EXHIBIT 21

1   UNITED STATES DISTRICT COURT

2   NORTHERN DISTRICT OF CALIFORNIA

3   OAKLAND DIVISION

4

5   MATTHEW CAMPBELL, MICHAEL HURLEY,)

6   and DAVID SHADPOUR,   )

7   Plaintiffs,   )

8   ) Case No.

9   vs.   ) C 13-05996 PJH

10   FACEBOOK, INC.,   )

11   Defendant.   )

12   _____)

13

14   HIGHLY CONFIDENTIAL — ATTORNEYS' EYES ONLY

15   VIDEOTAPED DEPOSITION OF JIAKAI LIU

16   Palo Alto, California

17   June 30, 2015

18   Volume I

19

20

21   Reported by:

22   KELLI COMBS, CSR No. 7705

23   Job No. 2094258

24   Pages 1 — 256

25

1   of communication did you primarily use?   10:52:01AM

2   A   In what context?

3   Q   In terms of electronic communication. So

4   I'll withdraw the question.

5   Did you typically e-mail other members of   10:52:13AM

6   the Software Engineering team between 2010 and 2012?

7   A   Yes.

8   Q   Other than e-mail, did you use any other

9   form of electronic communications such as Chat or

10   some sort of internal e-mail system, et cetera?   10:52:31AM

11   A   Yes.

12   Q   And tell me about those other means of

13   communication you used.

14   A   Facebook Messages, that includes Chat and,

15   like, non-chat Message. That's primarily that, I   10:52:47AM

16   think. I might miss some other tool, but I couldn't

17   recall at this point.

18   Q   What was -- what was your e-mail address

19   between 2010 and 2012, your Facebook?

20   A   It's █████████████████   10:53:21AM

21   Q   If you'd turn back to Exhibit Number 2 and

22   you look on the second page, do you see the heading

23   "Understanding Cells"?

24   A   Yes.

25   Q   And do you see the third bullet point   10:53:54AM

Page 50

1 send her a message and what's going to happen, like,   11:44:49AM

2 after the request enters the first, like, Facebook

3 MTA server.

4   Q   And -- so let's -- let's walk through this

5 diagram. What does "MTA" mean?   11:45:06AM

6   A   MTA is a commercial -- I think it's a

7 commercial software we bought to receive the -- to

8 handle the external e-mail requests and also, like,

9 we use it for internal message sending/receiving

10 purpose as well.   11:45:34AM

11   Q   And then how about that next box, "Spam

12 Detection"; what does that mean?

13   A   Spam Detection means we detect whether a

14 message is a spam message or not.

15   Q   And did you play any role in creating the   11:45:47AM

16 Spam Detection functionality?

17   A   No.

18   Q   Who was primarily responsible for that?

19   A   We call it Site Integrity on Facebook.

20   Q   And did you have a primary point of   11:46:05AM

21 contact in the Site Integ- -- on the Site Integrity

22 team between 2010 and 2012?

23   A   I didn't personally. I couldn't remember.

24   Q   Did you write any code that dealt with

25 spam detection in the Messages product?   11:46:23AM

Page 84

1   A   User Snapshot was the blob of metadata we   1:22:09PM

2 saved to HBase.

3   Q   Let's -- let's turn just for one few more

4 questions back to Exhibit Number 3. And I want to

5 go to the -- that diagram on the second page, the   1:23:34PM

6 "Incoming Flow" diagram. And we talked a little bit

7 about spam detection earlier, and you indicated that

8 Site Integrity was primarily responsible for that.

9   Do you know whether Facebook does any

10 malware detection on incoming messages?   1:24:02PM

11   A   I don't know.

12   Q   Don't know?

13   A   I don't.

14   Q   And just so we're clear, do you know

15 whether they did any malware scanning of incoming   1:24:15PM

16 messages between January 1st, 2010, and January 1st,

17 2013?

18   A   I don't have firsthand knowledge. Yeah, I

19 don't have firsthand knowledge.

20   Q   Do you ever recall having any discussions   1:24:36PM

21 with anyone about any malware scanning that Facebook

22 was doing?

23   MR. JESSEN: Object to form.

24   THE WITNESS: I couldn't recall now. It

25 might, but because it's, like, four, five years ago, 1:24:52PM

                                                Page 107

1   I couldn't recall now.   1:24:55PM

2   BY MR. CARNEY:

3   Q   Do you recall whether you were -- ever

4   wrote any code dealing with malware scanning?

5   A   I couldn't remember at this point. I   1:25:15PM

6   couldn't remember.

7   Q   Do you know whether Facebook does any

8   scanning to protect the site from hackers? Strike

9   that.

10   Do you know whether Facebook did any   1:25:34PM

11   scanning to protect the site from hackers between

12   January 1st, 2010, January 1st, 2013?

13   A   I think that's what Site Integrity team

14   does -- did; that's their job detail.

15   Q   Did you have any discussions with anyone   1:25:52PM

16   at the Site Integrity team regarding their efforts

17   to prevent or protect the site from hackers related

18   to the Messages product?

19   A   I couldn't remember the exact

20   conversation. I might be in some e-mail thread or   1:26:10PM

21   something, but I couldn't remember.

22   Q   Do you recall whether you wrote any code

23   dealing with efforts to protect the site from

24   hackers?

25   A   I couldn't remember.   1:26:31PM

1   I, the undersigned, a Certified Shorthand

2   Reporter of the State of California, do hereby certify:

3   That the foregoing proceedings were taken

4   before me at the time and place herein set forth; that

5   any witnesses in the foregoing proceedings, prior to

6   testifying, were administered an oath; that a record of

7   the proceedings was made by me using machine shorthand

8   which was thereafter transcribed under my direction;

9   that the foregoing transcript is a true record of the

10   testimony given.

11   Further, that the foregoing pertains to the

12   original transcript of a deposition in a Federal Case,

13   before completion of the proceedings, a review of the

14   transcript [X] was [ ] was not requested.

15   I further certify I am neither financially

16   interested in the action nor a relative or employee of

17   any attorney or any party to this action.

18   IN WITNESS WHEREOF, I have this date

19   subscribed my name.

20

21   Dated: July 7, 2015

22

23

24   _____

           KELLI COMBS

25   CSR No. 7705

In the Matter of: *Campbell et al. v. Facebook, Inc.*
                      Case No. 13-CV-05996-PJH

Date of deposition: June 30, 2015

Witness: Jiakai Liu

Reason codes:

1.   To clarify the record.
2.   To conform to the facts.
3.   To correct transcription errors.

Page	Line	Reads	Should Read	Reason Code
9	23	Street address is ███████████.	Street address is ███████████.	3
14	21	Q. And what type of software did you build at Google? A. It varies. For example, I worked on Google Book Search for a while and then because the Web -- because the Web is like the photo service and a few other things.	Q. And what type of software did you build at Google? A. It varies. For example, I worked on Google Book Search for a while and then Picasa Web which is like the photo service and a few other things.	3
16	18	Q. Can you tell me what their names are? A. One of them was Hary Wang, H-A-R-Y W-A-N-G.	Q. Can you tell me what their names are? A. One of them was Harry Wang, H-A-R-R-Y W-A-N-G.	3
21	4	A. Kannan, K-A-N-N-A-N; Karthic, Karthic.	A. Kannan, K-A-N-N-A-N; Karthik.	3
28	6	Q. Who was your boss on the Home team? A. It was Tom Addison.	Q. Who was your boss on the Home team? A. It was Tom Alison.	3
29	4	Q. Is Mr. Addison still your boss? A. No.	Q. Is Mr. Alison still your boss? A. No.	1
60	24	Q. Why did you write it? A. Same reason as, like, this block post.	Q. Why did you write it? A. Same reason as, like, this blog post.	3
71	16	And when the reviewers are happy, like,	And when the reviewers are happy, like, satisfied,	3

		satisfied, they can accept the change, and then you can lend the change, commit the change to the repository.	they can accept the change, and then you can land the change, commit the change to the repository.	
94	21	A. Uh-huh. Index is -- it's generally you can imagine it as a mapping from a stream, from, like, some – something, from some entities.	A. Uh-huh. Index is -- it's generally you can imagine it as a mapping from a string, from, like, some – something, from some entities.	3
94	23	It maps to a collection of some other ID or streams.	It maps to a collection of some other ID or strings.	3
99	25	Q. What's a memcache tier? A. Memcache tier is a common cache service using Facebook.	Q. What's a memcache tier? A. Memcache tier is a common cache service used in Facebook.	3
106	3	their Facebook e-mail address, by the time team we support e-mail address for Facebook users, and that message will start an e-mail-originated thread.	their Facebook e-mail address, by the time we support e-mail address for Facebook users, and that message will start an e-mail-originated thread.	3
108	14	A. I think that's what Site Integrity team does – did; that's their job detail.	A. I think that's what Site Integrity team does – did; that's their job duty.	3
121	3	Q. How about Michael Adkins? A. Michael Adkins, I heard his name, but I don't know him personally or worked with him, no.	Q. How about Michael Adkins? A. Michael Adkins, it's a guy I know on Messages team and had some work relationship.	1
123	21	A. Andrew Bosworth, the boss, Andrew Bosworth I mentioned earlier.	A. Andrew Bosworth, the Boz, Andrew Bosworth I mentioned earlier.	3
164	21	So, to me, it's like two independent concepts. One, it's the implementation for Facebook Messages, which I had worked on and continue to work on, like, is the patent worth filing.	So, to me, it's like two independent concepts. One, it's the implementation for Facebook Messages, which I had worked on and continue to work on, like, while the patent was filing.	3
197	7	The memory cache dirty service and posted processing --	The memory cache dirty service and post processing --	3
197	10	The memcache dirty service and posted processing	The memcache dirty service and post processing	3

1 there. What did you mean by the term "concrete"?   6:27:34PM

2   A   Concrete as to, like, versus abstract.

3 Identification module is abstract concept. I don't

4 remember I call any code I wrote as identification

5 module. I don't remember I did that.   6:27:50PM

6   MR. CARNEY: All right. No further

7 questions. Thank you for your time.

8   THE WITNESS: Thank you.

9   THE VIDEOGRAPHER: Anybody else?

10   MR. JESSEN: Just give me a minute.   6:28:14PM

11   MR. CARNEY: Of course.

12   THE VIDEOGRAPHER: We are off the record

13 at 6:28 p.m.

14   (Recess taken.)

15   MR. JESSEN: No questions from me.   6:28:25PM

16   THE VIDEOGRAPHER: We're back on the

17 record at 6:29 p.m.

18   MR. JESSEN: I have no questions for this

19 witness.

20   THE VIDEOGRAPHER: This is the end of   6:29:15PM

21 today's deposition of Mr. Jiakai Liu. We are off

22 the record at 6:29 p.m. Thank you.

23   (Time noted: 6:29 p.m.)

24

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Page 254

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8 I, JAIKAI LIU, do hereby declare under penalty of

9 perjury that I have read the foregoing transcript; that

10 I have made any corrections as appear noted, in ink,

11 initialed by me; that my testimony as contained herein,

12 as corrected, is true and correct.

13   EXECUTED this____7th day of____Aug____, 2015, at

14 MENLO PARK   CA____.

15 (city)   (State)

16

17

18   _____Jiakai Liu_____

         JAIKAI LIU

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Page 255

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1   I, the undersigned, a Certified Shorthand

2 Reporter of the State of California, do hereby certify:

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14 transcript [X] was [ ] was not requested.

15   I further certify I am neither financially

16 interested in the action nor a relative or employee of

17 any attorney or any party to this action.

18   IN WITNESS WHEREOF, I have this date

19 subscribed my name.

20

21 Dated: July 7, 2015

22

23

24   _Kelli Combs_
         KELLI COMBS

25   CSR No. 7705

Page 256

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65 (Pages 254 - 256)