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 FACEBOOK, INC.

13
 14 UNITED STATES DISTRICT COURT
 15 NORTHERN DISTRICT OF CALIFORNIA
 16 OAKLAND DIVISION

17 MATTHEW CAMPBELL and MICHAEL
 HURLEY,

18 Plaintiffs,

19 v.

20 FACEBOOK, INC.,

21 Defendant.

Case No. C 13-05996 PJH

PUTATIVE CLASS ACTION

**DECLARATION OF DALE HARRISON IN
 SUPPORT OF DEFENDANT FACEBOOK,
 INC.'S OBJECTION TO AND REQUEST
 TO STRIKE NEW EVIDENCE AND
 MISSTATEMENTS OF FACT
 CONTAINED IN PLAINTIFFS' REPLY IN
 SUPPORT OF THEIR MOTION FOR
 CLASS CERTIFICATION**

1 I, Dale Harrison, declare as follows:

2 1. I have been employed as a software engineer at Facebook since August 2014, and my
3 current title is Engineering Manager. I am over the age of 18. I have personal knowledge of the
4 matters stated herein and, if called as a witness, could and would testify competently thereto.

5 2. I provide this Declaration in support of Facebook’s Objection to New Evidence in
6 Plaintiffs’ Reply In Support of Motion for Class Certification in order to address some of the new
7 assertions in the new Report of Dr. Jennifer Golbeck in Support of Plaintiffs’ Motion for Class
8 Certification (dated February 19, 2016 (Dkt. 166-7 & Dkt. 167-1 Ex. 1)), specifically with regard to
9 her new proposed query for ascertaining purported class members.

10 **Dr. Golbeck’s New Proposal to Identify Class Members**

11 3. I understand that Dr. Golbeck is now proposing that “[b]y starting with a list of all
12 message IDs, a database query could be written that would identify the senders and recipients of
13 Private Messages sent during the Class Period with URL attachments (and corresponding
14 EntShares)” (Dkt. 166-7, ¶ 9.) This is incorrect, and Dr. Golbeck’s proposed query appears to
15 rely on several incorrect assumptions.

16 4. First, contrary to the suggestion in Dr. Golbeck’s report, there is no single “Titan
17 database” that can be directly queried for “Titan Records.” Instead, “Titan” is the internal name for
18 the Messages system comprising an underlying set of databases (known as “Hbase”) and a set of
19 application servers, which (among other things) are used to process data to and from the underlying
20 databases. Hbase is the permanent storage for records of each action taken in connection with
21 Messages, such as sending, deleting, reading, or otherwise acting on a message. Roughly **70 billion**
22 such actions occur every day. Therefore, since the beginning of the class period (December 30,
23 2011), there may have been more than **100 trillion** actions. These records are not indexed in a way
24 that would allow them to be queried in the way that Dr. Golbeck assumes.

25 5. Second, there is no existing list of message IDs to identify those records that
26 correspond to message sends (as opposed to other message actions). Therefore, even attempting to
27 identify all message IDs would require writing new code to load and analyze each message action.

1 However, Hbase cannot be queried directly. Instead, new code would need to be written to operate
2 the application servers to pull each record from Hbase and analyze it individually. To my
3 knowledge, such a query has never been attempted. The only effort of which I am aware that
4 required loading each message action (which was undertaken in order to migrate data to a new, more
5 efficient system) took approximately 12 months to run and required dedicated Facebook personnel to
6 monitor database down time, query failures, and other constant maintenance. If a person could write
7 code that would be able to search through the data across these several thousand servers to obtain a
8 list of all message IDs for messages sent from the five-year period class period—and I do not know if
9 this is even possible, as it never has been attempted before—the search process may likewise take a
10 year or longer to run, with dedicated Facebook personnel to constantly monitor it, and check for and
11 address issues as it progressed. Again, there is no certainty that such a process could even complete
12 successfully; as with any extremely large, distributed system, Facebook incurs hardware failures,
13 upgrades or reductions in capacity, and other similar issues all the time. Moreover, Facebook’s
14 efforts to operate its service in the meantime would likely result in interruptions and other errors that
15 could prevent the code from completing and/or producing reliable results.

16 6. Third, even if Facebook could generate a list of “all message IDs” over a five-year
17 period, Dr. Golbeck is incorrect that her proposed query would isolate messages that contained URL
18 attachments. An attachment can be one of a number of types, such as a video, a photo, a URL, or a
19 sticker, among other things. Therefore, identifying all messages with “EntShares” or attachments—
20 even if it were possible—would not be the same thing as identifying messages that contained URL
21 attachments (which I understand would be necessary to identify putative class members). Without
22 actually examining the content of each EntShare, it would not be possible to know which of these
23 types of attachments it represented. As noted, a particular EntShare could represent many other types
24 of attachments in addition to a URL.

25 7. There are several additional problems with Dr. Golbeck’s proposed query. The
26 following is a non-exhaustive list:

- 27 • Facebook’s method of storing and representing data about messages and their

ATTORNEY ATTESTATION

I, Christopher Chorba, attest that concurrence in the filing of this Declaration of Dale Harrison has been obtained from the signatory. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed this 26th day of February, 2016, in Los Angeles, California.

Dated: February 26, 2016

/s/ Christopher Chorba
Christopher Chorba