitions which involve named plaintiff data" using identifiers, review those Tasks Definitions, and then search for named plaintiff data in the sources/destinations identified. We have investigated the Special Master's suggestion and did not include it in our proposed protocol because it is not feasible. Dataswarm is a collection of data processing operations coded in Python. Task Definitions are the Python code and Tasks are the running of that code. Searching Python code for user identifiers would be done through a syntax-only search which cannot understand the semantic meaning of the data being processed, i.e., whether a column name being processed involves a user identifier. As a result, additional code would have to be developed to understand whether/how identifiers are involved in a particular Task Definition.

Plaintiffs' Response:

Based on Facebook's description of Dataswarm, Plaintiffs will not presently seek production from that system.

SCENARIOS

Special Master's Questions Following March 9, 2022 Hearing:

No later than April 4, 2022, Facebook is to submit documentation sufficient to describe the data collected both on and off platform or provided by Third Parties in the following scenarios and provide written responses to the questions below: "Exhibit A to Plaintiff's Questions re: Data Collection and Use indicates that Facebook used predictive algorithms to generate five political segments for Facebook users (Very Liberal, Liberal, Moderate, Conservative, and Very Conservative) based on demographic, psychographic, and behavioral signals from Facebook user data."

1. What are the inputs into these algorithms (i.e. what are the demographic, psychographic, and behavioral signals used to generate the political segments)? Are these inputs provided by users or derived by Facebook?

Facebook's Answer: As an initial matter, Very Liberal, Liberal, Moderate, Conservative, and Very Conservative are ad interests ("political ad interests"), which are distinct from political segmentation "based on demographic, psychographic, and behavioral signals from Facebook user data" ("political segments"). Political segments are political ad interests that are divided into political segments.

Political ad targeting segments were deprecated for new campaigns in January 2022 and for existing campaigns in March 2022. Based on a reasonable investigation to date, these were ad targeting segments derived from the following on-platform activity (user-provided data and observed data): ██
██
██

Political segments were deprecated for new campaigns in October 2017 and for existing campaigns in January 2018. Based on a reasonable investigation to date, these segments were created by ████████████████████████████████████
██
██
████████████████████████████████

Plaintiffs' Response:

Plaintiffs are concerned about the imprecision of Facebook's response. The use of phrases such as "████████████████████████████ "████████████

███████████████,” and ███████████████████████████ …” raises the
possibility that Facebook has not responded to the Special Master's inquiry by identifying all of
the inputs. Further, Facebook's response does not indicate how or what off-platform activity
informed political ad targeting segments or political segments. No off-platform activities are
mentioned as inputs into political ad targeting segments. And for political segments, ███████████
██████████████████████████████████” are identified without further
description.

   Facebook's statement that political ad targeting segments were deprecated in March
2022, and political segments deprecated in January 2018 are non sequiturs. Plaintiffs' proposed
class period runs from 2007. Any responsive information from 2007 to the point of deprecation
is relevant and should be provided.

  2. How are the psychographic signals computed (e.g. how is the psychographic signal
    "High Dollar Religious Donor" determined)?

Facebook's Answer: Based on a reasonable investigation to date, we believe "High Dollar
Religious Donor" was an ad targeting option based on partner categories. We do not know how
this partner category was created. Partner categories were deprecated in October 2018.

Plaintiffs' Response:

   Facebook does not answer the Special Master's question. The only response it provides
concerns an example identified by the Special Master for illustrative purposes, and even
concerning that example, Facebook's response is that it can't respond because it doesn't know.

   Facebook's statement that partner categories were deprecated in October 2018 is a non
sequitur. Again, information from 2007 through deprecation is relevant to Plaintiffs' claims.

  3. Is information regarding identifiable ethnic affinities provided by users or derived by
    Facebook? How is ethnic affinity derived?

Facebook's Answer: Ethnic affinities, also referred to as multicultural affinities, were ad
interests created by Facebook based on a user's on-platform activity indicating an interest in
content relating to certain communities. Ethnic affinity ad interests were deprecated in August
2020.

Plaintiffs' Response:

   Facebook's answer of how ethnic affinity derived is so general as to be almost
meaningless. What "on-platform activity indicating an interest in content relate to certain
communities" was considered? What does Facebook consider to be activity "indicating an
interest in content relating to certain communities"? Which content? Which communities? How
did Facebook use that information to derive ethnic affinities (or multicultural affinities)? What
ethic affinities were computed? Was any information other than the individual user's on-platform
activity indicating an interest in content related to certain communities considered?

Facebook's statement that ethnic affinity ad interests were deprecated in August 2020 is a non sequitur. Again, information from 2007 through deprecation is relevant to Plaintiffs' claims.

4. Where is political segmentation data for Facebook users stored?

Facebook's Answer: Political segments were deprecated in October 2017 for new campaigns. Existing campaigns using political segments ended on January 1, 2018. Based on a reasonable investigation, we believe that political segments were deleted in January 2018.

Plaintiffs' Response:

Plaintiffs are concerned by Facebook's decision to delete political segments data and ask that Facebook provide information about the circumstances that led to its deletion. Further, even if it is not retained, Plaintiffs ask Facebook to identify where political segments data was stored before it was deleted. That answer may help inform the parties' analysis of where relevant information associated with Named Plaintiffs is presently stored. Plaintiffs note that Facebook did not respond completely with respect to political segmentation data, as Facebook did not discuss political ad targeting segments in its response. Plaintiffs ask that Facebook supplement its response no later than May 6, 2022.

5. Is political segmentation determined for a Facebook user as part of a data process that runs on a regularly scheduled basis or evaluated in real time when an ad is served?

Facebook's Answer: Based on a reasonable investigation to date, we believe political segments were created manually by ███████████████████████████████████ ███████████████████████████████

Plaintiffs' Response:

Facebook's response appears adequate with respect to political segments. Plaintiffs note, however, that Facebook did not respond completely with respect to political segmentation data, because it omitted political ad targeting segments from its response. Plaintiffs ask that Facebook supplement its response no later than May 6, 2022.

6. Is political segmentation associated with a Facebook user if possible (i.e. via UID, RID, SID, ASID, or another identifier that can be mapped to a user)? If so, explain how the political segmentation is associated with a Facebook user.

Facebook's Answer: Based on a reasonable investigation to date, we believe political segments were associated with users by UIDs.

Plaintiffs' Response:

Facebook's response appears adequate with respect to political segments. Plaintiffs note, however, that Facebook did not respond completely with respect to political segmentation data

because it omitted political ad targeting segments from its response. Plaintiffs ask that Facebook supplement its response no later than May 6, 2022.

7. Is an individual's assigned political segment part of the DYI file?

Facebook's Answer: Based on a reasonable investigation to date, we do not believe political segments were included in the DYI file.

Plaintiffs' Response:

This response conflicts with Facebook's April 11 submission. In its April 18 submission, Facebook defines political segments as political ad interests. In its April 11 submission, Facebook asserted that ad interests are "available in DYI." But in its April 18 submission, Facebook says that it does not believe political segments were included in the DYI file. Plaintiffs are concerned that there may be other ads interests that were also not included in the DYI file.

Plaintiffs also request that Facebook produce the assigned political segments and any other ad interests not included in the DYI file for each of the Named Plaintiffs.

Regards,

Derek W. Loeser
dloeser@kellerrohrback.com

Lesley E. Weaver
lweaver@bfalaw.com

Exhibit R

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER
PRIVACY USER PROFILE LITIGATION,

This document relates to:

ALL ACTIONS

MDL NO. 2843

CASE NO. 3:18-MD-02843-VC-JSC

HON. VINCE CHHABRIA
HON. JACQUELINE SCOTT CORLEY
COURTROOM 4 – 17TH FLOOR
SPECIAL MASTER, DANIEL GARRIE, ESQ.

**ORDER FOLLOWING MAY 17, 2022
HEARING REGARDING PRODUCTION
OF NAMED PLAINTIFF DATA**

No later than June 2, 2022, Facebook is to submit responses to the following questions and provide the requested additional information.

- How did Facebook identify the Hive tables in Exhibit B to Facebook's April 11, 2022 submission ("Exhibit B") identified as possibly containing user identifiers? Facebook's answer is to include technical details about the process used to identify the Hive tables.

- Can Facebook provide descriptions for the Hive tables identified in Exhibit B? If so, provide the descriptions.

- How long would it take to extract the column names and data types (schema) for the Hive tables identified in Exhibit B? Facebook's answer is to include a description of the processes and steps it would need to perform to provide the requested data.

- Did Facebook's search to identify the tables set out in Exhibit B include searching cold storage? If not, why not?

- In Exhibit B to Facebook's April 18, 2022 letter submission (Declaration of Mengge Ji), Mengge Ji states ███████████████████████████████████████ ████████████████████████ Expand on this statement, include descriptions of the ██████ databases, and clarify what is meant by "databases" in this context.

- One of Facebook's responses in their April 11, 2022 letter submission at page 2 states "tables believed to contain data that that is either duplicative or transformed." What does transformed mean in this context? Facebook's answer is to include three examples of "transformation."

- Facebook's April 11, 2022 letter submission at page 2 refers to six categories of tables that were not included in the list in Exhibit B: (1) temporary, test, and error tables; (2) tables used to evaluate system performance; (3) tables that contain no data; (4) tables related to other Meta products (e.g., Oculus, Instagram, and WhatsApp); (5) tables used for infrastructure, operations,

ORDER FOLLOWING MAY 17, 2022 HEARING REGARDING PRODUCTION OF NAMED PLAINTIFF DATA

and product testing; and (6) tables believed to contain data that is either duplicative or transformed. Provide a description of each of these six categories of tables.

No later than May 30, 2022, Facebook is to provide the revised proposal they discussed at the hearing.

No later than June 6, 2022, the parties are to submit briefs, not to exceed five (5) pages not including exhibits, on the issues of Hive table selection, production of data related to apps installed by friends of Named Plaintiffs, and whether Facebook should be compelled to search cold storage for Named Plaintiff data.

IT IS SO ORDERED.

Tuesday, May 24, 2022

_____

Daniel Garrie
Discovery Special Master

Exhibit S

GIBSON DUNN

HIGHLY CONFIDENTIAL—ATTORNEYS EYES ONLY

May 30, 2022

VIA JAMS ACCESS

Special Master Daniel B. Garrie
DGarrie@jamsadr.com

Re: *In re Facebook Consumer Privacy User Profile Litigation*, JAMS Ref No.
        1200058674

Dear Special Master Garrie,

Pursuant to the Special Master's Order Following May 17, 2022 Hearing Regarding Production of Named Plaintiff Data, Facebook submits this updated proposal re: named plaintiff data, reflecting additional terms Facebook has agreed to in response to requests from Plaintiffs in response to Facebook's initial proposal, to assist the Special Master in determining "what, if any" additional named plaintiff data should be produced, as directed in Judge Corley's order dated January 12, 2022 (Dkt. No. 807).

Facebook's Proposal For Producing Additional Named Plaintiff Data

As Judge Corley explained in her most recent order on named plaintiff data, issued on January 12, 2022, the Special Master is working with the parties to determine "what, if any" additional named plaintiff data should be produced consistent with Rule 26. Facebook continues to believe that the named plaintiff data that has already been produced, which includes data in all three categories of "discoverable user data" identified in Judge Corley's Discovery Order No. 9, satisfies its obligations under Rule 26. The additional data Plaintiffs seek is neither relevant to their claims nor proportional to the needs of this case because it was not shared or made accessible to third parties.

That said, in an effort to resolve this issue, and consistent with Judge Corley's Discovery Order Nos. 11 and 12 allowing Plaintiffs to test Facebook's position on whether there is additional named plaintiff data that was shared or made accessible to third parties, Facebook proposes the protocol set forth below for producing additional named plaintiff data.

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As explained in Facebook's March 7, 2022 submission to the Special Master, at a high level, user data is stored in production systems and the data warehouse. ████████ ██ Accordingly, we propose to produce additional data from these systems as explained below.

TAO. As also explained in the March 7, 2022 submission, TAO is a distributed data store for the social graph. There is an object and associations to that object for all users. *See* Ex. A, Internal Facebook Wiki Regarding TAO Core Concepts. For each named plaintiff, Facebook will produce the user objects and associations to those objects.

May 30, 2022 Update: Facebook will also provide TAO schema for the above data.

Hive. As explained in prior submissions to the Special Master, Hive is Facebook's data warehouse. *See* Ex. B, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For Reconsideration of Special Master's Order Regarding Named Plaintiff Data, ¶ 11. ████ ██ *Id.* ¶ 16. ████████████████████ *Id.* ¶ 17. ████████ ████████████████████ *Id.* ¶ 18.

██ *Id.* These searches are subject to many technical and policy limitations which make searching for individual user data unduly burdensome, including that (1)████ ████████████ (*id.* ¶ 20); (2)████ ████████████████████████████████████ *id.* ¶ 21); (3)████████ (*id.* ¶ 22); and (4) data in many Hive tables are in cold storage and would have to be restored in order to be searched and analyzed, *see* Ex. C, Declaration of Mengee Ji In Support of Facebook Inc.'s Motion For a Protective Order Against Production of API Call Logs, ¶¶ 17-18; Special Master's Nov. 8, 2021 Order Re: Facebook's Motion For Protective Order Against Production of API Call Logs, ¶ 15 ("Special Master Garrie finds that the data in the Mobile Table and Web Table is not reasonably accessible because it is not readily usable in its 'cold storage' state and must be restored to 'warm storage' in order to be searched and analyzed (i.e. usable).").

For these reasons, among others, as reported in its April 11, 2022 submission, Facebook estimates that it would take approximately ████████████████████ or around

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HIGHLY CONFIDENTIAL—ATTORNEYS EYES ONLY

██████████████ of computational cost to search across the entire Hive data warehouse and extract all data about a single user.

Once the searches have been conducted, and data is returned, the data must be manually reviewed to, among other things, confirm that the data is associated with a particular user and does not include personal data of other users (e.g., user blocking another user) or trade secrets, and does not create system integrity or security concerns.

In light of the above technical limitations and burdens, Facebook proposes to search for and produce the following named plaintiff data from Hive to the extent it exists: (1) specific types of data requested or referenced by Plaintiffs in challenging Facebook's production of named plaintiff data; (2) a sample of data from Hive tables with user identifiers included in Exhibit B to the April 11, 2022 submission; and (3) the only data identified in Exhibit C to the April 11, 2022 submission that has not already been produced to Plaintiffs in the DYI file or otherwise: "set permissions (audience controls on a post)."[1]

1. Specific Types of Data

- *Off-platform activity*: DYI includes off-platform activity. Facebook will search for and produce any underlying raw log-level data for off-platform activity provided to Facebook by a third party associated with the named plaintiffs.

- *Ad interests*: DYI includes ad interests. Facebook will search for and produce any underlying raw log-level data associated with the named plaintiffs.

- *Ad click data*: DYI includes ad click data. Facebook will search for and produce any underlying raw log-level ad clicks data associated with the named plaintiffs.

- *Ad impressions data*: Facebook will search for and produce ad impressions data associated with the named plaintiffs.

- *Custom audience data*: DYI identifies third parties who have created custom audiences associated with a user. Facebook will search for and produce any more granular information about custom audiences associated with the named plaintiffs, including custom audience type, whether it was used to deliver ads, and when.

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[1] The contract referencing this data allowed a user to "set permissions (audience controls on a post)" from their phone. Facebook does not use the term "set permissions" to refer to this data.

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HIGHLY CONFIDENTIAL—ATTORNEYS EYES ONLY

May 30, 2022 Updates: Facebook responds as follows to plaintiffs' additional requests:

- *Scope of production.* Facebook confirms it will produce the above data regardless of whether it appears in DYI. Facebook also confirms its productions include data "that can be associated" with each named plaintiff and notes ███████████████████ ██ ██

- *Tables and schema.* Facebook will provide the names of the tables from which the five categories of Hive data described above will be produced and how it identified the tables, as well as the schema for the above data.

- *Data described by Aldo King.* Facebook has already agreed to search for and produce ad interests in Hive, regardless of whether it is appears in DYI.

- *Installed apps.* Apps installed by a user through Facebook Login (either on or off of Facebook) are listed in DYI, and information about apps installed by users without Facebook Login appears in the Off-Facebook Activity section of DYI.

2. Sampling from Hive tables identified in Exhibit B of April 11, 2022 submission

Given that data in Hive tables are not shared or made accessible to third parties, the significant burden of searching for and producing individual user data from Hive as explained in prior submissions, and that Facebook has already produced nearly a million pages of the named plaintiff data from the DYI system, Hive data is not relevant or proportional to the needs of this case. Facebook nevertheless understands that, as Judge Corley found in Discovery Order Nos. 11 and 12, Plaintiffs are allowed to test Facebook's positions on "sharing and accessibility" by obtaining discovery into what data exists and how it is used. To that end, and consistent with the requirements of relevance and proportionality under Rule 26, Facebook proposes a sampling process.

May 30, 2022 Update: In addition to the above specific categories of data, Facebook will produce named plaintiff data in warm storage for a statistically significant sample of Hive tables identified in Exhibit B of the April 11, 2022 submission. Specifically, Facebook will produce named plaintiff data from 500 tables in Exhibit B to be jointly selected by Facebook and Plaintiffs. Facebook will randomly select 250 tables and Plaintiffs will select 250 tables.
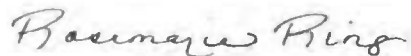
GIBSON DUNN

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3. User data identified in Exhibit C of the April 11, 2022 submission and not in DYI

As shown in Exhibit C of Facebook's April 11, 2022 submission to the Special Master, only two types of user data in the contracts submitted to the Special Master for in camera review are not included in DYI: (1) privacy settings, and (2) "set permissions (audience controls on a post." (1) has already been produced. Facebook will agree to produce (2), including any audience controls on individual pieces of content, from TAO.

May 30, 2022 Update: Facebook produced account-level privacy settings from the named plaintiffs' accounts in 2020. Facebook will produce updated privacy settings for each named plaintiff.

Sincerely,

Rosemarie Ring

Rosemarie T. Ring

Exhibit T

GIBSON DUNN

June 2, 2022

VIA JAMS ACCESS

Special Master Daniel B. Garrie
DGarrie@jamsadr.com

Re: *In re Facebook Consumer Privacy User Profile Litigation*, JAMS Ref No.
        1200058674

Dear Special Master Garrie,

        On behalf of Facebook, below we submit answers to the questions in the Special
Master's Order Following May 17, 2022 Hearing Regarding Production of Named Plaintiff
Data, dated May 24, 2022.

**1.   How did Facebook identify the Hive tables in Exhibit B to Facebook's April 11,
        2022 submission ("Exhibit B") identified as possibly containing user identifiers?
        Facebook's answer is to include technical details about the process used to
        identify the Hive tables.**

        Facebook created the list of tables in Exhibit B to Facebook's April 11, 2022
submission using a system that performs data classification in Facebook's data warehouse.
The system takes a sample of the data in a table and classifies the type of data. Tables are
scanned periodically to refresh their prediction.

        The classification system is able to classify tables with ███████ and ██ The data
classification system first identifies if a column value is a number. If so, it determines the
type of identifier, if any.

        The data classification analysis used for this exercise included tables in cold storage.
The classification system can identify whether a table in cold storage contains a ████████
and ██ . The classification system does not search within tables in cold storage for a
particular individual user's ████████ and██ nor does it restore data into the live data
warehouse.

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2.   Can Facebook provide descriptions for the Hive tables identified in Exhibit B? If so, provide the descriptions.

Facebook will provide plaintiffs the column names for the Hive tables identified in Exhibit B to Facebook's April 11, 2022 submission by June 9, 2022. This data is also the schema for a Hive table. Extracting this information requires running a query for the columns in all of the tables listed in Exhibit B.

3.   How long would it take to extract the column names and data types (schema) for the Hive tables. identified in Exhibit B? Facebook's answer is to include a description of the processes and steps it would need to perform to provide the requested data.

See response to Question 2.

4.   Did Facebook's search to identify the tables set out in Exhibit B include searching cold storage? If not, why not?

As noted, the list of tables in Exhibit B to Facebook's April 11, 2022 submission includes tables in cold storage.

5.   In Exhibit B to Facebook's April 18. 2022 letter submission (Declaration of Mengge Ji). Mengge Ji states "▮▮▮" Expand on this statement, include descriptions of the ▮▮▮ databases, and clarify what is meant by "databases" in this context.

Facebook organizes Hive tables into namespaces, which are essentially separate databases, primarily for capacity-budgeting reasons. These namespaces are attached as **Exhibit A**.

6.   One of Facebook's responses in their April 11, 2022 letter submission at page 2 states "tables believed to contain data that is either duplicative or transformed." What does transformed mean in this context? Facebook's answer is to include three examples of "transformation."

As the Special Master observed, the term "transformed data" is standard SQL terminology. Data transformation is the process of converting data from one format to another (such as by changing, removing, or combining data) and is part of a typical data

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management process, including data warehousing. Three examples of transformation are below:

(1)   A table is transformed when data within it is de-identified and/or pseudonymized. ██████████████████████████████████████
██
████████████████ In this scenario, the transformed version of the table was not included on the list of tables in Exhibit B to Facebook's April 11, 2022 submission to not overstate the number of tables or list duplicative tables. ████
██
██

(2)   A table is transformed when it combines data from multiple tables. One table may store certain demographic information about users. Another table may store certain user actions. A transformed table may combine the data from those two tables to reflect both user demographic information and user actions.

(3)   ███
██
██

7.   Facebook's April 11, 2022 letter submission at page 2 refers to six categories of tables that were not included in the list in Exhibit B: (1) temporary, test, and error tables; (2) tables used to evaluate system performance; (3) tables that contain no data; (4) tables related to other Meta products (e.g., Oculus, Instagram, and WhatsApp); (5) tables used for infrastructure, operations, and product testing; and (6) tables believed to contain data that is either duplicative or transformed. Provide a description of each of these six categories of tables.

(1)   Temporary, test, and error tables.

Facebook excluded temporary tables that are created to perform queries without needing to recompute data. Facebook similarly excluded tables an engineer used to test changes to the table, as these are duplicative of the original table. Facebook excluded tables that were created because of rare errors in the processing of data to the original table.

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(2) Tables used to evaluate system performance and (5) tables used for infrastructure, operations, and product testing.

Facebook excluded tables that are used to evaluate system performance and/or infrastructure, operations, and product testing. Infrastructure, system performance, and operations tables are used for the operational health of Facebook's systems, such as error logging, performance logging of code, and network performance. Product testing tables are used internally by Facebook product teams in order to test and build new features and products.

(3) Tables that contain no data.

Facebook excluded any table that does not include data. As an example, a table an engineer created but to which no data has been added is a table containing no data.
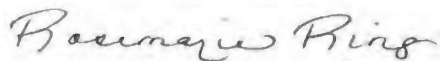
(4) Tables related to other Meta products (e.g., Oculus, Instagram, and WhatsApp).

Facebook excluded tables from namespaces that relate only to Meta products other than Facebook, such as the instagram, whatsapp, and oculus namespaces.

(6) Tables believed to contain data that is either duplicative or transformed.

Facebook excluded tables that contain duplicative or transformed data. Duplicative data is data that is the same as data in a different table. Transformed data is described above in response to Question 6.

Sincerely,

Rosemarie Ring

Rosemarie Ring

Exhibit A

Highly Confidential –
Attorneys' Eyes Only

Highly Confidential – Attorneys' Eyes Only

Highly Confidential – Attorneys' Eyes Only

93.

Highly Confidential – Attorneys' Eyes Only

Exhibit U

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Attorneys for Defendant Facebook, Inc.,

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION, This document relates to: ALL ACTIONS	CASE NO. 3:18-MD-02843-VC **FACEBOOK, INC.'S BRIEF REGARDING THE PARTIES' NAMED PLAINTIFF DATA PROPOSALS**

As Judge Corley explained in her most recent order on this issue, the purpose of these proceedings is to determine "what, if any, data from [systems other than DYI] should be produced consistent with [FRCP 26(b)]." Dkt. 807 at 4. Facebook continues to believe that its productions to date, which include all three categories of "discoverable user data" identified by Judge Corley in Discovery Order No. 9 (Dkt. 557), meet this standard, but submitted a proposal agreeing to search for and produce additional data. To further facilitate resolution of the named plaintiff data issue, Facebook agreed to most of Plaintiffs' demands in their response to the proposal and offered reasonable compromises. During the May 17, 2022 hearing to discuss Facebook's proposal and Plaintiffs' response, the Special Master identified three remaining issues: (1) Hive data, (2) apps installed by friends of the named plaintiffs, and (3) cold storage. As explained below, Facebook will agree to provide (2), and the Special Master should accept Facebook's proposed compromise on (1) and defer (3) as premature.

1.   Hive Tables

Facebook proposes to search for and produce named plaintiff data from a sample of the █████ Hive tables identified in Exhibit B to its April 11, 2022 submission. Initially, Facebook proposed a sample of 200 tables, with Plaintiffs selecting 100 tables and Facebook randomly selecting 100 tables. In response, Plaintiffs demanded that Facebook produce all data (regardless of whether it is named plaintiff data) in the first five rows of all █████ Hive tables. Based on this data, Plaintiffs would identify what additional data they want, the parties would have one week to resolve any disputes, and, if no agreement were reached, the issues would go to the Special Master without briefing. During the May 17, 2022 hearing, Facebook offered a compromise which more than doubled its proposed sample, from 200 to 500 tables, representing nearly █ of the █████ tables, with Plaintiffs selecting 250 tables and Facebook randomly selecting 250 tables. To the extent Plaintiffs' proposal is seeking information about the contents of these Hive tables, Facebook agreed in its June 2, 2022 submission to provide Plaintiffs with the schema (column names) for all █████ Hive tables from which the sample would be selected by June 9, 2022.

It is worth noting, again, that Hive data is not accessible to third parties, and therefore is irrelevant to Plaintiffs' claims in this case which are about data sharing. But in the interest of

compromise and to assist the Special Master in resolving this issue, Facebook has agreed to search for and produce named plaintiff data from what the Special Master has generally treated as representing ███████████████████ of Hive tables.

Plaintiffs' proposal in response is unworkable. As an initial matter, it does not even seek named plaintiff data. Plaintiffs want all data in the "first five rows" of all ████ Hive tables. Producing this enormous volume of data, most of which is unlikely to include any named plaintiff data, is not relevant or proportional to the needs of this case, and is unduly burdensome. The only reason Plaintiffs offered at the May 17, 2022 hearing for seeking this data was to help Plaintiffs understand the type of data contained in the ████ Hive tables. Facebook's agreement to provide Plaintiffs with the schema (column names) for all ████ Hive tables from which the sample would be selected fully addresses that supposed need.

Plaintiffs' proposal would take months to complete. First, Facebook would have to extract, review, and produce all data in the top five rows of all ████ tables. Then, three weeks later, Plaintiffs would identify an unspecified number of tables from which Facebook would search to determine whether they contain named plaintiff data, produce any such named plaintiff data, meet and confer with Plaintiffs over any disputes, and then bring any disputes to the Special Master for resolution. Depending on the number of tables Plaintiffs choose, it could take months for disputes to be resolved and for Facebook to begin producing data. Once the data extraction process begins, it could take many more months to actually collect the data (depending on the scope of the requested tables). This process is cumbersome, time consuming, and unduly burdensome given that it is also extremely unlikely to provide Plaintiffs with any relevant information, much less information that is probative of their claims.

Facebook's proposal, by contrast, provides Plaintiffs with named plaintiff data from a statistically significant sample of Hive tables (500 out of ████ tables), half of which would be selected by Plaintiff using the schema (column names) for all ████ tables.

2.   Apps Installed by *Friends* of the Named Plaintiffs

At the May 17, 2022 hearing, Plaintiffs asked Facebook to produce a list of apps installed by friends of the named plaintiffs. In Discovery Order No. 9, Judge Corley identified three categories of

"discoverable user data": (1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, and (3) data inferred from a user's on or off-platform activity. Apps used by the friends of the named plaintiffs do not fall into any of these categories of data, and therefore are beyond the scope of these proceedings. That said, in the interest of facilitating resolution of this issue, Facebook will provide Plaintiffs data regarding interactions that friends of the named plaintiffs had with businesses/apps using Facebook Login, without identifying which friend interacted with each business/app.

3. Data Cold Storage

As Facebook explained in its June 2, 2022 submission, the ████ tables identified in Exhibit B to its April 11 submission include tables with data in cold storage (including tables with data only in cold storage). A table itself is not "in cold storage" or "in warm storage." Data within a table is in cold or warm storage, and a single table can contain some data in warm storage and some data in cold storage. There is no need to restore data in cold storage to investigate whether tables contain user data. As explained in Facebook's June 2, 2022 submission, the data classification system used to identify the ████ tables in Exhibit B to Facebook's April 11 submission included tables with data in cold storage.

On November 18, 2021, the Special Master ruled that data in cold storage did not need to be produced because it had to be restored to warm storage in order to be searched and therefore was not "reasonably accessible." *See* Special Master's Nov. 8, 2021 Order Re: Facebook's Motion For Protective Order Against Production of API Call Logs ¶ 15. The same is true here. That said, Facebook is willing to consider restoring data from cold storage, but identifying what, if any, data should be restored is premature at this stage. Facebook proposes that the parties first identify which Hive tables will be produced. Once the Hive tables have been identified, Facebook will evaluate which tables, if any, include data in cold storage, and make a proposal regarding what, if any, data it can reasonably restore, search, and produce.

Dated: June 6, 2022   **GIBSON, DUNN & CRUTCHER, LLP**

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Exhibit V

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION	MDL No. 2843 Case No. 18-md-02843-VC
This document relates to: ALL ACTIONS	**PLAINTIFFS' RESPONSE TO SPECIAL MASTER'S ORDER OF MAY 24 RE: NAMED PLAINTIFF DATA** Judge: Hon. Vince Chhabra Special Master Daniel Garrie Courtroom: 4, 17th Floor JAMS Ref. No.: 1200058674

PLAINTIFFS' RESPONSE TO SPECIAL
MASTER'S ORDER OF MAY 24 RE:
NAMED PLAINTIFF DATA

MDL NO. 2843
CASE NO. 18-MD-02843-VC
JAMS REF. NO.: 1200058674

I.   BRIEF OVERVIEW

The Special Master's May 24, 2022 Order requested briefing on three topics: the issues of Hive table selection; whether Facebook should be compelled to search cold storage; and production of data related to apps installed by friends of Named Plaintiffs.

Since the Special Master first requested this brief, new evidence has come to light in two 30(b)(6) depositions related to those questions: a deposition on evidence preservation ("preservation deposition") and a deposition on Facebook's ability to associate and delete users' data through identifiers ("Topic 4 deposition"). The new evidence shows that: (1) Facebook selected ██ Hive tables and put them in "cold storage" precisely because they were relevant to this litigation;[1] (2) Facebook is capable of searching offline Hive tables using ██ and the ██ tool; (3) the DYI file is not the most complete or usable compilation of user data; and (4) Facebook has withheld from production at least 52 snapshots of Named Plaintiff data using a never-before revealed tool more commonly used to collect user data called ████████ which ████████ ██████████████████████████████ These revelations cannot be reconciled with Facebook's representations throughout the course of this litigation, which have significantly delayed discovery of Named Plaintiffs' data and this litigation more generally.

A.   Facebook Hid Evidence of ██ Hive Tables Relevant to This Litigation Preserved in Cold Storage

The preservation deponent, Michael Duffey, testified that Facebook put ██ Hive tables in "cold storage" as a result of the litigation hold issued in this case. Duffey 30(b)(6) Dep. Rough Tr. at 60:21-25, 64:2-3.[2] This, presumably, is "offline." The very purpose of putting this data into "cold storage" was to preserve them because they are relevant to this case. *Id.* at 66:18-67:1. For example, Mr. Duffey repeatedly pointed to these tables as a potential source of information relating to the data Facebook shared with third parties about users. *See, e.g., id.* at 148:1-3, 148:14-17,

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[1] This raises a question as to whether "cold storage" truly makes them inaccessible. Why would Facebook make data *less* accessible if it were preserving it for litigation?

[2] Mr. Duffey was unable to answer many specific questions about these tables, including what they are; why they were selected; when they were put into cold storage; and whether they have ever been searched. Duffey 30(b)(6) Rough Tr. at 60:11, 60:21-25, 61:22, 65:3-4. Plaintiffs request production of a 30(b)(6) deponent, Jennifer Allen, on these topics.

153:14-17. Mr. Duffey testified that Facebook's E-Discovery team still has access to these tables while they are in cold storage, that Facebook can produce the structured data from cold storage, and in fact, it has done so on previous occasions. *Id.* at 174:9, 175:7-13, 176:11-13. Facebook told the Special Master that this could not be done. *See* Declaration of Mengge Ji in Supp. of Facebook Inc.'s Mot. for a Protective Order Against Production of API Call Logs ("Ji Decl."), ¶ 18 ("Tables in cold storage cannot be reviewed or analyzed while they remain in cold storage.").

The Topic 4 deponent, Mike Clark, who previously appeared in a Special Master hearing, testified that offline Hive tables can be queried using ███ and the ███ tool. Clark 30(b)(6) Dep. Tr., 86:20-89:23. Clark further testified that Hive tables can be searched either by ███ or ███ *Id.* at 99:9-18. The table that contains the █████████████████████████ is available and queryable via TAO. *Id.* at 101:16-102:16. If Facebook knows the table and its location, it can query the specific table, including for ████████ *Id.* at 114:10-14. (Ex. 334 to the Clark 30(b)(6) Dep. is a multipage document from 2010 that "contains all of the recently used Hive tables as defined by any table which has at least one user in the past 30 days as of 5/12/2010."). Plainly, Facebook has the ability to produce summary documents of Hive tables with their fields (which includes UIDs, among other identifiers). But Facebook has repeatedly refused to conduct any searches of Hive, using as an impediment that it would be impossible to search all of Hive and Facebook cannot identify which tables to search. *See* Exhibit A.

B.   **Facebook Improperly Withheld Snapshots of User Data Preserved with the ████████████ Tool, Among Other Data.**

For years, Facebook has insisted that the DYI files it has produced contain the "most complete compilation of data associated with the Named Plaintiffs' accounts." *See* Exhibit A. Facebook fiercely resisted discovery into whether this was true. *See, e.g.*, Facebook's November 15, 2021 Response to Objection Regarding Named Plaintiffs' Data Briefing (falsely stating that the DYI file was comprehensive and attacking Plaintiffs for probing that representation).

Mr. Duffey's testimony, however, indicates that the DYI files are *not* complete. He explained that "████████ snapshots contain information ██████████████████████ ██ Duffey 30(b)(6)

Dep. Rough Tr. at 31:11-13; *see also* Exhibit 386 at -00003258. Critically, he testified that *they*

██

██

██ Duffey 30(b)(6) Dep.

Rough Tr. at 45:7-10, 56:5-12. Mr. Duffey also testified that ██████████████████████

██

████████████████ *Id.* at 32:21-33:6. ████████████ snapshots are ████████████████

███DYI" and is ██████████████████." *Id.* at 33:2-9. Facebook recorded ████████

snapshots of the Named Plaintiffs on March 9, 2020 and in the fall of 2021, long before the Special

Master held the first hearing on the Named Plaintiffs' data. *Id.* at 50:16-20; *see also* Ex. 386 at -

00003258.

Plaintiffs have long requested that more usable versions of DYI files be produced and

sought more information about unproduced data. Dkt. No. 526 at 7 (noting the DYI file is

incomplete and that format of production "obscures" information about the Named Plaintiffs'

privacy settings). Mr. Duffey's testimony makes clear that Facebook has (1) falsely testified that

the DYI file was the most complete collection of user data; (2) failed to inform the Court of the

existence of the tool most commonly used to produce user data; (3) moved ██ Hive tables to

"cold storage" precisely because they are relevant to this litigation, without revealing their

existence; and (4) proposed an arduous and unrealistic process for Plaintiffs and the Special Master

to guess at which Hive tables might possibly contain relevant data, including a "random" selection

of 500 tables, while failing to disclose that Facebook had already identified ██ tables as relevant

and preserved them offline.

II. PLAINTIFFS' INITIAL PROPOSAL

A. **Facebook Must Immediately Search the** ██ **Hive Tables with All Identifiers, Including** ████████**, Associated with the Named Plaintiffs.**

Facebook should have voluntarily disclosed the existence of the ██ Hive tables during

ESI discussions in 2019. At the least, it should have disclosed the tables to the Special Master.

PLAINTIFFS' RESPONSE TO SPECIAL
MASTER'S ORDER OF MAY 24 RE:
NAMED PLAINTIFF DATA

4

MDL NO. 2843
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Consider the direct questions posed by the Special Master over the past six months and compare Facebook's evasive responses. The Special Master ordered Facebook to identify "a list of data sources that may contain information related to the Named Plaintiffs," and, more specifically: "[i]dentify a list of Hive tables containing columns that store a ████████████████, or other means of identifying a Facebook user. The list is to include tables that were active during the relevant time period." *See* Exhibit A. Facebook artfully answered other questions and did not identify the ███ tables. *Id.* Even Facebook's May 30 data production proposal did not disclose the existence of those tables, although it indicated with no specificity that cold storage tables are included in Exhibit B. The May 30 submission proposed only producing data in "warm storage for a statistically significant sample of Hive tables."[3] So, even though Facebook knew that it had already determined that relevant Hive tables exist, and had preserved them, it repeatedly proposed that the parties and the Special Master play a guessing game about whether Hive tables contained relevant Named Plaintiff data. All the while, it knew that the potentially most relevant tables would be excluded from the tables to be searched. Duffey 30(b)(6) Dep. Rough Tr. at 74:18-23, 60:21-25, 153:14-17. Months have passed as this inquiry has dragged on.

Furthermore, Mr. Clark's testimony makes perfectly clear that "offline" tables can be searched. Mr. Duffey also appeared to agree that such tables can be searched, using tools such as ████████ and ██████ Duffey 30(b)(6) Dep. Rough Tr. at 61:5-8, 176:11-13; Ex. 386 at -00003259 ("██."). Yet Facebook has opposed searching these records and stated that while in cold storage, data cannot be reviewed or analyzed. *See* Ji Decl., ¶ 18.[4] Regardless, however inaccessible Facebook may have made this data by putting it in cold storage or failing to cease the Hive Anon process, Facebook did so at its own

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[3] The most generous explanation is that Mr. Duffey, who testified that he was prepared for his June 2 deposition in "~38 hours of meetings; 10 sessions; over 4 weeks," was not in touch with the lawyers who prepared the May 30 submission to the Special Master. Ex. 386 at -00003256.

[4] Mr. Duffey consulted with Ms. Ji in preparation for his deposition. Ex. 386 at -00003256. Ms. Allen is the most knowledgeable person about the ████████████ tool and is an E-Discovery team member. Duffey 30(b)(6) Dep. Rough Tr. at 29:19-20, 44:17-18. Plaintiffs propose that each of them be deposed on these topics immediately.

risk, and it should bear all costs of re-identifying and producing all Named Plaintiff data in the ▉

Hive tables and any other tables that contain Named Plaintiff data, whether or not in cold storage.

Plaintiffs thus propose that the process begin with a search of the ▉ Hive tables, and that

Facebook produce schemas, protos and fields for those tables.[5] In addition, Plaintiffs propose that

Facebook provide further explanation of the Hive namespaces in Exhibit A to the May 30

submission and the schema/fields of all Hive tables and internal developer documentation

sufficient to explain what is in the fields.

B.   **Facebook Must Immediately Produce All Named Plaintiff Data, Including Snapshots, and Certify That It Has Produced All Such Data That It Has Preserved.**

The preservation deposition revealed that Facebook has also misstated its ability to search

for Named Plaintiffs' data. For the first time, Facebook admitted that the tool it regularly uses to

preserve and produce information when it receives a subpoena about a user was not used to produce

Named Plaintiffs' data in this case. Duffey 30(b)(6) Dep. Rough Tr. at 32:21-33:6. Facebook has

repeatedly, and falsely, affirmed that the "DYI file for each individual user represents the most

complete and best compilation of data Facebook maintains associated with that user." *See* Exhibit

A. Plaintiffs request production of all withheld snapshots and a deposition of someone

knowledgeable to explain why those files were withheld and what else exists.

C.   **Facebook Must Produce Evidence Showing the Apps Installed by the Named Plaintiffs' Friends, or Else Formally Admit That It Cannot Do So.**

It is essential that the Named Plaintiffs learn which apps their friends installed—otherwise,

it may not be possible to determine what third parties accessed the Named Plaintiffs' data, what

data was accessed, and how it was used. For that reason, Facebook must produce evidence showing

which apps were installed by the Named Plaintiffs' friends. If it cannot do so, it must admit—in a

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[5] Facebook proposes the unworkable idea that responsive evidence should be selected only if it is "statistically significant." Proposing this metric is baffling, as Facebook has provided no information about the amount or substance of the data in each table. Counting the number of tables and calculating the number that equals ten percent of the total has zero probative value. This is a privacy class action in which the key questions are (1) *what* information was collected about users (the magnitude, subject matter and scope of collection); and (2) what Facebook did with it. With these underlying facts established, the parties will litigate whether that conduct was disclosed and whether Facebook obtained knowing consent from users.

binding and admissible manner—that it is incapable of doing so.[6]

III. PLAINTIFFS' PROPOSED RELIEF

First, by June 10, 2022, Facebook must produce all collected and/or preserved data relating to the Named Plaintiffs, including but not limited to all ███████ snapshots, and identify, in writing and with specificity, any collections it seeks to withhold.

Second, by June 17, 2022, Facebook must produce all schemas, fields, and protos for the ██ Hive tables identified in the Duffey 30(b)(6) deposition and search these ██ tables using all Named Plaintiffs' identifiers, including UIDs, ███████████ and any other identifiers.

Third, by June 10, 2022, Facebook must provide information sufficient to describe the contents of the namespaces identified in Exhibit A to its May 30 submission, and provide schema, fields and protocols, or internal developer documentation to describe the contents of the Hive tables similar to Ex. 334 of the Clark 30(b)(6) Deposition.

Fourth, Mengge Ji and Jennifer Allen should sit for two 3-hour depositions next week.

Fifth, all Gibson Dunn partners engaged at any time on this matter, as well as in-house counsel Sandeep Solanki, Natalie Naugle, and Ian Chen, must submit affidavits attesting to whether Facebook has produced all ESI, data, content, and information for the Named Plaintiffs that it has preserved, including explanations as to why Facebook has failed to identify or produce the preserved ██ Hive tables or the snapshots to date.[7]

Plaintiffs may seek evidentiary preclusion orders based on Facebook's misconduct.

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[6] To be clear, other questions about Plaintiffs' data remains, including where partner categories are stored; what happened to data for deprecated systems; and other issues.

[7] In addition to Gibson Dunn lawyers, Mr. Duffey identified Sandeep Solanki and Natalie Naugle as in-house counsel involved in preservation of ESI in response to the filing of this lawsuit. Duffey 30(b)(6) Dep. Rough Tr. 7:22-8:18.

PLAINTIFFS' RESPONSE TO SPECIAL   7   MDL NO. 2843
MASTER'S ORDER OF MAY 24 RE: CASE NO. 18-MD-02843-VC
NAMED PLAINTIFF DATA   JAMS REF. NO.: 1200058674

Dated: June 6, 2022

Respectfully submitted,

KELLER ROHRBACK L.L.P.

By: */s/ Derek W. Loeser*
      Derek W. Loeser

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PLAINTIFFS' RESPONSE TO SPECIAL   8   MDL NO. 2843
MASTER'S ORDER OF MAY 24 RE: CASE NO. 18-MD-02843-VC
NAMED PLAINTIFF DATA   JAMS REF. NO.: 1200058674

ATTESTATION PURSUANT TO CIVIL LOCAL RULE 5-1(h)(3)

I, Lesley E. Weaver, attest that concurrence in the filing of this document has been obtained

from the other signatory. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 6th day of June, 2022, at Oakland, California.

/s/ *Lesley E. Weaver*
Lesley E. Weaver

EXHIBIT A

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
August 13, 2020	Joint Status Update	Facebook states: "To find the data Plaintiffs seek, Facebook would need to identify every single internal analysis that uses Platform data and attempt to de-anonymize every data point within those analyses to determine if any provided by the Named Plaintiffs is among the data. Even a large team of engineers working full time for several years likely cold not identify all of the information Plaintiffs seek." Dkt. No. 495 at 6-7.	52 snapshots taken with the ▮▮▮▮▮ tool are in Facebook's possession but have not been produced. ▮▮ Hive tables relating to the litigation were set aside and preserved. *See* Duffey 30(b)(6) Dep. Rough Tr. at 153:14-16 ("[W]e have ▮▮ Hive data tables preserved and on legal hold for this matter."); *Id.* at 147:16-19 ("We've taken snapshots indirectly the ▮▮▮▮▮▮ tool and the DYI tool [] for each of the named plaintiffs that had data available at the time of the snapshot."); Ex. 386 at ADVANCE-META-00003259 ("▮▮Hive tables on legal hold."). Neither the snapshots nor the preserved ▮▮ Hive tables were disclosed until last Thursday, June 2, 2022 in a 30(b)(6) deposition. It would not have taken a large team of engineers working full time for several years to search and produce Named Plaintiffs' data contained in them.
October 8, 2020	Facebook's Reply Brief ISO Request to Enforce the Partial Stay of Discovery in PTO No. 20	Facebook argued that Plaintiffs' request for additional data relating to the Named Plaintiffs' concerned data outside the scope of any live theory of this case and would require it to search "millions of disaggregated data sets." Dkt. No.	52 snapshots taken with the ▮▮▮▮▮ ▮▮ are in Facebook's possession but have not been produced. *See* Duffey 30(b)(6) Dep. Rough Tr. at 147:16-19 ("We've taken snapshots indirectly the

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[1] Plaintiffs will provide the Special Master with transcripts upon request.

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
		537 at 6. It also stated that additional data "cannot reasonably" be identified. *Id.* at 9.	████████ tool and the DYI tool [] for each of the named plaintiffs that had data available at the time of the snapshot."); Ex. 386 at ADVANCE-META-00003258 ("In the aggregate, FB preserved 52 ████████ snapshots across ████████ ████████████████ for the named plaintiffs when identified as Admins."). ████ Hive tables relating to the litigation were set aside and preserved. *See* Duffey 30(b)(6) Dep. Rough Tr. at 153:14-16 ("[W]e have ████ Hive data tables preserved and on legal hold for this matter."); Ex. 386 at ADVANCE-META-00003259 ("████ Hive tables on legal hold."). Facebook did not disclose this to the Special Master, the Court, or Plaintiffs in any of the multiple hearings and briefings on this issue, and it was not revealed until last Thursday, June 2, 2022 in a 30(b)(6) deposition.
October 8, 2020	Facebook's Reply Brief ISO Request to Enforce the Partial Stay of Discovery in PTO No. 20	"There is no way for Facebook to run a centralized search for a user's ID, random ID, or any 'hashed data' identifiers across millions of data sets[.]" Dkt. No. 537 at 10.	"[I]f I know the table and in working with a specific table, yes, I can query for a specific ████ or ████ ████ Clark 30(b)(6) Dep. Tr. at 99:9-18. By failing to disclose that Facebook had already identified ████ Hive tables relevant

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
			to the litigation, which can be searched for ▮ and ▮ among other identifiers, Facebook delayed and complicated the search for and production of Named Plaintiffs' data.
October 18, 2021	Decl. of Mengge Ji ISO Facebook Inc.'s Motion for a Protective Order Against Production of API Call Logs	"Tables in cold storage cannot be reviewed or analyzed while they remain in cold storage." Ji Decl. at ¶ 18.	If the ▮ tables were put in cold storage for purposes of preserving them for litigation, then Facebook must be able to produce data from those tables. *See* Duffey 30(b)(6) Dep. Rough Tr. at 175:10-13 ("I am aware of our E-Discovery data science team producing structured data … in matters. Whether or not it was taken out of cold storage or not, I'm … not clear on that process."); *Id.* at 176:7-13 ("When data is put into cold storage, only the E-Discovery team would … have access to that data.").
October 28, 2021	Facebook's Separate Statement in Support of Facebook's Opposition to Plaintiffs' Motion to Compel Production of Named Plaintiffs' Content and Information	"Facebook subsequently repeatedly informed Plaintiffs and the Court that it had produced the most complete compilation of data associated with the Named Plaintiffs' accounts, including on July 30, 2020 (Dkt. 484), August 13, 2020 (Dkt. 495), and September 18, 2020 (Dkt. 515)." Facebook's description of its own statements to the Court, Separate Stmt. at 2.	These repeated statements were false. The DYI files do not contain information about users' privacy settings, Pages, Groups, or adversities interests ▮ ▮ ▮ ▮ ▮ The files are also in a ▮

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
October 28, 2021	Declaration of Ben Mitchell ISO Facebook's Opp. to Pls' MTC Production of Named Plaintiffs' Content and Information	"The DYI file for each individual user represents the most complete and best compilation of data Facebook maintains associated with that user, and the best available compilation of the data about that user in the Social Graph, in a human-readable and producible form." Mitchell Decl. at ¶ 5.	██████ Duffey 30(b)(6) Dep. Rough Tr. at 56:5-8; *see also*: • "█████████████ DYI ████████████████████████ ██████████ *Id.* at 31:11-13; • "I know that ████████████████ ████████████████ DYI. … ████████████████ ████████████████ ████████████████ DYI has available to it as a download. … In a, you know, like ████████ ████████" *Id.* at 32:21-33:9; • "I believe that ████████ ████████████████ ████████████████ *Id.* at 45:7-10; • "I do believe that the ████████ ████████████████ ████████████████ ████████████████ ████████ *Id.* at 56:9-12; • "I believe there are ████████ ████████████████ ████████ *Id.* at 143:22-23; • ████████████████
November 15, 2021	Facebook's Response to Objection Regarding Named Plaintiffs' Data Briefing	"Facebook explained repeatedly that the Download Your Information ('DYI') files it produced satisfied its production obligations under Discovery Order 9 and the technical reasons why this is so." Facebook's Response at 1. "And a user's DYI file contains a human-readable download of the most complete set of data about that user in the Social Graph (and more)." *Id.* at 2.	

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
			████████████████████ ████████████████████ ████ Advertising accounts." Ex. 386 at ADVANCE-META-00003258.
December 10, 2021	Decl. of David Pope ISO Facebook's Mot. for Reconsideration of the Special Master's Order Re: Named Plaintiffs' MTC Production of Plaintiff Data	In response to the Special Master's request for Facebook to provide "'a list of data sources that may contain' user data," Facebook submitted the declaration of David Pope identifying "149 data systems … identified as containing user data[.]" Pope Decl. at ¶¶ 5, 9.	This submission was grossly misleading, including because it failed to identify the 52 snapshots taken with the ████████ tool of the Named Plaintiffs or the ████ Hive tables relating to the litigation were set aside and preserved. Duffey 30(b)(6) Dep. Rough Tr. at 153:14-16 ("[W]e have ████ Hive data tables preserved and on legal hold for this matter."); *Id.* at 147:16-19 ("We've taken snapshots indirectly the ████████ tool and the DYI tool [] for each of the named plaintiffs that had data available at the time of the snapshot.").
December 10, 2021	Decl. of Mengge Ji ISO Facebook's Mot. for Reconsideration of the Special Master's Order Re: Named Plaintiffs' MTC Production of Plaintiff Data	████████████████████ ████████████████████ ████████████████████ ████ Ji Decl. at ¶ 21.	"I can search a table, if I know a specific table and I'm looking for a specific ████ [.]" Clark 30(b)(6) Dep. Tr. at 87:19-21. "[I]f I know the table and in working with a specific table, yes, I can query for a specific ████ or ████." *Id.* at 99:9-18. Facebook did not tell the Special Master that it could identify specific tables and

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
			that it could search using Named Plaintiffs' ▮ and UIDs, among other identifiers.
December 22, 2021	Motion for Leave to File and For Stay Pending Appeal of the Special Master's Amended Order Re: Plaintiffs' Motion to Compel Production of Plaintiff Data	In response to the Special Master's Initial Order requiring Facebook to provide "a list of data sources related to the Named Plaintiffs," Facebook provided a list of "potential data sources but explained (and substantiated with uncontroverted declarations) that compiling the remaining information would take more than ▮ ▮ ▮" Mot. for Leave at 3-4.	These statements were misleading. Facebook did not inform the Special Master about either the ▮ Hive tables preserved for this litigation, or the 52 snapshots preserved using the ▮ tool. *See* Duffey 30(b)(6) Dep. Rough Tr. at 60:21-25 ("I understand that there are ▮ Hive tables placed on legal hold for the Cambridge Analytica matter."); *Id.* at 50:16-20 ("▮
March 7, 2022	Letter from Rose Ring in Response to Special Master's February 21 Order re: Plaintiff Data	"[T]he DYI system includes all three categories of data: (1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, and (3) data inferred from a user's on or off-platform activity. So the issue is whether Facebook should produce more data in categories (1), (2), and (3) from systems other than DYI, which we understand is the focus of the Special Master's remaining questions." Mar. 7, 2022 Ltr. from R. Ring at 1.	▮ ▮ ▮ ▮ those were also captured in a ▮ snapshot."). The reason the Special Master was focusing on the DYI tool is because Facebook had repeatedly told the Court, incorrectly, that it was a complete source for user information.
March 9, 2022	Special Master Hearing	"And so there becomes a technical feasibility because not all that storage that sits in Hive is online. And so that would – it becomes a technical feasibility challenge to do that full discovery	"▮ is a tool to help data scientists and data engineers, where they know where data lives in Hive, to be able to write a query to do analysis or -- or analytics on a

Date	Court Submission	Facebook's (False) Representations About the Named Plaintiffs' Data	Testimony of Facebook's 30(b)(6) Deponents[1]
		across everything." Mar. 9, 2022 Special Master Hearing Tr. at 115:2-9.	subset of data." Clark 30(b)(6) Dep. Tr. at 89:19-23.
April 11, 2022	Letter from Rose Ring in Response to Special Master's March 9 Order re: Plaintiff Data	Facebook responded to the Special Master's request for information about Hive tables, and identified "Hive tables that store user identifiers with data as it enters Hive." Apr. 11, 2022 Ltr. from R. Ring at 2.	"I understand that there are ▮▮ Hive tables placed on legal hold for the Cambridge Analytica matter." Duffey 30(b)(6) Dep. Rough Tr. at 60:21-25. "Hive data that is on legal hold to prevent it from being deleted or modified." *Id.* at 64:2-3. "We're talking about ▮▮ Hive tables. I would imagine that Hive tables were put on legal hold starting in 2018 and have, you know, as additional -- you know, again, as additional Hive tables are identified relevant to a matter, we work with our -- our in-house and outside counsel and our data science team and E-discovery to place those Hive tables on legal hold." *Id.* at 66:18-67:1.

Exhibit W

GIBSON DUNN

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June 16, 2022

VIA JAMS ACCESS

Dear Special Master Garrie,

Below Facebook responds to the Special Master's JAMS message dated June 10, 2022 stating "Facebook is to respond to the issues regarding production of Named Plaintiff data in ████████ and the ██ Hive tables raised in Plaintiff's June 6, 2022 brief."

After months of proceedings, the parties submitted proposals regarding the production of additional Named Plaintiff data. The Special Master held a hearing on May 17, 2022, during which he identified three areas of disagreement. On May 24, 2022, the Special Master ordered the parties to submit simultaneous briefing on those issues, but rather than address them, Plaintiffs focused on new issues based on supposed "new evidence." Plaintiffs' "new evidence" is largely irrelevant to these proceedings, and Plaintiffs also misconstrue and misinterpret the testimony they cite. Specifically, Plaintiffs point to data a witness testified was preserved from a system called ████████ and Hive. Even though the witness did not testify that the preserved data is Named Plaintiff data or Named Plaintiff data that has not been made available to Plaintiffs, they assume that is the case and based on those assumptions make false accusations and an unprecedented demand for affidavits from more than a dozen attorneys. Facebook addresses each of these issues in turn below.

1. ████████

████████ is a tool created to respond to law-enforcement subpoenas, https://www.facebook.com/safety/groups/law/guidelines/, which are not at issue in this case. Law enforcement can request information in response to lawful subpoenas, through Facebook's Law Enforcement Online Request System. Law enforcement subpoenas must be narrowly tailored and particularized, and the relevant categories of data (and only those) are provided through ████████████████ is not designed or intended for use by Facebook users or in private litigation. That said, Facebook preserved data from ████████ in connection with this case out of an abundance of caution.

To be clear, ████████ data largely overlaps with data already produced. Nonetheless, Facebook agrees to produce Named Plaintiff data preserved from ████████ for current named plaintiffs. Facebook addresses Plaintiffs' accusations below:

DYI. Plaintiffs say testimony about ████████ undermines statements that DYI is the "most complete compilation of data associated with the Named Plaintiffs' accounts" because ████████████████████. There is no inconsistency.

DYI is the "most complete compilation of data associated with the Named Plaintiffs' accounts." In fact, ██

Data associated with a user's account preserved in a ████████ snapshot largely tracks a subset of the data in DYI or otherwise available to the user. In some instances data in ████████ and DYI ██

Page 2

███████████████████████████████ (neither of which are relevant to these Named Plaintiff data proceedings). For (1) an example is that a███████████████████████████████████
███████████████████████████████
███ For (2) an example is that Facebook███
███████████████████████

In Discovery Order No. 9, Judge Corley identified three categories of "discoverable user data" about the Named Plaintiffs: (1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, and (3) data inferred from a user's on or off-platform activity. Data about other users and analyses prepared for law enforcement do not fall into these categories. Facebook also cannot produce other users' data without their consent, consistent with its obligations to those users, including under the Stored Communications Act.

████████████████. Plaintiffs say Facebook withheld ██████████████████
██████ snapshots. This is false. Facebook produced snapshots of the Named Plaintiffs' ██████████████████ (attached as **Exhibit A**).

███████████████ Plaintiffs say that, unlike DYI, ████████ contains information about ████████████████████ As explained above, the ██████████ snapshot of an account contains information about ████████ that is not Named Plaintiff data. This data does not fall into any of the three categories identified in Discovery Order No. 9.

██████████████████ Plaintiffs say Facebook withheld Named Plaintiff data from the ████████ snapshots about ████████████. This is wrong. A user's DYI file contains information about their own activity in Groups and on Pages. The ██████████ snapshots contain ████████████████████████████

██████████████████ Plaintiffs suggest Facebook withheld Named Plaintiff data from ████████ snapshots about ████████████████████████ This is also wrong. Like DYI, a ████████ snapshot of a user's account ████████████ The cited testimony refers to snapshots of ████████████

████████. This is a consumer class action, and Business Pages are not at issue. In any case, the categories of data in a snapshot of an ████████████████ overlap almost entirely with categories of data in DYI. ████████████████████████████████
████████████████████████████████
████████████████████████████████

Format. Plaintiffs say deposition testimony shows a ████████████████
████ than DYI. Plaintiffs misconstrue the testimony. The witness explained the specific categories of ████████ data provided in response to a subpoena can be produced to law enforcement as ████ while DYI is "lots of individual files." Trans. at 51:19-23. DYI contains multiple files so a user can download individual categories and easily navigate the results. For litigation, individual files are also more usable. Most DYI files produced in this case are tens of thousands of pages; some are hundreds of thousands of pages. If Facebook produced the data as ████████ it would be extremely difficult to navigate and use.

* * *

Again, Facebook will produce the Named Plaintiff data preserved in ████████ for current Named Plaintiffs. As disclosed previously, Facebook added new categories of data to the DYI system since producing certain Named Plaintiffs' DYI data. Facebook explained months ago that it is "happy to produce updated versions of DYI files . . . but has understood that Plaintiffs are not interested in additional DYI data, since it is 'already available to Plaintiffs.'" *See, e.g.* Dkt. 911 at 35 n.22. Although Plaintiffs have not responded, Facebook will produce updated DYI files, to avoid any confusion as to what data is available to users.

2. Hive Tables

Facebook's corporate designee testified that Facebook preserved various Hive tables in connection with this and related litigation. Plaintiffs leap to the conclusion that all of these tables contain Named Plaintiff data and say Facebook improperly failed to disclose the tables. Again, even though Plaintiffs' assumptions are wrong, Facebook agrees to produce the schema (i.e. column names) for preserved tables containing user identifiers and will meet and confer with Plaintiffs regarding a production of Named Plaintiff data from those tables. This overlaps with information and data Facebook already agreed to provide. Below Facebook addresses Plaintiffs' accusations about preserved Hive tables.

Named Plaintiff Data. Plaintiffs say Facebook should have disclosed a list of preserved Hive tables because such a list would have identified the most relevant Named Plaintiff data. This is wrong. Tables in Hive were preserved in connection with this litigation and related litigation for a number of reasons, many of which have nothing to do with Named Plaintiff data. Of the ███ tables identified, a minority contain user identifiers, and several of those tables were put on hold in connection with Facebook's April 18, 2022 proposal to produce categories of data requested or referenced by Plaintiffs.

Searchability. Plaintiffs say testimony that Hive tables can be searched by ███ or ███ undermines prior representations that Plaintiffs' requests would require searching "millions of disaggregated data sets." There is no inconsistency.

The cited statements concern a broader demand that Plaintiffs narrowed. Plaintiffs initially requested every data point at Facebook that might relate back to a Named Plaintiff in any way, including aggregated/fully anonymized data. Facebook explained that satisfying this request would be technically infeasible as it would require reverse engineering the underlying sources of data in millions of tables that are not reasonably capable of being identified to a user. For example, a table could log the number of Facebook users who log into Facebook each hour, to track peak activity for capacity budgeting, without any data about which users logged in each hour. Given the breadth of the request, Facebook explained "[e]ven a large team of engineers working full time for several years likely could not" "identify all of the information plaintiffs seek." That is true.

Before the Special Master, the parties have discussed a narrower set of data that is capable of being associated with a user's account—tables that contain user identifiers.

Cold Storage. Plaintiffs say testimony that "offline" tables can be searched undermines representations about the searchability of data in cold storage. The testimony referred to Hive, not cold storage. As Facebook has explained, Hive is "a data system that is used for offline data storage and analysis," *see* 5/11/2022 Submission p. 2, unlike TAO, which supports the online production environment. Plaintiffs also say testimony undermines representations that data in cold storage cannot be produced. Facebook did not represent that data in cold storage cannot be produced. It argued it should not be required to restore tables consisting of hundreds of petabytes of data, in part because it had accessible (and agreed to produce), summary versions of the data. The Special Master agreed. *See* Nov. 8, 2021 Order Re: Facebook's Motion For Protective Order Against Production of API Call Logs.

3. Request for Affidavits from Counsel

Based on the accusations above, Plaintiffs make an unprecedented demand for affidavits from Facebook's in-house legal team and Gibson Dunn partners to have worked on this matter regarding Facebook's production of preserved Named Plaintiff data. There is no basis for a request of this nature, which is based on Plaintiffs' mischaracterizations of the record, and has nothing to do with the outstanding areas of dispute regarding the parties' Named Plaintiff data proposals. In any case, Plaintiffs received corporate testimony about Facebook's preservation efforts, and, as explained above, agrees to produce data preserved in sources to which the witness testified. This request should be denied.

Sincerely,
/s/ Heather L. Richardson
Heather L. Richardson

Exhibit X

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE: FACEBOOK, INC. CONSUMER PRIVACY USER PROFILE LITIGATION	MDL No. 2843 Case No. 18-md-02843-VC
This document relates to: ALL ACTIONS	**PLAINTIFFS' FURTHER RESPONSE RE: NAMED PLAINTIFF DATA ADDRESSING RECENTLY REVEALED PRESERVED DATA** Judge: Hon. Vince Chhabra Special Master Daniel Garrie Courtroom: 4, 17th Floor JAMS Ref. No.: 1200058674

PLS' FURTHER RESPONSE RE: NAMED
PLAINTIFF DATA ADDRESSING
RECENTLY REVEALED PRESERVED
DATA

MDL NO. 2843
CASE NO. 18-MD-02843-VC
JAMS REF. NO.: 1200058674

This brief is submitted pursuant to the Special Master's June 10 and 14 emails which granted Facebook the right to respond to Plaintiffs' inquiries regarding Named Plaintiff data in ███████ and ██ Hive tables, and Plaintiffs the right to submit a brief by June 20, 2022.

Facebook's letter of June 16, 2022 offers argument from counsel about what is contained in ███████ snapshots with few citations to evidence, testimony, or documents. In contrast, Plaintiffs' submission rested entirely on the sworn testimony of Facebook's corporate representative, Michael Duffey, who proffered binding testimony on behalf of Facebook regarding what was preserved by Facebook in this action after March 2018 when the Cambridge Analytica scandal broke. Mr. Duffey testified:

- "We've taken snapshots in the ███████ tool and the DYI tool [] for each of the named plaintiffs that had data available at the time of the snapshot." Duffey 30(b)(6) Dep. Tr. at 158:1-4;

- ██ ████████████████████████" *Id.* at 40:4-6;

- "I believe that ████████████████████████████████ ████████████████ *Id.* at 53:25-55:2;

- "I do believe that the ████████████████████████████ ████████████████████████████." *Id.* at 65:1-4;

- "I believe there are ████████████████████████[.]" *Id.* at 154:5-6.

Moreover, ahead of his testimony, Mr. Duffey prepared notes which describe the ███████ snapshots as "ha[ving] ████████████████████████ (compared to DYI)" and "also ha[ving] ████████████████████████████ Ex. 386 at ADVANCE-META-00003258. Thus, when Facebook's letter claims throughout that "Plaintiffs suggest" and "Plaintiffs say," this is erroneous. Plaintiffs did not say; Facebook did, as shown by the sworn testimony of Facebook's corporate representative. *Compare* June 16, 2022 Letter from H. Richardson re Named Pls' Data at 2 ("June 16 Letter") ("Plaintiffs say deposition testimony shows a ██████████████████████████ than DYI") *with* Duffey 30(b)(6) Dep. Tr. at 41:20-24 ("[T]he ██ ████████████████████████████████████ than DYI has available to it as a download.").

Facebook offers no explanation for its failure to identify these files, let alone produce them, years ago. Facebook claims that "the relationships between a user" is not "Named Plaintiff data." June 16 Letter at 2 (with no citation). But clearly actions between the Named Plaintiffs and other users would encompass friends, and the unconsented-to sharing of friend data is centrally relevant to this case. Facebook appears to be saying that none of the ███████ snapshots' information about ████████████████████████████(1) data collected from a user's on-platform activity, (2) data obtained from third parties regarding a user's off-platform activities, or (3) data inferred from a user's on or off-platform activity. This seems unlikely. In any event,

Facebook has agreed to produce "the Named Plaintiff data preserved in ██████████ for current Named Plaintiffs." *Id.* at 2. It is unclear if Facebook is referring to all 52 snapshots preserved over time for the Named Plaintiffs, or if that is in addition to other data preserved in ██████████. Plaintiffs seek both and request that the Special Master order production by Friday, June 24, 2022.[1]

With regard to the Hive tables, Facebook is equally opaque, citing no documents or evidence. Mr. Duffey testified that Facebook has "██ Hive data tables preserved and on legal hold for this matter." Duffey 30(b)(6) Dep. Tr. at 163:24-164:1; *see also* Ex. 386 at ADVANCE-META-00003259 (confirming "██ Hive tables on legal hold."). Facebook offers no explanation for why it did not earlier disclose the ██ Hive tables, while saying it might produce column names for preserved tables containing user identifiers. Facebook offers no date by which it will do so. Facebook writes that Plaintiffs "assume" that the Tables relate to the Named Plaintiffs. This is incorrect. The parties have been working with the Special Master for months to find an efficient way to identify Hive tables to search for Named Plaintiff data. And FB-CA-MDL-03452017 (attached as Exhibit A) shows that Facebook creates descriptions of Hive tables in the regular course of business. Pages 4-5 of this document provide an example of what Plaintiffs seek here.[2] At no point prior to the deposition of Mr. Duffey did anyone from Facebook, including counsel, inform the Special Master or Plaintiffs that Facebook had *already identified* ██ Hive tables and preserved them for this litigation. They are the obvious place to start searching.

Plaintiffs request an order requiring a production date of Friday, June 24, 2022 for the Hive schema, fields and documents sufficient to describe the contents of the tables. Plaintiffs further request an order to show cause why Facebook should not be ordered to produce all Hive tables referencing user identifiers immediately, given that Facebook did not earlier advise the Special Master or Plaintiffs of their existence.

Because the representations of Facebook's counsel in their briefing are inconsistent with Facebook's sworn testimony, Plaintiffs propose that affidavits are an appropriate remedy to ensure that Facebook has accurately identified all potential sources of Named Plaintiff data.

Cold Storage

With regard to searchability and cold storage, Facebook's letter continues to aver that "Plaintiffs say," and the letter ignores Facebook's own sworn testimony: "██████████ ██████████.]" Mike Clark 30(b)(6) Dep. Tr. at 87:19-21; *see also* Ex. 386 at ADVANCE-META-00003259 ("██████████ ██████████.")." Facebook's letter also ignores that it placed the ██ Hive tables in cold storage only after identifying them as relevant to this case. *See* Ex. 386 at ADVANCE-META-00003259.

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[1] Plaintiffs reserve the right to respond once the Snapshots and DYI files are produced and to seek further corporate testimony from Facebook once the documents are produced.

[2] This document was improperly withheld by Facebook as privileged, and then de-designated and produced on June 6, 2022, the same day as Plaintiffs' June 6 submission.

PLS' FURTHER RESPONSE RE: NAMED   2   MDL NO. 2843
PLAINTIFF DATA ADDRESSING   CASE NO. 18-MD-02843-VC
RECENTLY REVEALED PRESERVED   JAMS REF. NO.: 1200058674
DATA

Facebook refers to the Special Master's ruling regarding certain tables in cold storage, but that ruling related to different content, and the parties and the Special Master have learned more now. FB-CA-MDL-03330509 (attached as Exhibit B) raises questions regarding Facebook's representations throughout the inquiry into Named Plaintiff data concerning the burden of restoring information in cold storage.

The document is an internal chat among a large number of Facebook employees, including custodians Eugene Zarakhovsky (now Zarashaw) and Shirine Sajjadi. Towards the beginning of the chat, an employee states: "Data Infra now says they can restore all the relevant partitions of ███████████ in *72 hours* if we throw everything at it, which is very different from 150 days quoted earlier." Ex. B at FB-CA-MDL-03330511. In other words, committing resources to restoring a table from cold storage would enable Facebook to restore the table 50 times quicker than initially estimated. Approximately 11 hours later, the same engineer updates the effort: "[T]he positively surprising news from the army of data infra working on cold storage is that we're very close to having full restore on the ██████████████████████████ Way faster than 150 days, or 72 hours :) still working to make sure that is indeed correct, but it's looking like it." Ex. B at FB-CA-MDL-03330519. The restoration from cold storage, initially estimated to take 150 days, had been cut to approximately a half day—300 times faster than the initial estimate.

Similar to the previous example, Facebook improperly withheld this document as privileged, then de-designated and produced it only two weeks before Plaintiffs' June 6 submission. This document reveals that Facebook can restore data from cold storage in fairly short order. It should be ordered to do so.

Dated: June 20, 2022

Respectfully submitted,

KELLER ROHRBACK L.L.P.

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PLS' FURTHER RESPONSE RE: NAMED
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ATTESTATION PURSUANT TO CIVIL LOCAL RULE 5-1(h)(3)

I, Lesley E. Weaver, attest that concurrence in the filing of this document has been obtained

from the other signatory. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20th day of June, 2022, at Oakland, California.

/s/ Lesley E. Weaver
Lesley E. Weaver