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1 A. Yes, absolutely. They're how you
 2 interact with Facebook and just with Facebook,
 3 of course.
 4 Q. So you couldn't use the Facebook
 5 API to interact with MySpace or something like
 6 that?
 7 A. No, it would not be possible.
 8 Q. And where are the documents, the
 9 public documents made available to tell the
 10 developers how to build these applications and
 11 how to interact with Facebook?
 12 A. On the Facebook website.
 13 Q. Have you heard what they call the
 14 developers wiki?
 15 A. Yeah.
 16 Q. Is that where APIs are located?
 17 A. Yes, I think so.
 18 Q. When you build your application,
 19 did you use the documents that are found on the
 20 Facebook website?
 21 A. Yeah, I used the public document
 22 that described the API.
 23 Q. I would like to show you what's
 24 been marked as PTX 904. Dr. Vigna, are you

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1 familiar with this document?
 2 A. Yes.
 3 Q. And what is this document?
 4 A. So this describes one of those
 5 entries in the interface that I showed you, so
 6 one of the things that can be done. In
 7 particular, it says that one of those requests
 8 could be Photos.get Albums. That means get me
 9 all the metadata about all the photo albums
 10 uploaded by the specified user.
 11 So if I have the rights, of
 12 course, to access information and I perform this
 13 request from my application, I will receive all
 14 the metadata about the photo albums for that
 15 user.
 16 Q. What does that description provide
 17 to you in forming your opinion about Facebook
 18 infringing Claim 9 of the patent?
 19 A. Well, that by providing this
 20 problematic API, Facebook allows third party to
 21 actually perform the steps of the claim.
 22 Q. And if you --
 23 MR. ANDRE: I would like to move
 24 PTX 904 into evidence, Your Honor.

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1 MS. KEEFE: No objection.
 2 THE COURT: It's admitted.
 3 BY MR. ANDRE:
 4 Q. Is the wiki also developed to
 5 assist the developer platform?
 6 A. Yes.
 7 MR. ANDRE: I would like to move
 8 PTX 906.
 9 BY MR. ANDRE:
 10 Q. Dr. Vigna, are you familiar with
 11 what's been marked as PTX 906?
 12 A. Yes.
 13 Q. What is this document?
 14 A. This is another description of
 15 another element of the API, in this case,
 16 Photos.get is another way that a third party can
 17 interact with a Facebook website. If an
 18 application invokes this particular function it
 19 will return all the visible photos according to
 20 some specified filters.
 21 Q. And how does this document inform
 22 your opinion as to the infringement?
 23 A. This is another example of how
 24 Facebook provides the means for people to

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1 develop applications that actually perform the
 2 steps of Claim 9.
 3 Q. Can we go to the second page of
 4 the document. Go to this section here.
 5 Dr. Vigna, could you describe what
 6 we're looking at in this line right here?
 7 A. Yeah. So this is a little on the
 8 technical side, but this is -- it shows how
 9 instead of using this API one could even go even
 10 deeper into getting their -- the content of the
 11 Facebook website.
 12 If you remember, I was -- when I
 13 was talking about PHP, the PHP was using this
 14 other language, sequel, SQL. Facebook has a
 15 variation on that language called FQL, Facebook
 16 query language. That allows third-party
 17 application to actually directly go into
 18 Facebook and extract information such as in this
 19 particular case the context information stored
 20 in the photo table.
 21 Q. And when it says select, pid, aid,
 22 owner, src, src_big, src_small, link, caption,
 23 created, is that some type of language that only
 24 computers understand?

1 A. Well, this is this is very similar
2 to the information that is being uploaded that I
3 showed in the source code when we showed how
4 photos were uploaded. So what happens under the
5 hood when somebody uploads a picture is that
6 context information is captured and stored as
7 metadata and here it shows how a subset of that
8 metadata can be directly accessed by a
9 third-party application using this mechanism.

10 MR. ANDRE: Your Honor, I would
11 like to move PTX 906 into evidence.

12 MS. KEEFE: No objection, Your
13 Honor.

14 THE COURT: It's admitted.

15 MR. ANDRE: I know we're close to
16 our morning break. Would you like me to close
17 out this line of questioning? I have two more
18 documents I would like to show Dr. Vigna on this
19 line.

20 THE COURT: Why don't you close
21 out this line of questioning, given the nature
22 of the evidence we'll take our break a little
23 early this morning, so go ahead.

24 BY MR. ANDRE:

1 information that is stored by Facebook whenever
2 a photo is uploaded. For example, the size of
3 the photo, the size of the thumbnail for the
4 photo, when it was created, for example, the
5 third from last is the date when the photo was
6 added. If the photo gets modified, also they
7 track that. And they store the metadata when
8 the photo was modified and so forth.

9 Q. Dr. Vigna, did Exhibit PTX 907
10 inform your opinion as to Facebook's
11 infringement of the '761 patent?

12 A. Yes.

13 Q. How did it do so?

14 A. Because it describes how third
15 party can interact with the website and perform
16 the steps of the claim.

17 Q. Dr. Vigna, you referred to
18 something being indexable. What does indexable
19 mean?

20 A. Well, this is sort of a technical
21 term, but when there are a lot of information of
22 a certain kind, it is possible to create indexes
23 that allow to access this information in faster,
24 in a faster way. So a classic example, for

1 Q. Dr. Vigna, I would like to turn
2 your attention to PTX 907. Are you familiar
3 with this document?

4 A. Yes.

5 Q. This is also from the Facebook
6 developer wiki?

7 A. Yes.

8 Q. What is this document?

9 A. This is a description of the photo
10 table that is accessible using that Facebook
11 query language that I was mentioning before.
12 And it shows how the main information about a
13 photo can be retrieved using the FQL statement
14 described there.

15 Q. So when it says query this table
16 to return information about a photo, are you
17 talking about the metadata of the photo?

18 A. Yes, the context information that
19 has been captured and stored as metadata in the
20 storage component.

21 Q. If you look down to this table
22 here, it says columns. What is that referring
23 to?

24 A. Well, this is all additional

1 example, is your contacts. Instead of having
2 your contacts one after another in complete
3 casual order, you store them by letter. So
4 everybody who last name is under A, you have a
5 little tag that say A. That's an index, because
6 it allows you to get to that information faster
7 than going through all the records one by one to
8 find John Adams, instead you say A, okay, I can
9 go there and immediately find that record.

10 MR. ANDRE: Your Honor, I move PTX
11 907 into evidence.

12 MS. KEEFE: No objection, Your
13 Honor.

14 THE COURT: It's admitted.

15 BY MR. ANDRE:

16 Q. Dr. Vigna, I would like to turn
17 your attention to PTX 911. Are you familiar
18 with the document that's been marked as PTX 911?

19 A. Yes.

20 Q. What is this document?

21 A. This is yet another description of
22 one of those entries in the API. In this
23 particular case, the Stream.publish
24 functionality allows a third party to post a

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1 message on a user wall. For example, in my
 2 application I use this particular functionality
 3 to be able to write on the wall of the users of
 4 my application so that I can communicate with
 5 them, for example.
 6 Q. When it talks about the post also
 7 appears in the streams (News Feeds), do you see
 8 that?
 9 A. Yes.
 10 Q. What is that referring to?
 11 A. Well, whenever a third-party
 12 application uses this method to this -- sorry,
 13 this API code to perform the actions that I
 14 describe as -- it's pretty much equivalent to a
 15 user actually going to the page and putting in
 16 manually the information on the wall.
 17 Therefore, the metadata that
 18 tracks what happens is generated and will appear
 19 in the News Feed of the people that are
 20 concerned.
 21 Q. And does PTX-911 inform your
 22 opinion as to whether Facebook's website
 23 infringes?
 24 A. Yes.

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1 Q. And how does it do so?
 2 A. Because it shows how -- it shows
 3 that Facebook is providing the means for
 4 third-party application to perform the steps of
 5 the claim.
 6 MR. ANDRE: Your Honor, I'd like
 7 to move PTX-911 into evidence.
 8 MS. KEEFE: No objection.
 9 THE COURT: It's admitted.
 10 BY MR. ANDRE:
 11 Q. Dr. Vigna, based on the documents
 12 provided in this case and what you've reviewed
 13 in the source code, do you have an opinion as to
 14 whether or not the applications built by these
 15 third-party developers would infringe the
 16 claims of the Claim 9?
 17 A. Yes, I think that these kind of
 18 applications will infringe Claim 9.
 19 Q. And are these applications built
 20 pursuant to Facebook's instructions or
 21 directions?
 22 A. Yeah, because Facebook clearly
 23 describes how to interact with the website and
 24 create these applications.

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1 MR. ANDRE: Your Honor, I'm ready
 2 to go through the Doctrine of Equivalents, Claim
 3 9.
 4 THE COURT: This would be an
 5 appropriate time for us to take our break.
 6 We'll take a break for 15 minutes.
 7 We'll show the jury out.
 8 THE CLERK: All rise.
 9 (Jury leaving the courtroom at
 10 10:37 a.m.)
 11 THE COURT: We'll be in recess for
 12 15 minutes.
 13 (A brief recess was taken.)
 14 THE CLERK: All rise.
 15 THE COURT: Bring the jury in.
 16 THE CLERK: All rise.
 17 MR. ANDRE: Your Honor, would you
 18 like Dr. Vigna to take the stand now or wait for
 19 the jury to come in?
 20 THE COURT: Rather than have to
 21 raise that, that way maybe you could set up the
 22 board if you're going to use it again after the
 23 jury's seated.
 24 (Jury entering the courtroom at

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1 10:57 a.m.)
 2 THE CLERK: All rise. Be seated.
 3 THE COURT: Welcome back.
 4 Mr. Andre.
 5 MR. ANDRE: Your Honor, I'd like
 6 to recall Dr. Vigna.
 7 THE WITNESS: Thank you.
 8 MR. ANDRE: Your Honor, may I set
 9 the board up, also?
 10 THE COURT: Yes.
 11 BY MR. ANDRE:
 12 Q. So Dr. Vigna, we were just
 13 finishing up Claim 9 --
 14 A. Yes.
 15 Q. -- at the break.
 16 And based on all of the documents
 17 you provided or you've reviewed so far in this
 18 case, and the source code, the testimony of the
 19 Facebook employees, do you have an opinion as to
 20 whether Facebook infringes Claim 9?
 21 A. Yes, I do.
 22 Q. And what is that opinion?
 23 A. That Facebook infringes Claim 9.
 24 Q. Could you put a check in the box

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<p>1 next to Claim 9, please?</p> <p>2 Could you also explain what the</p> <p>3 introductory section is? What's your</p> <p>4 understanding of what the introductory statement</p> <p>5 is at the beginning of every claim?</p> <p>6 A. This preamble here?</p> <p>7 Q. Right. The preamble.</p> <p>8 A. It's a way to sort of set forth</p> <p>9 the context for the -- all of the elements of</p> <p>10 the claim. And as far as I understand, it's not</p> <p>11 necessarily confining the scope of the claims of</p> <p>12 the elements.</p> <p>13 Q. Okay. Thank you.</p> <p>14 And did you find that every</p> <p>15 element of Claim 9 was literally infringed by</p> <p>16 the Facebook website?</p> <p>17 A. Yes, I did.</p> <p>18 Q. And does Facebook infringe under</p> <p>19 the Doctrine of Equivalents, Claim 9?</p> <p>20 A. Yeah, it at least infringes under</p> <p>21 the Doctrine of Equivalents.</p> <p>22 Q. Why do you say that?</p> <p>23 A. Because it -- you know, it</p> <p>24 performs substantially in the same way to</p>	<p>1 stored on a storage component. And the metadata</p> <p>2 includes information related to the user, the</p> <p>3 data, the application and the user environment.</p> <p>4 Q. And at the very least, does the</p> <p>5 Facebook website perform substantially the same</p> <p>6 functions as Element 3 of Claim 9?</p> <p>7 A. Yes.</p> <p>8 Q. Why do you say that?</p> <p>9 A. Because it has tracking, because</p> <p>10 it tracks movement of the user from the user</p> <p>11 environment from one environment to a second</p> <p>12 environment of the computing platform.</p> <p>13 Q. And at the very least, does the</p> <p>14 Facebook website perform substantially the same</p> <p>15 function of Element 4 of Claim 9?</p> <p>16 A. Yeah, because it dynamically</p> <p>17 updates the stored metadata with an association</p> <p>18 of the data, and the second user environment</p> <p>19 when the user employs at least one of the</p> <p>20 applications and the data from the second</p> <p>21 environment.</p> <p>22 Q. At the very least, does the</p> <p>23 Facebook website perform in substantially the</p> <p>24 same way as Element 1 of Claim 9?</p>
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<p>1 achieve the same result.</p> <p>2 Q. Does it perform substantially the</p> <p>3 same function as well?</p> <p>4 A. Yeah, the same function in the</p> <p>5 same way to achieve the same result.</p> <p>6 Q. Now, I apologize. I want to walk</p> <p>7 through these element by element.</p> <p>8 A. Let's do it.</p> <p>9 Q. At the very least, does the</p> <p>10 Facebook website perform substantially the same</p> <p>11 function as Element 1 of Claim 9?</p> <p>12 A. Yes.</p> <p>13 Q. Why do you say that?</p> <p>14 A. Because it describes steps for</p> <p>15 creating data with a user environment or</p> <p>16 web-based computing platform, user interaction</p> <p>17 by a user using an application.</p> <p>18 Q. And at the very least, does the</p> <p>19 Facebook website perform substantially the same</p> <p>20 function as Element 2 of Claim 9?</p> <p>21 A. Yes.</p> <p>22 Q. And why do you say that?</p> <p>23 A. Because it dynamically associates</p> <p>24 the metadata with the data, which are both</p>	<p>1 A. Yeah, because it creates the data</p> <p>2 via the user interaction and stores the data in</p> <p>3 the form of at least files and documents.</p> <p>4 Q. And at the very least, does the</p> <p>5 Facebook website perform in substantially the</p> <p>6 same way as Element 2 of Claim 9?</p> <p>7 A. Yeah, because it dynamically</p> <p>8 associates the metadata with the data.</p> <p>9 Q. And at the very least, does the</p> <p>10 Facebook website perform in substantially the</p> <p>11 same way as Element 3 of Claim 9?</p> <p>12 A. Yeah, because it tracks the</p> <p>13 movement from the -- of the user from one</p> <p>14 environment to another.</p> <p>15 Q. And at the very least, does the</p> <p>16 Facebook website perform in substantially the</p> <p>17 same way as Element 4 of Claim 9?</p> <p>18 A. Yeah, because it dynamically</p> <p>19 updates stored metadata with the association of</p> <p>20 the data, the application and the second user</p> <p>21 environment.</p> <p>22 Q. At the very least, does the</p> <p>23 Facebook website yield the same results of</p> <p>24 Element 1 of Claim 9?</p>

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1 A. Yeah, because as a result, it
2 creates data in -- within a user environment.
3 Q. And at the very least, does the
4 Facebook website yield the same result as
5 Element 2 of Claim 9?
6 A. Yeah, because it results in the
7 association of the metadata with the data.
8 Q. And at the very least, does the
9 Facebook website yield the same results of
10 Element 3 of Claim 9?
11 A. Yeah, because as a result, the
12 user is tracked from one environment to another.
13 Q. And last, but not least, at the
14 very least, does the Facebook website yield the
15 same results as Element 4 of Claim 9?
16 A. Yeah, because the stored metadata
17 is dynamically updated as a result.
18 Q. And does -- at the very least,
19 does the Facebook website infringe under the
20 Doctrine of Equivalents for all the reasons you
21 testified about earlier today?
22 A. Yes.
23 Q. When I refer to the Facebook
24 website, do you understand what I'm referring

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1 to?
2 A. Yes.
3 Q. What is that exactly?
4 A. Well, the Facebook website is a
5 web application, which is a system that can be
6 accessed through the web to perform certain
7 actions.
8 Q. So it's -- when I'm referring to
9 website, it's the servers and all the hardware
10 and software that's --
11 A. That is correct. It's -- you
12 know, it's a very complex distributed system
13 that is composed, of course, of both hardware
14 and software, and that provides access to users
15 to different types of functionality.
16 Q. So when you're giving your opinion
17 of infringement of the Facebook website, you're
18 actually talking about the servers?
19 A. Yeah. I'm talking about, you
20 know, the systems, the code that is performing
21 the function and whatever is being used by the
22 users.
23 Q. Okay. We'll turn to dependent
24 Claim 11.

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1 A. Yes.
2 Q. Dr. Vigna, do you have an opinion
3 as to whether or not Facebook infringes Claim 11
4 of the '761 patent?
5 A. Yes.
6 Q. And what is that opinion?
7 A. That it infringes.
8 Q. Can we have Claim 11?
9 Could you describe generally
10 what's disclosed in Claim 11?
11 A. Yeah. So this is the method of
12 Claim 9.
13 And in addition to that, it
14 describes a way of indexing content of the user
15 environment, so that multiple users can access
16 the content from different user environments.
17 And what -- if we can switch to
18 the code, actually I can, you know, show you. I
19 have to find it.
20 I think maybe I'd know it by heart
21 at this point.
22 MR. ANDRE: Oh, Your Honor, we'd
23 like to seal the record.
24 THE COURT: Yes.

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1 THE WITNESS: Okay. So one, you
2 know, rather important piece of this whole thing
3 is -- I think it's schema.
4 So if you remember, I was
5 describing the fact that this sequel language is
6 used to store and retrieve information from a
7 database. And this, as you can see from the
8 first line, is a dump of the structure that is
9 used to store some of the information on the
10 Facebook website.
11 And for example, if I go to --
12 let's see if I can find it.
13 Yeah. For example, let's look at
14 this table info.
15 Pretty big table. And this, for
16 example, is information that is captured and
17 stored about users.
18 Now, you can see that here there
19 is, for example, user meeting people, your
20 interests, your clubs, the music you like, your
21 birthday, your gender, your name, of course,
22 first name, last name, et cetera, et cetera.
23 So this is just a structured way
24 to store the information. And what they do, if

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1 we look here at the end, we see that these keys
 2 are used for indexing.
 3 Okay. And you can see that
 4 whenever you create -- use a key in a database,
 5 it's a way -- it's sort of like if you remember
 6 the example of the contacts where you store
 7 everything by A, by B, by C to access them more
 8 easily, this is the same concept, you can set a
 9 key or an index on a particular table in order
 10 to make easier to access that information from
 11 different, from different point of view.
 12 Q. Is that the portion that you want
 13 to show this element?
 14 A. There is another portion. Let me
 15 check really fast.
 16 Q. Dr. Vigna, just while you're
 17 looking at that, how much time did you spend
 18 wading through the Facebook source code?
 19 A. Days. I don't have a precise
 20 count, but definitely four or five days
 21 full-time. It was long hours. Headaches, too.
 22 Yeah, so this is an example for the info table
 23 and it shows, you know, for example, that this
 24 is an indexing key called a primary key.

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1 Another example is, for example,
 2 the photo table that we have seen used many
 3 times in the source code. This is the actual
 4 description of the table. And you can see, you
 5 know, all the kind of information that is
 6 stored. And you can see that, for example, this
 7 is the primary key used for an index is the, you
 8 know, photo I.D. in this particular case, so
 9 it's a way of indexing contacts so that it can
 10 be easily accessed in multiple situation.
 11 Thank you.
 12 MR. ANDRE: Your Honor, we can
 13 unseat the record now.
 14 THE COURT: Okay.
 15 BY MR. ANDRE:
 16 Q. If we go to PTX 907 that we showed
 17 earlier where it says something is indexable, is
 18 that what you're referring to, the index table
 19 you were talking about?
 20 A. Correct.
 21 So this is pretty much saying that
 22 those particular parts of the information will
 23 be used as an index to grant fast access to the
 24 information from, you know, multiple user

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1 environments.
 2 Q. So based on the source code you
 3 showed us just now, the documents that we have
 4 shown and your previous testimony, do you have
 5 an opinion as to whether Facebook infringes
 6 Claim 11?
 7 A. Yes. My opinion is that it
 8 infringes Claim 11.
 9 Q. Could you put a check in the box.
 10 A. (Witness complying.)
 11 Q. If you can turn your attention to
 12 Claim 16, now.
 13 Dr. Vigna, do you have an opinion
 14 as to whether or not Facebook infringes Claim 16
 15 of the '761 patent?
 16 A. Yes, I do.
 17 Q. What is your opinion?
 18 A. That Facebook infringes Claim 16.
 19 Q. What does Claim 16 cover?
 20 A. It describes the method of Claim
 21 9. And in addition, the ability to access the
 22 user environment via a portable wireless device.
 23 Q. What would be an example of a
 24 portable wireless device?

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1 A. Your cell phone, for example, that
 2 has a browser on it so that you can go to
 3 Facebook as a website. Actually Facebook has a
 4 website called finc.facebook.com that is devoted
 5 to portable wireless devices.
 6 Q. I would like to direct your
 7 attention to PTX 227.
 8 MR. ANDRE: Your Honor, may I have
 9 one moment? I have the wrong exhibit number.
 10 May I have one moment, please?
 11 THE COURT: Sure. Go ahead.
 12 (Discussion off the record.)
 13 MR. ANDRE: I apologize, Your
 14 Honor.
 15 THE COURT: Is the correct
 16 document in the binder?
 17 MR. ANDRE: I don't know. We're
 18 looking for it. Unfortunately I handwrote my
 19 notes on it, and I have the wrong one.
 20 THE WITNESS: Actually can I ask
 21 you to open 942.
 22 MR. ANDRE: Okay. Exhibit 942,
 23 please. Working late nights I reversed the
 24 numbers.

1 THE WITNESS: If you go down,
 2 next. Next. Next. Again. Again. Okay. You
 3 can see here on the left-hand side that there is
 4 a clear depiction of how the website can be
 5 accessed through your mobile phone which would
 6 be wireless portable device.
 7 Q. And that's on PTX 942 on the Bates
 8 number LT1 157087; correct?
 9 A. Yes.
 10 Q. Let me try with the right exhibit
 11 number this time. Can you turn to PTX 277.
 12 A. I'm just trying to be helpful.
 13 Q. That's a good one, too. I
 14 appreciate that. This is what I was looking
 15 for.
 16 A. Yes.
 17 Q. Have you seen this document?
 18 A. Yes.
 19 Q. And did it inform your opinion as
 20 to Claim 16?
 21 A. Yeah.
 22 Q. And how did it do so?
 23 A. This is a document that describe
 24 the Facebook mobile client that allows to

1 interact with Facebook through network mobile
 2 device, like a cell phone, for example.
 3 Q. When it talks about the mobile
 4 client provides automatic photo upload from
 5 mobile devices.
 6 A. Correct.
 7 Q. Does that inform your opinion at
 8 all?
 9 A. Yeah. I mean, this is just
 10 facilitating the access through the
 11 functionality of the website by means of cell
 12 phone or wireless portable device.
 13 Q. And based on the documents that
 14 you have shown us here today and the previous
 15 testimony that you have given, do you have an
 16 opinion as to whether or not Facebook infringes
 17 Claim 16 of the '761 patent?
 18 A. Yes, I think Facebook infringes
 19 that claim.
 20 Q. Would you put a check in that box?
 21 A. (Witness complying.)
 22 MR. ANDRE: Your Honor, may I
 23 approach?
 24 THE COURT: You may.

1 MR. ANDRE: Your Honor, I would
 2 like to move Exhibit 277 into evidence as well.
 3 MS. KEEFE: No objection, Your
 4 Honor.
 5 THE COURT: It's admitted.
 6 BY MR. ANDRE:
 7 Q. Dr. Vigna, I would like to turn
 8 your attention to Claim 21. What type of claim
 9 is Claim 21?
 10 A. So this is a claim that describes
 11 a computer-readable medium for storing
 12 computer-executable instructions for a method of
 13 managing data and then describes the
 14 characteristics of the methods.
 15 Q. What exactly is computer-readable
 16 media?
 17 A. So, anything that can store
 18 information that you can retrieve and that can
 19 be used as part of a computer system. An
 20 example would be a computer disk, it could be
 21 the memory, it could be -- that's pretty much
 22 it. That's what we have. I was thinking about
 23 new technology, and not yet.
 24 Q. And in Facebook's case, where is

1 the computer-readable media located?
 2 A. On the servers that execute the
 3 code, for example, the computer-readable
 4 instructions are somewhere, so whenever a
 5 request is made that code is retrieved and it's
 6 executed.
 7 Q. And where are Facebook's servers
 8 located?
 9 A. According to what I could read
 10 from the testimony, on a number of servers in
 11 the United States.
 12 Q. And what type of code are on these
 13 servers that Facebook has in California and the
 14 East Coast?
 15 A. I think that there are several
 16 kinds of code. By and large, Facebook is
 17 written PHP, which is this code that I have been
 18 showing you. Of course there is also Sequel
 19 code. There are also other pieces of the system
 20 that are implemented in different programming
 21 language. I mean, a complex system often times
 22 is implemented in different ways with different
 23 subcomponents implemented using different
 24 technologies for a number of reasons; could be

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1 because of performance reason or just because,
 2 you know, the developer that day decided that he
 3 really liked a language called Python and
 4 decided to write something in Python.
 5 The important thing is that these
 6 are instructions. I mean, every programming
 7 language is just a series of commands, high
 8 level, low level, it doesn't really matter, but
 9 a series of commands to tell a computer what to
 10 do. And that's exactly what it is.
 11 Q. And based on your review of the
 12 code on the Facebook servers, did you form an
 13 opinion as to Claim 21?
 14 A. Yes.
 15 Q. And what is that opinion?
 16 A. That Facebook infringes Claim 21.
 17 Q. If you look at the first element
 18 of Claim 21, creating data related to user
 19 interaction, did you form an opinion as to
 20 whether or not Facebook code or Facebook
 21 infringes the first element of Claim 21?
 22 A. Yes. My opinion is that Facebook
 23 infringes that element.
 24 Q. And what is that element

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1 describing?
 2 A. So, it's describing the creation
 3 of data related to user, interaction of a user
 4 within a user workspace of a web-computing
 5 platform using an application.
 6 Q. What is a workspace?
 7 A. A workspace is sort of like a
 8 subset of the context or environment where the
 9 user is operating, it allows the user to perform
 10 certain actions.
 11 Q. And could you show us with the
 12 Interceptor code where you would see the
 13 elements of Claim 1 -- I mean, the element --
 14 the elements described in the first element?
 15 A. Yeah.
 16 So --
 17 Q. You have to switch over.
 18 A. So, again, we have, for example,
 19 in the case of updating one's profile picture,
 20 we have the user interacts -- sorry. Here the
 21 user interacts with a workspace it allows to
 22 upload a picture, for example, this is part of
 23 the workspace.
 24 Q. So this is part of the workspace

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1 that's being referred to in Claim 21?
 2 A. Correct. And the user interacts
 3 with his part of the user environment, so the
 4 user is the subset of the other user environment
 5 that allow it to interact with the system. And
 6 because of that, then the picture is uploaded,
 7 and the image is updated. So new data is
 8 created this way.
 9 MR. ANDRE: Your Honor, I would
 10 like to seal the record for the demonstration of
 11 the source code.
 12 THE COURT: That's fine.
 13 BY MR. ANDRE:
 14 Q. Could you show us in the source
 15 code where the first element of Claim 21 is
 16 located?
 17 A. Yes. I'm getting there.
 18 So, for example, if you go to
 19 upload.php, this is the actual files that is
 20 used to upload the profile picture. And you can
 21 see that this is actually then in
 22 html/ajax/profile/picture/upload.php. And
 23 eventually this code will actually store the
 24 profile picture, capture that information and

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1 produce the metadata.
 2 Q. And based on the demonstration of
 3 the code here, do you have an opinion as to
 4 whether or not Facebook infringes the first
 5 element of Claim 21?
 6 A. Yes.
 7 Q. And what is that opinion?
 8 A. That it infringes.
 9 Q. Could you put a check in the box.
 10 A. Yes. (Witness complying.)
 11 Q. The first element
 12 Dr. Vigna, I notice you have
 13 something in your hand there. Is that your
 14 expert report?
 15 A. Yeah, that's correct.
 16 Q. If we turn to the second element
 17 of Claim 21. Do you have an understanding as to
 18 -- strike that.
 19 Do you have an opinion as to
 20 whether or not Facebook infringes the second
 21 element of Claim 21?
 22 A. Yes, I do.
 23 Q. And what's that opinion?
 24 A. That it infringes.

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1 Q. Could you generally describe what
2 is being referred to in the second element?
3 A. So, in this case, the second
4 element describes the fact that metadata is
5 dynamically associated with the data where the
6 data and the metadata are stored on a
7 web-computing platform.
8 The metadata includes information
9 related to the user of the user workspace, the
10 data to the application and to the user
11 workspace.
12 Q. When it talks about here, it's
13 talking about the metadata stored on the
14 web-based computing platform, what does that
15 mean to one skilled in the art?
16 A. Well, I mean, it's a storage
17 component on the platform on the server that
18 will take this data and store it.
19 Q. So it's just any type of a
20 platform that would store the information?
21 A. Yeah. It could be any kind of
22 hierarchy or storage system, files, databases,
23 memory, it's just stored somewhere.
24 Q. Could you demonstrate in the code

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1 where the second element of Claim 21 is found?
2 A. Yeah.
3 THE COURT: Are we going to seal
4 this part of the record?
5 MR. ANDRE: It's been sealed, Your
6 Honor, I believe.
7 THE COURT: I don't know if we
8 unsealed.
9 MR. ANDRE: That's good.
10 THE WITNESS: For example, let's
11 see, if we have photos upload.php. We don't
12 have it yet. Let's load it up.
13 BY MR. ANDRE:
14 Q. Dr. Vigna, when you're typing in
15 these file names at the bottom of the screen,
16 what exactly are you typing in there?
17 A. Okay. So I'm typing there just a
18 path in the file system that identify the source
19 code file. So this computer has the source code
20 of Facebook and each little snippet of code is
21 stored in a separate file. And every file has a
22 different name.
23 And part of my job was to analyze
24 all these pieces of code, which are many,

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1 understanding the relationships between these
2 pieces of code and identifying in all the codes
3 what were the most representative parts that
4 would support my opinion whether or not Facebook
5 infringes this particular patent.
6 Q. Is the Facebook source code
7 particularly large or small? How would you
8 characterize it?
9 A. It's very large. It's very large.
10 And it's actually a fairly complicated system.
11 Q. Okay.
12 A. So photos upload of PHP. Oops.
13 So this is one of the files.
14 Okay.
15 And here, for example, we have the
16 insertion of information into the photo table,
17 and there is context information in the form of
18 metadata that has to do, for example, with the
19 particular workspace operating, for example, the
20 album ID, the user in the user fashion, the data
21 as a link to the data or as a source reference
22 to the data.
23 And also information related to
24 the application by using the created -- by

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1 storing, the application stores when this
2 information was created.
3 Q. And based on your review of the
4 source code, and your previous testimony and the
5 documents you reviewed, do you have an opinion
6 as to whether or not Facebook infringes the
7 second element of Claim 21?
8 A. Yes. My opinion is that infringes
9 that element of the claim.
10 Q. Could you please put a check in
11 that box?
12 A. Sooner or later, I'm going to
13 trip.
14 Q. I'd like to turn to the third
15 element of Claim 21.
16 Dr. Vigna do you have an opinion
17 as to whether or not Facebook infringes the
18 third element?
19 A. Yes, I do.
20 Q. What's your opinion?
21 A. That it infringes.
22 Q. And what -- generally speaking,
23 what does the third element disclose?
24 A. This is an element that describes

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1 tracking the movement of the user from the user
 2 workspace to a second user workspace of the
 3 web-computing platform.
 4 Q. And do you have a demonstration on
 5 your interceptor there showing -- describing
 6 writing on the wall?
 7 A. Yeah, I can show, for example, my
 8 wall example.
 9 Q. You'll need to switch.
 10 A. Oh, yeah. Sorry.
 11 And in this particular case, we
 12 saw that the user was in this first workspace
 13 and decides to click on the profile of a friend.
 14 And as a result, it moves to this second profile
 15 and interacts with a user, the workspace in this
 16 particular context.
 17 And you can see that here using
 18 the cookie, the user is tracked when moving from
 19 one workspace to another.
 20 Q. And based on your review of the
 21 source code, and your analysis of the website
 22 here itself and all the previous testimony you
 23 provided regarding documents and testimony, do
 24 you have an opinion as to whether or not

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1 Facebook infringes the third element of Claim
 2 21?
 3 A. Yes.
 4 Q. What's that opinion?
 5 A. That it infringes.
 6 Q. Could you put a check in that box?
 7 A. I'd be happy to.
 8 Q. If you look at the fourth element
 9 of Claim 21, did you form an opinion as to
 10 whether or not Facebook infringed the fourth
 11 element of Claim 21?
 12 A. Yes.
 13 Q. And what's your opinion?
 14 A. That it infringes.
 15 Q. Okay. Could you generally
 16 describe what is being disclosed in the fourth
 17 element?
 18 A. So this is, again, about creating
 19 dynamically metadata that associates the data
 20 and the application with the second user
 21 workspace when the user -- such that a user
 22 employs the application and data from the second
 23 user workspace.
 24 Q. Okay. From a technical

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1 perspective, what exactly is that referring to?
 2 A. So, you know, the user uses the
 3 application and the data in the second workspace
 4 and again tracking information in the form of
 5 metadata is generated. And that metadata
 6 contains reference to these elements and puts
 7 into association data and application.
 8 Q. Could you demonstrate the fourth
 9 element of Claim 21 in the source code or you
 10 can do it any way you want to do it?
 11 A. Yeah. Yeah.
 12 Yeah. It's -- I can do it either
 13 way.
 14 So this is about -- for example, I
 15 will just go and say this is about writing on
 16 the wall and what happens when the wall gets
 17 updated.
 18 So, again, in this particular
 19 case, tracking -- for example, if we go to the
 20 source code, when this type of action is
 21 performed like posting on the wall of his
 22 friend, we would go to
 23 fib/feed/stories/add/insert.
 24 We can see here in this part that

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1 a Minifeed story is created and it has
 2 reference, for example to the user, the type of
 3 application that is determining the story type,
 4 the data which is a reference to the object ID,
 5 and the second user workspace, which in this
 6 case actually it's the uid, because when -- this
 7 story will be created.
 8 It's the story about Mary Smith.
 9 So it's going to be about this particular user
 10 ID where the message is being posted.
 11 Q. And looking at this piece of the
 12 source code that you're referring to, is there
 13 some type of a file name or something we can use
 14 for that or can you see that on that screen
 15 somewhere?
 16 I'm just trying to make the record
 17 here. How would you find that?
 18 A. Oh, sorry. Sorry.
 19 Sorry. I couldn't understand.
 20 This is the file
 21 fib/feed/stories/add/insert.php.
 22 Q. Thank you?
 23 A. I couldn't understand what you
 24 were asking.

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1 Q. That's a common occurrence.
 2 Based on looking at the code and
 3 also your demonstration on the website, do you
 4 have, and all your previous testimony, do you
 5 have an opinion as to whether or not Facebook
 6 infringes the fourth element of Claim 21?
 7 A. Yes, I do.
 8 Q. And what's your opinion?
 9 A. That it infringes.
 10 Q. Would you put a check on the box
 11 on the fourth element?
 12 Please return to the final element
 13 of Claim 21, the fifth element. Dr. Vigna, do
 14 you have an opinion as to whether or not
 15 Facebook infringes the fifth element of Claim
 16 21?
 17 A. Yes, I do.
 18 Q. And what's that opinion?
 19 A. That it infringes.
 20 Q. Generally speaking, what is the
 21 fifth element of Claim 21 referring to?
 22 A. So it refers to the fact that data
 23 is indexed, so that a plurality of different
 24 users can access the data via the metadata from

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1 different users' workspaces.
 2 Q. Could you put that in layman's
 3 terms to understand what that's referring to?
 4 A. It's very similar with what we saw
 5 with the database. Actually it's the same thing
 6 where the data is indexed so that it's easily
 7 accessible.
 8 And so this information in the
 9 metadata is stored specifying specific keys that
 10 allow for fast access to that information from a
 11 number of different environments.
 12 Q. And could you demonstrate that for
 13 us once again in the source code?
 14 A. Sorry. For example, here in
 15 the -- in this particular table, for example,
 16 extra information, metadata that has been
 17 captured about a photo, and this is indexed by,
 18 for example, the photo ID to provide fast access
 19 to the information to multiple users.
 20 Q. And could you give where the
 21 source code is located?
 22 A. This is -- sorry. This is the
 23 source code, meaning that this is the schema of
 24 the database that shows how indexing happens.

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1 Q. And based on your review of the
 2 source code and all the other testimony you've
 3 provided here today and the documents you
 4 reviewed, do you have an opinion as to whether
 5 or not Facebook infringes the fifth element of
 6 Claim 21?
 7 A. Yes. My opinion is that Facebook
 8 infringes the fifth element.
 9 Q. And based on that, do you have an
 10 opinion as to whether or not Facebook infringes
 11 all of the elements of Claim 21?
 12 A. Yeah. My opinion is that it
 13 infringes Claim 1 as a whole.
 14 Q. Claim 21?
 15 A. Yeah, Claim 21. What did I say?
 16 Q. Can you check the bottom box of
 17 the fifth element and also the top box?
 18 Thank you.
 19 MR. ANDRE: Your Honor may I
 20 approach to put the final board up?
 21 THE COURT: You may.
 22 BY MR. ANDRE:
 23 Q. And Dr. Vigna, before we go on to
 24 Claim 23, I'm going to ask you about the

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1 Doctrine of Equivalents of Claim 21. So, please
 2 bear with me.
 3 First of all, did you find that
 4 every element of Claim 21 literally is infringed
 5 by Facebook?
 6 A. Literally, yes.
 7 Q. Does Facebook infringe Claim 21
 8 under the Doctrine of Equivalents?
 9 A. At least under Doctrine of
 10 Equivalents, it infringes Claim 21.
 11 Q. At the very least, does the
 12 Facebook website perform substantially the same
 13 function as Element 1 of Claim 21?
 14 A. Yeah, because it creates data
 15 through user interaction in a user workspace.
 16 Q. At the very least, does the
 17 Facebook website perform substantially the same
 18 function as Element 2 of Claim 21?
 19 A. Yeah, because it associates
 20 dynamically the metadata.
 21 Q. At the very least, does the
 22 Facebook website perform substantially the same
 23 function as Element 3 of Claim 21?
 24 A. Yeah, because it tracks the

<p style="text-align: center;">Page 738</p> <p>1 movement of users from between workspaces.</p> <p>2 Q. At the very least, does the</p> <p>3 Facebook website perform substantially the same</p> <p>4 function as Element 4 of Claim 21?</p> <p>5 A. Yes, because it dynamically</p> <p>6 associates data and application in the metadata.</p> <p>7 Q. At the very least, does the</p> <p>8 Facebook website perform substantially the same</p> <p>9 function as Element 5 of Claim 21?</p> <p>10 A. Yes, because it provides indexing</p> <p>11 capability, so that that data can be accessed by</p> <p>12 multiple environments.</p> <p>13 Q. Going back up to the first</p> <p>14 element, at least -- at the very least, does the</p> <p>15 Facebook website perform substantially the same</p> <p>16 way as Element 1 of Claim 21?</p> <p>17 A. Yeah, because it creates data</p> <p>18 through user interactions as it says.</p> <p>19 Q. At the very least, does the</p> <p>20 Facebook website perform in substantially the</p> <p>21 same way as Element 2 of Claim 21?</p> <p>22 A. Yeah, because it dynamically</p> <p>23 associates the metadata the same way.</p> <p>24 Q. At the very least, does the</p>	<p style="text-align: center;">Page 740</p> <p>1 Element 2 of Claim 21?</p> <p>2 A. Yeah, because it dynamically</p> <p>3 associates metadata with the data.</p> <p>4 Q. At the very least, does the</p> <p>5 Facebook website yield the same results as</p> <p>6 Element 3 of Claim 21?</p> <p>7 A. Yeah, because the user is tracked</p> <p>8 from one environment to another, from a</p> <p>9 workspace to another, I should say.</p> <p>10 Q. At the very least does the</p> <p>11 Facebook website yield the same results of</p> <p>12 element four of Claim 21?</p> <p>13 A. Yeah. Because it results in</p> <p>14 ascertaining the data in the application with</p> <p>15 the second user workspace.</p> <p>16 Q. At the very least does the</p> <p>17 Facebook website yield the same results of</p> <p>18 element five of the Claim 21?</p> <p>19 A. Yes. Because it results in</p> <p>20 creating the same data to allow access to</p> <p>21 information.</p> <p>22 Q. At the very least, when we are</p> <p>23 talking about the Doctrine of Equivalents, at</p> <p>24 the very least, does the Facebook website</p>
<p style="text-align: center;">Page 739</p> <p>1 Facebook website perform in substantially the</p> <p>2 same way as Element 3 of Claim 21?</p> <p>3 A. Yeah, because it tracks the user</p> <p>4 from one workspace to another.</p> <p>5 Q. At the very least, does the</p> <p>6 Facebook website perform in substantially the</p> <p>7 same way as Element 4 of Claim 21?</p> <p>8 A. Yeah, because it dynamically</p> <p>9 associates the data and the application in the</p> <p>10 workspace in the metadata.</p> <p>11 Q. At the very least, does the</p> <p>12 Facebook website perform in substantially the</p> <p>13 same way as Element 5 of Claim 21?</p> <p>14 A. Yeah, because it indexes the data.</p> <p>15 That's a lot of results.</p> <p>16 Q. At the very least, does the</p> <p>17 Facebook websites yield the same results as</p> <p>18 Element 1 of Claim 21?</p> <p>19 A. Yes, because data gets created.</p> <p>20 Q. Are you talking about the data of</p> <p>21 Element 1?</p> <p>22 A. Yeah. Yeah.</p> <p>23 Q. At the very least, does the</p> <p>24 Facebook website yield the same results of</p>	<p style="text-align: center;">Page 741</p> <p>1 infringe under the Doctrine of Equivalents for</p> <p>2 all the reasons you testified to earlier today</p> <p>3 regarding Claim 21?</p> <p>4 A. Yes.</p> <p>5 Q. Would that hold true also for</p> <p>6 Claim 1 and Claim 9 as well?</p> <p>7 A. Yes.</p> <p>8 Q. All right. Now let's turn to the</p> <p>9 last independent claim, Claim 23. Dr. Vigna,</p> <p>10 what kind of a claim is Claim 23?</p> <p>11 A. It describes a system,</p> <p>12 computer-implemented system that facilitates the</p> <p>13 management of data.</p> <p>14 Q. How many elements does this claim</p> <p>15 have?</p> <p>16 A. There are two elements of the</p> <p>17 claim.</p> <p>18 Q. Let's talk about the first</p> <p>19 element, the context component element.</p> <p>20 A. Yeah. I could read it, but mainly</p> <p>21 in laymen's term, there is a context component</p> <p>22 that creates workspace where there are one or</p> <p>23 more application and when these applications are</p> <p>24 used, the context data is associated with the</p>

1 data uploaded by the user and it's dynamically
2 stored, this additional context information, as
3 metadata in a storage component. And the
4 dynamic -- the metadata is dynamically
5 associated with the data created in the first
6 user workspace.

7 Q. Can you turn back to JTX 942.
8 This is the screen captures of the presentation
9 you have been giving; correct?

10 A. Correct.

11 Q. Could you show us in I guess the
12 third use case how Claim 23 is implicated in
13 these slides?

14 A. So, you have to go a little
15 forward because I think -- I don't remember
16 exactly where the group interaction starts. But
17 forward, forward, forward, this is writing on
18 the wall, becoming friends, writing on the wall.
19 Okay. The first part of this is actually
20 creating a group. So Mary Smith creates a
21 group. And next, fills in all the information
22 about the group that she's going to create.

23 Q. Is that the group name right here?

24 A. Italian Food Lovers, yeah, that's

1 correct. Next. This is things that we can do
2 about the group. You can go ahead. At this
3 point Mary Smith actually invites John Vineyard
4 to participate in the group. Next. And this is
5 the page of the group itself. And it shows it
6 has one member. If you go forward.

7 Here is the home page of John
8 Vineyard that decides to go to the group's
9 application that you can see on the left-hand
10 side, and decides to join the Italian Food
11 Lovers group. Go ahead.

12 At this point if you go forward,
13 you will see that now in the group there are two
14 people involved in the members, John Vineyard
15 and Mary Smith. And if you go forward, in this
16 particular case, you know, John Vineyard is
17 actually posting a comment on the wall of the
18 group.

19 Q. Is this the posting right here?

20 A. Yeah, that's correct.

21 Go forward. Go a little forward.
22 And at this point, go a little forward. There
23 will be some photos that are updated, first to
24 the user itself. So go ahead. And this is a

1 group, a personal album called My Recipes that
2 is created by the user. It's a quite lengthy
3 task. But it would be clearer later.

4 Go ahead. For example, here, I
5 choose to upload a picture of lasagna. And as a
6 result of this, of interacting with this, I
7 uploaded a picture.

8 Go next.

9 And show now there is my recipes
10 is an album with a photo uploaded by me.

11 Q. At this point you have a photo of
12 lasagna in your own personal photo album as John
13 Vineyard?

14 A. That's correct. Go forward. This
15 shows that I uploaded a photo and it's been
16 tracked, create an event. Not relevant at this
17 point. But let's go forward.

18 At this point I get to the group
19 and I click on the group. Next. Okay. Go
20 next. I mean, click on photos of the group.
21 And you can see that there are no photos there
22 for the group. And I decide to add a photo to
23 the group. So I click on add group photo. And
24 I choose one of my albums, the recipes. And I

1 add the selected photo to the group.

2 Q. How does that -- let me just give
3 the Bates number for the record of where you
4 started from. It was approximately --

5 A. No, go forward. Let me just
6 finish that and then I can comment on a more
7 high level. If you go next. These are photo,
8 if you go next. I commented on the photo saying
9 this is what I cooked the night before. People
10 can comment more. But go next. And this shows,
11 for example, a news feed that this action has
12 been tracked and has been generating a news in
13 my personal news feed.

14 Now, the main idea here, if you go
15 back to the claim for a second. So there is a
16 first -- the idea here is that there was a first
17 user workspace, in this case it's my personal
18 album and the way I interact with it. And in
19 this case, the upload application is what allows
20 me to insert the data into the first album.

21 And as we seen before, there is
22 the capturing of context data with the user
23 interaction. For example, the context data is
24 when I uploaded this picture on what album and

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1 so forth while in the first user workspace.
 2 And dynamically this information
 3 is stored in the context data as metadata. And
 4 this is because when I uploaded the picture, the
 5 metadata was the entry in the metadata that John
 6 Vineyard upload a picture to his personal album.
 7 Okay? That was the metadata that is stored in a
 8 storage component which is associated
 9 dynamically with the actual data creating the
 10 first user workspace that was the lasagna
 11 picture.
 12 What I showed then, if we move for
 13 a second to the second element, I know this is a
 14 fast summary, let me just go to the second.
 15 Then I was tracked moving from my first
 16 environment which is my profile, my album to the
 17 group's album. Okay? And this change was being
 18 noted.
 19 And when the information about
 20 accessing the picture in the second context is
 21 created in the metadata when the user access the
 22 second picture of the lasagna in the second
 23 workspace which is the album of the Italian Food
 24 Lovers group.

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1 Q. So going back to what you just
 2 showed on the Exhibit PTX 942, does that inform
 3 your opinion as to whether or not the Facebook
 4 website infringes the first element of Claim 23?
 5 A. Yes, it does.
 6 Q. And is your opinion also
 7 reflective of the previous testimony you gave
 8 today in showing the code and all that?
 9 A. Yes. This is very similar
 10 example. And a lot of the code that I showed
 11 exactly exemplifies the fact that there is a
 12 workspace where a user interacts, uploads some
 13 data and this data is captured together with
 14 additional data and stored in a storage
 15 component.
 16 Q. And based on all of the evidence
 17 you provided in this case, do you have an
 18 opinion as to whether or not Facebook infringes
 19 the first element of Claim 23?
 20 A. Yes, I think Facebook infringes
 21 that element.
 22 Q. Would you put a check in that box,
 23 please.
 24 A. (Witness complying.)

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1 Q. Now, you have already provided an
 2 analysis of the second element. Could you just
 3 generally talk about what that element is
 4 covering of Claim 23?
 5 A. Sorry. Can you repeat? I
 6 couldn't hear.
 7 Q. I said generally you have
 8 discussed some of the second element of Claim
 9 23, but could you once again give an explanation
 10 of what it's covering?
 11 A. This is again about tracking
 12 actions, so I exemplified the fact that user
 13 moves from one environment to another, to a
 14 second user workspace. And this information
 15 about the change is used to dynamically update
 16 the metadata, for example, by saying this user
 17 posted a new picture in the group album.
 18 Q. And based on that analysis and
 19 what you showed us on Exhibit PTX 942, and the
 20 examples you provided in the source code earlier
 21 in your testimony as well as the documents, do
 22 you have an opinion as to whether or not
 23 Facebook infringes the second element of Claim
 24 23?

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1 A. Yes.
 2 Q. What is that opinion?
 3 A. That it all infringes.
 4 Q. And based upon that, do you have
 5 an opinion as to whether or not Facebook
 6 infringes both elements of Claim 23?
 7 A. Yes.
 8 Q. What is your opinion?
 9 A. That it infringes both.
 10 Q. Can you put a check in the box at
 11 element two and also at the top of the claim.
 12 A. (Witness complying.)
 13 Q. Dr. Vigna, you have shown us a few
 14 examples of use cases as evidenced by Exhibit
 15 PTX 942 and also on your demonstrative. These
 16 are like joining the group as you just showed
 17 now, or uploading a photo. What are these use
 18 cases intended to show?
 19 A. So, these are in a way very common
 20 ways in which users interact with the website,
 21 and they are intended to represent, show which
 22 elements of the system that is behind the
 23 curtains if you will, that is executing all
 24 these different parts directly map to the

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1 different elements of the different claims.
 2 Q. Are there a lot of other types of
 3 use cases that demonstrate this that you could
 4 use to demonstrate this type of activity?
 5 A. I think there are actually
 6 possibly infinite different ways in which --
 7 it's a very complex system, so you can compose
 8 this in the way you want, you can load a video
 9 instead of a picture, or you know, instead of a
 10 page, join a group, beyond to an event, but the
 11 basic concepts are all there.
 12 I mean, I use this to just
 13 exemplify the fact that there is a context
 14 component, that certain type of information is
 15 collected, there is a tracking component,
 16 metadata, context metadata, tracking metadata,
 17 these are only three example that I think are
 18 simple enough to exemplify infringement without
 19 you know, making it too complex and too
 20 cumbersome.
 21 Q. So did you find that -- do you
 22 have an opinion as to whether or not Facebook
 23 literally infringes Claim 23 of the '761 patent?
 24 A. Yes, I do believe that Facebook

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1 literally infringe Claim 23.
 2 Q. Do you have an opinion as to
 3 whether or not Facebook infringes under Claim 23
 4 under the Doctrine of Equivalents?
 5 A. I think that at least it infringes
 6 under the Doctrine of Equivalents.
 7 Q. At the very least, does the
 8 Facebook website perform substantially the same
 9 function as the context component of Claim 23?
 10 A. Yes, it performs substantially the
 11 same function.
 12 Q. And why do you say that?
 13 A. Because it has a context component
 14 that assign one or more location to use space
 15 and capturing context data related to the
 16 interaction of the user with the workspace.
 17 Q. At the very least does the
 18 Facebook website perform substantially the same
 19 function as the tracking component of Claim 23?
 20 A. Yes, because it has a tracking
 21 component that tracks the change in access from
 22 one workspace to another, and provides dynamic
 23 updates to metadata based on that information.
 24 Q. At the very least does the

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1 Facebook website perform in substantially the
 2 same way as the context component of Claim 23?
 3 A. Yeah. Because it has the context
 4 component, it actually captures these
 5 interaction and stores it as metadata.
 6 Q. At the very least does the
 7 Facebook website perform in substantially the
 8 same way as the tracking component of Claim 23?
 9 A. Yeah, because it actually tracks
 10 users from one workspace to another in the same
 11 way.
 12 Q. At the very least does the
 13 Facebook website yield the same results as the
 14 context component of Claim 23?
 15 A. Yeah, because the context
 16 component as a result stores the data and the
 17 metadata on a storage component of the web-based
 18 platform.
 19 Q. At the very least does the
 20 Facebook website yield the same results as the
 21 tracking component of Claim 23?
 22 A. Yeah, because as a result, the
 23 user is tracked from one workspace to another.
 24 Q. And does the Facebook website

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1 infringe Claim 23 under the Doctrine of
 2 Equivalents for all the reasons you testified to
 3 earlier today?
 4 A. Yes.
 5 Q. And just to be clear, with respect
 6 to Claim 23, when we say context component,
 7 we're talking about the entire first element of
 8 Claim 23; is that correct?
 9 A. Yes.
 10 Q. When we're talking about tracking
 11 component, we're talking about the entire second
 12 element of Claim 23?
 13 A. That is correct.
 14 Q. Let's turn to Claim 31. I'm
 15 sorry. Did I skip one? Claim 25. I'm sorry.
 16 Dr. Vigna, do you have an opinion
 17 as to whether or not Facebook infringes Claim 25
 18 of the '761 patent?
 19 A. Yes, I do.
 20 Q. What is that opinion?
 21 A. That it infringes.
 22 Q. And generally speaking, what does
 23 Claim 25 cover?
 24 A. So, the system -- Claim 25 is a

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1 dependent claim so it describe a system of Claim
 2 23, but where the context component actually
 3 captures relationship between the first user
 4 workspace and at least one other user workspace.
 5 Q. And could you put that in lay
 6 terms?
 7 A. So pretty much, it's a situation
 8 where the context component is able to create
 9 some data that puts in relation two different
 10 systems. And I think that this is pretty well
 11 exemplified even with the posting of the -- for
 12 example, this is the wall of Mary Smith, and in
 13 the moment in which somebody post on this
 14 particular wall, it would create a relationship
 15 between two environments, one is actually the
 16 profile and the workspace of Mary Smith. But if
 17 I would go here and click on this image, I would
 18 be immediately brought to my own profile.
 19 Actually John Vineyard's profile.
 20 And so that connection creates a
 21 relationship between the two workspaces.
 22 Q. And that connection is also
 23 reflected in the screen shots you've marked as
 24 PTX-942?

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1 A. Correct. If you go to the screen
 2 shot that it's equivalent to this -- to this
 3 that shows John Vineyard posting a message. How
 4 are you, for example, on Mary Smith's wall. It
 5 would be completed.
 6 Q. Based on the testimony you just
 7 provided, and examples you gave, and the source
 8 code you reviewed earlier and all the documents,
 9 do you have an opinion as to whether Facebook
 10 infringes Claim 25?
 11 A. Yes.
 12 Q. And what is that opinion?
 13 A. That it infringes Claim 25.
 14 Q. Would you put a check in the box,
 15 please?
 16 We'll turn to the dependent Claim
 17 31 now. Dr. Vigna, did you have an opinion as
 18 to whether or not Facebook infringes Claim 31 of
 19 the '761 patent?
 20 A. Yes.
 21 Q. And what's your opinion?
 22 A. That it infringes Claim 31.
 23 Q. What does Claim 31 generally
 24 cover?

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1 A. It describes characteristics of
 2 the storage component saying that the data and
 3 the metadata are stored at least using one of
 4 relational or object storage methodology.
 5 In layman's terms, you use a
 6 relational database or object database to store
 7 the information. So it's describing the fact
 8 that the system, in addition of being the system
 9 of Claim 23, uses a database fundamentally to
 10 store the information.
 11 And -- sorry.
 12 Q. When you say relational or --
 13 A. I was going to that.
 14 Q. Okay.
 15 A. I understand that. So a
 16 relational database is just a type of database.
 17 So there are -- if you remember
 18 that sequel language used to store information
 19 and put it back and forth in that structure
 20 form. That is one of the possible ways of
 21 structuring information or databases.
 22 There are many types of databases.
 23 The most popular form of database is definitely
 24 the relational database that is called

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1 relational because it put the data in tables
 2 that originally were referred to as relations.
 3 There are other ways of storing
 4 information like object-based storage, for
 5 example. That is used when stored in memory,
 6 the information in memory is stored as objects.
 7 And Facebook definitely uses a
 8 relational database as we have seen. And I'm
 9 going to show you in a second in the source code
 10 in particular, in the schema.
 11 Q. Could you go ahead and show that
 12 now?
 13 MR. ANDRE: And seal the record,
 14 please.
 15 THE COURT: I think we're still
 16 sealed.
 17 MR. ANDRE: I think so. I
 18 apologize, Your Honor, that we have to go back
 19 and forth like that.
 20 THE COURT: I understand.
 21 THE WITNESS: It's exactly the
 22 file that we were seeing. And if you go to the
 23 very -- this is all -- this is -- this is
 24 describing exactly the type of technology.

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<p>1 My sequel, then we -- that we see 2 up there. It's just a product, a very commonly 3 used product, which is a relational database 4 used to store the information.</p>	<p>1 Q. What's your opinion? 2 A. That Facebook infringes Claim 32. 3 Q. And generally speaking, what does 4 Claim 32 refer to?</p>
<p>5 So this is clear evidence that 6 they store the information. This is exactly 7 what I showed you before where the photo 8 information, the user information is stored. 9 And this shows that it used that particular kind 10 of technology.</p>	<p>5 A. So this is describing the system 6 of Claim 32. And in addition, it discusses the 7 fact that by storing the metadata in the storage 8 component together with the data, this 9 facilitates many-to-many functionality. So 10 many-to-many functionality means that I can 11 reach many people and those many people can 12 reach me.</p>
<p>11 Q. So in your review of the Facebook 12 source code and what you've discovered through 13 the documents, does Facebook use different types 14 of storage components?</p>	<p>13 Okay. So, for example, typically 14 speaking in a room is a many-to-many 15 functionality, because you know, I am one to 16 many. But if you guys answer to me, you also 17 are talking to many. So everybody can talk to 18 everybody.</p>
<p>15 A. Correct. I mean, there are many 16 things that are used. One of which is this 17 database, the user database, for example.</p>	<p>19 A one-to-one functionality would 20 be if I called somebody on the phone and I'm 21 talking to only that particular person.</p>
<p>18 But there are also different level 19 of caches that are used. They use content 20 distribution networks, which are a very large 21 scale caching systems for certain type of data.</p>	<p>22 Now, my opinion actually on this 23 is that this is very -- at the core of what 24 we're talking about here, because the metadata</p>
<p>22 But altogether they provide one 23 functionality, which is the one of a storage. 24 Q. Altogether they would be the</p>	
Page 759	Page 761
<p>1 storage component that's referred to in the 2 second -- the first element of Claim 23 and all 3 the independent claims of that storage 4 component?</p>	<p>1 are those tracking information, those stories 2 that allow people to see what's going on on the 3 website and to interact with that type of story. 4 And for example, if you if you 5 look at -- woops, this -- but even just a post 6 on Mary Smith's wall, by tracking that is -- by 7 tracking in the metadata that John Vineyard 8 wrote on Mary Smith's wall, this is going to be 9 used to inform many people of this event.</p>
<p>5 A. That's correct.</p>	<p>10 Many people say, Hey, by the way, 11 John vineyard wrote on Mary Smith's wall. And 12 they can come here and also interact and 13 collaborate and create a many-to-many 14 relationship, where if I'm a third person that 15 comes to here, it will see easily that there are 16 a number of people involved that are more than 17 two.</p>
<p>6 Q. So based on -- you can take that 7 down. Based on your view of the source code, do 8 you have an opinion as to whether or not 9 Facebook infringes Claim 31 of the '761 patent?</p>	<p>18 And actually, can I show -- 19 Q. Please. 20 A. -- one of the demonstratives? 21 So here is another example that 22 when the photo was uploaded, you can see that at 23 the bottom there are at least three people. 24 It's Mary Smith, John Vineyard and James</p>
<p>10 A. Yes, I do.</p>	
<p>11 Q. And what's your opinion?</p>	
<p>12 A. That Facebook infringes Claim 31.</p>	
<p>13 Q. Is that based -- your opinion 14 based upon the testimony you just provided 15 regarding Claim 31 and all your previous 16 testimony that you provided today?</p>	
<p>17 A. Yes.</p>	
<p>18 Q. Would you put a check in Box 31?</p>	
<p>19 We can turn to the final claim, 20 Claim 32.</p>	
<p>21 Dr. Vigna, did you form an opinion 22 as to whether Facebook infringed Claim 32 of the 23 '761 patent?</p>	
<p>24 A. Yes.</p>	

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1 Montana.

2 And they -- by commenting on the

3 story that was created as metadata, that this

4 picture was uploaded to this album, they start

5 communicating with each other. And when I look

6 at this, I can see, you know, many people

7 communicating with many people.

8 It's not a one-to-one

9 communication. So the idea of this additional

10 claim is that by storing the metadata, tracking

11 the users, creating the stories about what the

12 users are doing, I invite people to communicate

13 and comment on it so that we can all share this

14 information.

15 So that's why I think that

16 directly infringes.

17 Q. And what we're looking at on the

18 screen, is this the photo from the Italian Food

19 Lovers?

20 A. Correct. So yeah, I -- context.

21 This is the photo that was uploaded.

22 And then, you know, Mary Smith

23 made a comment saying, "It looks yummy!" And

24 John Vineyard made a comment, This is a granita,

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1 which is a soft sherbert.

2 And James Montana came in and

3 says, Where's the best places in town to get

4 one? There's -- many-to-many interaction is a

5 chat where people can interact with the metadata

6 that recorded the fact that that event happened.

7 That the user was tracked going to

8 the group, uploading the picture, firing

9 automatically this metadata and then everybody

10 start using the metadata to actually enable

11 multi-to-multi communication.

12 Q. And based on what you've just

13 testified to, and the previous testimony you've

14 given and the source code you've shown, do you

15 have an opinion as to whether or not Facebook

16 infringes Claim 32 of the '761 patent?

17 A. Yes. My opinion is that Facebook

18 infringes Claim 32.

19 Q. Could you put a check in the final

20 box on the board?

21 So, Dr. Vigna, based on your

22 testimony here yesterday afternoon and this

23 morning, do you have an opinion as to whether or

24 not Facebook infringes all of the asserted

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1 claims of the '761 patent?

2 A. Yes.

3 Q. And what is that opinion?

4 A. That Facebook infringes the claims

5 that we have reviewed together.

6 MR. ANDRE: Thank you very much

7 for your time. Your Honor, I have no further

8 questions.

9 THE COURT: Okay. Thank you.

10 Cross-examination.

11 MS. KEEFFE: Thank you very much,

12 Your Honor.

13 CROSS-EXAMINATION

14 BY MS. KEEFFE:

15 Q. Oops. One too many pieces of

16 paper.

17 Good morning, Dr. Vigna.

18 A. Good morning.

19 Q. Dr. Vigna, you were holding up a

20 little bit earlier your report, and I think you

21 testified that you spent a lot of time writing

22 that report and going through the source code;

23 is that right?

24 A. Yeah. I testified that I looked

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1 at source code for a long time.

2 Q. And when you wrote that report,

3 here in Court you actually used -- let me back

4 up.

5 So you wrote that report. Then we

6 took your deposition and talked to you a little

7 bit about that report. Talked to you a lot

8 about that report, asked you questions about it,

9 spent a whole day discussing things.

10 And then after that, we ended up

11 here at this trial; is that right?

12 A. That is correct.

13 Q. And at the time you wrote that

14 report, after you had a chance to review all of

15 the source code and the documents and to analyze

16 the patent, you submitted that report and had

17 that deposition. But neither the deposition nor

18 the report contained any of the hurr or fire bug

19 information that you presented here today;

20 right?

21 A. Actually not the information, but

22 if you look at the beginning of my report, I was

23 clearly stating that I would have used tools for

24 inspecting the interaction between the user and

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1 the server, and also to inspect the rendering,
 2 which is exactly what fire bug does.
 3 And so I already -- I explicitly
 4 say that I would have planned to use those tools
 5 to exemplify even further my opinion.
 6 Q. But you hadn't used those tools
 7 yet at the time that we took your deposition; is
 8 that right?
 9 A. I haven't used -- I haven't used
 10 them to create those particular demonstratives.
 11 Correct.
 12 Q. And when did you use the burp tool
 13 to create the information that we saw here in
 14 Court today?
 15 A. After I wrote the report, I don't
 16 remember exactly the time or the day. But after
 17 the report, before coming here.
 18 Q. Do you remember. Was it within
 19 the last couple of weeks?
 20 A. Yeah. I would say so.
 21 Q. And when did you create the fire
 22 bug information that we saw here in Court today?
 23 A. I don't know if I understand your
 24 question. I didn't create fire bug information.

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1 Q. You used fire bug to --
 2 A. I can't be.
 3 Q. -- analyze information; correct?
 4 A. Absolutely. Yeah.
 5 Q. And by using fire bug, you
 6 actually created some information that you --
 7 information that you captured using fire bug
 8 that you showed us here on the screen today;
 9 right?
 10 A. Oh, yeah. Maybe it's just a
 11 technical term.
 12 I didn't create -- fire bug allows
 13 you to inspect.
 14 Q. Yes.
 15 A. But it doesn't create any new
 16 information.
 17 Q. But the information that when
 18 you're using the fire bug system, though, you
 19 can have screen captures so that you can show
 20 the information that you see using fire bug;
 21 right?
 22 A. So I want to explain.
 23 Q. Please.
 24 A. What I did, I set up these tools.

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1 I performed the steps that I was describing in
 2 my report.
 3 And then I use a screen capturing
 4 tool to just show what I was doing at the
 5 moment.
 6 Q. Yes.
 7 A. Okay. Sorry.
 8 Q. And what -- no. No. I think
 9 we're in the same page.
 10 A. Perfect.
 11 Q. When did you use the fire bug
 12 program to do that?
 13 A. Well, at the same time when I
 14 performed those operations.
 15 Q. And was that in June?
 16 A. I think it was like in the past
 17 two weeks sometime.
 18 Q. And you mentioned that you created
 19 an API, so that you could test the way that the
 20 Facebook system works. Do you recall during
 21 your deposition we asked you if you had already
 22 created that API and you said you hadn't yet; is
 23 that right?
 24 A. That's absolutely right.

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1 Q. When did you create the API that
 2 you used to test the Facebook system that you
 3 mentioned here in Court today?
 4 A. Actually I never created any API.
 5 Q. When did you create the system
 6 using Facebook's platform or API? I'm sorry.
 7 A. Okay.
 8 Q. I think I was misspeaking there.
 9 A. All right.
 10 Q. So let me back up.
 11 A. Perfect.
 12 Q. So two complicated words; right?
 13 A. Yeah.
 14 Q. You said that you created a
 15 program --
 16 A. Correct.
 17 Q. -- using the API that Facebook
 18 provides?
 19 A. That is correct.
 20 Q. And you write that program in
 21 order to test some of the functions on Facebook;
 22 is that right?
 23 A. That is correct.
 24 Q. And when we took your deposition,

<p style="text-align: center;">Page 770</p> <p>1 you said you were thinking about doing that, but 2 you hadn't done it yet; isn't that right? 3 A. That is correct. 4 Q. When did you write that program? 5 A. Sometime in July or the beginning 6 of July, probably a couple weeks ago, something 7 like that at the same time when I did the other 8 stuff. 9 Q. So this was the first time that 10 you had actually put that information altogether 11 in one place; is that right? The fire bug 12 information, and the information from burp and 13 your mention of the API -- sorry, the program 14 you made using the API; is that correct? 15 A. Those are, sorry, many questions. 16 I want to be able to answer it -- 17 Q. Sure. 18 A. -- clearly. So you're asking me 19 was the first time that I ever used the API in 20 my life? 21 Q. No. No. No. 22 When was the first time that you 23 brought all of the information together that we 24 saw here today, the burp program, the</p>	<p style="text-align: center;">Page 772</p> <p>1 Q. Did you use those tools when you 2 were analyzing the Facebook source code before 3 you wrote your report? 4 A. That's a good question. It is 5 likely that I used those tools, yeah, as well as 6 many other. 7 Q. And if you had been using those 8 tools to conduct your analysis of the Facebook 9 website, you could have created very similar 10 screen shots to the ones that we saw here today 11 before you submitted your report; correct? 12 A. So you're asking me if 13 hypothetically I could have created 14 demonstratives at different times than the time 15 that I created my demonstratives? 16 Q. Yes. 17 A. Yes. 18 Q. Now, throughout the day today when 19 we were listening to all of the stories about 20 how Facebook works and the different mechanism 21 that you were analyzing against the claims, in 22 all of the scenarios, a photo, you were using a 23 photo as the user defined data that's created in 24 the first context; is that right?</p>
<p style="text-align: center;">Page 771</p> <p>1 information that you found using fire hug and 2 the information that you received by creating a 3 program using Facebook's API? 4 A. Let's see if I can -- I want to. 5 So the information about how things work is the 6 work of everything that came before the report. 7 So I worked with tools to actually 8 understand how the user interacts with a website 9 where the content is, how it's rendered. I 10 analyzed the code. Then I wrote the report. 11 And then I used these two 12 particular tools to create these demonstratives 13 that would help me describe what is the type of 14 interaction of the user with the website. 15 A. Of the user with the website, 16 especially because there was no possibility of 17 using the Internet so this is actually a good 18 backup plan to show exactly how Facebook 19 infringes the '761 patent. 20 Q. But your use of Burp and Firebug 21 didn't happen until after we took your 22 deposition; correct? 23 A. Sorry? I used those tools in my 24 profession continuously.</p>	<p style="text-align: center;">Page 773</p> <p>1 A. I used photos a lot. I use some 2 kind of photos in I think all three cases, 3 that's correct. 4 MS. KEEFE: Would you mind, I can 5 approach or I can ask the witness to. I would 6 like to put Claim 1 back up on the easel. 7 THE COURT: Why don't you feel 8 free to approach freely. 9 MS. KEEFE: Thank you, Your Honor. 10 THE COURT: Watch out for all the 11 wires. 12 THE WITNESS: Do you need help? 13 MS. KEEFE: Thank you, Dr. Vigna. 14 THE WITNESS: I can do it for you. 15 MS. KEEFE: Thank you very much. 16 I appreciate that. 17 THE WITNESS: No problem. 18 BY MS. KEEFE: 19 Q. So all I want us to focus on right 20 now, in fact -- thank you whoever put that up 21 there. What I hope wanted to focus on right now 22 just so we end up making sure we're talking 23 about the same thing. So in Claim 1, there is a 24 requirement that there be user defined data</p>

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1 that's created in the first context. Right?

2 A. Correct.

3 Q. And, in fact, we see that in the

4 claim language with user defined data created by

5 user interaction of a first user in a first

6 context?

7 A. Correct.

8 Q. Right.

9 And in all of the scenarios that

10 we saw, that user defined data created in the

11 first context was a photo, just today, what we

12 were seeing with all of that was the photo;

13 right?

14 A. That is correct.

15 Q. So we can call the photo the first

16 user defined data, that's the data, the photo

17 itself?

18 A. For those three use cases, yes.

19 Q. Right.

20 So for those use cases, the photo

21 is the data. So if I say photo, I'm also saying

22 user defined data?

23 A. In the first context, that is

24 correct.

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1 Q. In the first context. Very good

2 point.

3 So now if we look at the rest of

4 the claim, we're going to take that photo and

5 we're going to associate metadata with it; is

6 that right?

7 So we have the context component

8 dynamically storing context information in

9 metadata, that's what you have been talking

10 about quite a bit?

11 A. Yes.

12 Q. The computer frame is going to

13 figure out a way to put some context

14 information, so information about the user or

15 the place they are regarding that photo in

16 metadata, associated with the photo; right?

17 A. Yeah.

18 Q. So we're talking about the photo,

19 the data that has metadata about it?

20 A. Yes.

21 Q. And both of those things are

22 stored in Facebook servers; right?

23 A. They are stored in the metadata;

24 correct, by the storage component.

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1 Q. I need to be really, really

2 particularly on this.

3 A. Okay.

4 Q. So the photo is stored on Facebook

5 servers; is that right?

6 A. That is correct.

7 Q. And, in fact, I think there is

8 something called a filer, and Facebook stores

9 its photos in a filer; right?

10 A. That's correct.

11 Q. And separately, Facebook also

12 stores metadata about that photo; right?

13 A. Exactly. So Facebook has a

14 metadata component that is stored on the server,

15 so there is metadata that is on the server.

16 Q. And when we were talking about the

17 photo and the metadata about that photo, we were

18 talking about some very specific information

19 about that photo; right?

20 A. So part of the metadata is the

21 metadata about the photo. Correct.

22 Q. And can you actually help, maybe

23 you can help us by putting up on the screen the

24 portion of the schema, that talks about the

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1 photo metadata. I think it was in something you

2 would insert into photo table.

3 A. So, you want to show the piece of

4 the code?

5 Q. Yes, please.

6 A. It happens actually in a number of

7 files. Can you specify which one?

8 Q. I think the easiest way, let me

9 back up and make sure we're all on the same

10 page. So the metadata about the photo is stored

11 in Facebook servers in tables; right?

12 A. Correct.

13 Q. Correct.

14 And you were actually showing us

15 some code earlier today that told the system

16 first how to create that table?

17 A. Correct.

18 Q. And then what information to put

19 into that table; is that right?

20 A. So, that was my question, you want

21 to see the whole schema that shows everything,

22 or you want to see where the information is

23 inserted?

24 Q. Let's do both. First show me

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<p>1 the -- create the table part.</p> <p>2 A. Okay. So as I showed before, this</p> <p>3 is my sequel dump which represent a log of all</p> <p>4 the tables and the structure that they have of</p> <p>5 the database. What part of this do you want to</p> <p>6 see?</p> <p>7 Q. I want to see the part that</p> <p>8 creates the photo table, please.</p> <p>9 A. Okay. So this first two</p> <p>10 instructions that I point here, this is</p> <p>11 something that would delete a table if it exist,</p> <p>12 and create a new one. So those are the</p> <p>13 instructions that would actually create the</p> <p>14 photo table.</p> <p>15 Q. And all the drop table, if it</p> <p>16 exist, means is if somebody had already put</p> <p>17 something in there called a photo table, it</p> <p>18 means erase that?</p> <p>19 A. And create this new one.</p> <p>20 Q. Make a new one, make sure you have</p> <p>21 the table that's for photo information?</p> <p>22 A. Correct.</p> <p>23 Q. And when it says create table</p> <p>24 photo, it doesn't mean create a photo, it means</p>	<p>1 user, and, those are sort of the descriptions of</p> <p>2 the columns that will be part of this particular</p> <p>3 table.</p> <p>4 Q. Since I'm a lousy artist, I asked</p> <p>5 some people if they could help just draw one of</p> <p>6 those for me. Could you put up the photo table.</p> <p>7 So is this a decent representation of how you</p> <p>8 could possibly show graphically a table like the</p> <p>9 photo table that was described in that code you</p> <p>10 were just looking at?</p> <p>11 A. Yes, I think it's a decent</p> <p>12 representation.</p> <p>13 Q. And so what we have across the top</p> <p>14 are the kind of pieces of information that are</p> <p>15 being captured about that photo and put into the</p> <p>16 columns; is that right?</p> <p>17 A. I would describe that maybe like</p> <p>18 the type of information, so the kind of</p> <p>19 information or the particular aspect of</p> <p>20 information, the pieces I would say more the</p> <p>21 contents of the table itself.</p> <p>22 Q. Very good point.</p> <p>23 So this is the particular types of</p> <p>24 information that are being captured for that</p>
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<p>1 create a table that you're going to name photo;</p> <p>2 right?</p> <p>3 A. That's correct, this is creating a</p> <p>4 table that is part of the metadata that will</p> <p>5 contain data about photos.</p> <p>6 Q. And when we were talking about</p> <p>7 SQL, that crazy language, the sequel server, my</p> <p>8 sequel?</p> <p>9 A. It's actually less crazy than</p> <p>10 other languages, but yes.</p> <p>11 Q. It's often used to represent -- we</p> <p>12 talk a lot about tables, and just to make sure</p> <p>13 that we're all on the same page, I know when I</p> <p>14 think of a table, I tend to think of rows and</p> <p>15 columns. Is that a good way to think of tables?</p> <p>16 A. That's a very good way to think</p> <p>17 about tables.</p> <p>18 Q. So a row would be basically a line</p> <p>19 that goes horizontally, kind of like the horizon</p> <p>20 right like the sunset, and a column would be the</p> <p>21 ones that go up and down across the graph; is</p> <p>22 that right?</p> <p>23 A. Correct. Actually the name of the</p> <p>24 columns are described there like pid, tbid,</p>	<p>1 given particular photo?</p> <p>2 A. Absolutely.</p> <p>3 Q. Is that correct?</p> <p>4 A. Yes.</p> <p>5 Q. So really what we have got here is</p> <p>6 we have got album I.D. What type of information</p> <p>7 is an album I.D.?</p> <p>8 A. It's an identifier which uniquely</p> <p>9 identifies an album. So it's a string of</p> <p>10 numbers.</p> <p>11 Q. And an album FBI, that's just a</p> <p>12 special Facebook type album?</p> <p>13 A. Correct.</p> <p>14 Q. And then the user is the person</p> <p>15 who is uploading the photo?</p> <p>16 A. Or the user that owns the album.</p> <p>17 Q. The one that owns the album. And</p> <p>18 creating I.D., the one who made?</p> <p>19 A. Create the actual photo that is</p> <p>20 uploaded.</p> <p>21 Q. So all of these type, all of these</p> <p>22 columns have some form of information about the</p> <p>23 photo itself, types of information?</p> <p>24 A. That's context information, so</p>

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1 when the photo is uploaded, a lot of information
 2 about when this event happens is captured and
 3 stored in this table which is part of the
 4 metadata.
 5 Q. So the table, the table itself
 6 contains metadata; correct?
 7 A. Yes.
 8 Q. And, in fact, the metadata that --
 9 well, let's take it step by step.
 10 So now, please show me the code
 11 that inserts -- that tells the Facebook system
 12 to insert information into that table?
 13 A. Okay. So I don't know if you have
 14 a particular preference for one of the
 15 particular use cases.
 16 Q. How about the one, let's just do a
 17 photo, uploading a profile photo.
 18 A. Okay. So let me -- I want to make
 19 sure that I give you the right file.
 20 Q. Absolutely.
 21 A. Nothing would be worse than me
 22 telling you the wrong file.
 23 Q. Too many letters and numbers, I
 24 prefer that you find the right one.

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1 A. I fully understand.
 2 So this could be the photos.php.
 3 Q. We're looking for an insert.
 4 There we go.
 5 A. Here it is.
 6 Q. So this, and there is actually
 7 some real life English up above it; right?
 8 A. Yes.
 9 Q. And what does that real life
 10 English, for computer programmers, what does that
 11 real life English mean?
 12 A. So whenever you see like either a
 13 double slash like in that case or some times
 14 something that looks like this, so with this
 15 format, those are comments, that means that the
 16 developers themselves have written some
 17 information to help other developers understand
 18 what goes on here.
 19 Q. So kind of a like note to self or
 20 note to person who comes by?
 21 A. Note to self or to others.
 22 Q. Here the note doesn't mean put the
 23 picture in here, again, it means put this
 24 information into the table in the right order;

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1 is that right?
 2 A. Yes.
 3 Q. And so when we see insert into
 4 photo, that means put information into the photo
 5 table; is that right?
 6 A. That is correct. Beside the fact
 7 that performing that sequel is the insertion of
 8 this context information that is being captured
 9 in the table that is part of the metadata.
 10 Q. So we're going to insert metadata,
 11 because each of those is a type of information
 12 about the data, we're going to insert metadata
 13 into the row of the table that we were just
 14 talking about?
 15 A. Correct.
 16 Q. Could you just show the one that I
 17 put some numbers into.
 18 So here is it without the metadata
 19 inserted into the row; right?
 20 A. Correct.
 21 Q. And then if the insert into
 22 command is called because a photo is uploaded,
 23 these are not real numbers, but something like
 24 this would potentially happen; is that right?

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1 A. That's correct.
 2 Q. That's correct. And so then that
 3 row with all of --
 4 MS. KEEFE: Your Honor, may I
 5 approach the screen, too?
 6 THE COURT: You may.
 7 BY MR. RHODES:
 8 Q. So that row, with all of these
 9 pieces of information and by pieces of
 10 information, this is why you made me be very
 11 careful, because the pieces of information are
 12 the bits or the numbers that are here as opposed
 13 to the type which is the column headers; right?
 14 A. Correct.
 15 Q. So when the photo is uploaded and
 16 the Facebook computer code says I have got a
 17 photo, now I need to insert into the photo table
 18 metadata about that photo; right?
 19 A. This is the context information
 20 that I referred to many times. So what the
 21 Facebook does when there is an upload, it looks
 22 to say, oh, for example, who created this photo,
 23 and when it was created. It's been modified and
 24 captures that information and stores it as

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1 context information in the metadata.
 2 Q. Absolutely. So what we have is a
 3 user created data, a photo?
 4 A. Correct.
 5 Q. We have captured context
 6 information about that photo, so who did it,
 7 where they did it, how big it is, et cetera, and
 8 we have captured that in metadata, data about
 9 the photo, and we have stored it in a unique row
 10 in the photo table on the Facebook server?
 11 A. Correct.
 12 MS. KEEFE: Actually this is a
 13 fantastic time to break, Your Honor, if you
 14 would like.
 15 THE COURT: I agree. We will let
 16 our jurors go for lunch and have you back here
 17 in time for 1:30.
 18 (Jury leaving the courtroom at
 19 12:30 p.m.)
 20 THE COURT: We'll see you all
 21 again at 1:30.
 22 (A luncheon recess was taken.)
 23 THE COURT: Good afternoon. Bring
 24 the jury in.

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1 MR. RHODES: Your Honor, may we
 2 raise one very quick thing. This is the last
 3 witness for their case in chief and they'll rest
 4 in about twenty minutes, a half hour or so. I
 5 don't want you to have to pull the jury in and
 6 out. I will need to make a record of a motion,
 7 I just wanted to flag it for you. Do you want
 8 me to suggest a side-bar?
 9 THE COURT: Yes, just suggest a
 10 side-bar and we'll do that very briefly.
 11 MR. RHODES: Thank you.
 12 THE COURT: That's it?
 13 MR. RHODES: Yes.
 14 THE COURT: Okay. Bring the jury
 15 in.
 16 (Jury entering the courtroom at
 17 1:41 p.m.)
 18 THE CLERK: Please be seated.
 19 THE COURT: Good afternoon.
 20 Welcome back. We'll proceed with the
 21 cross-examination.
 22 MS. KEEFE: Thank you, Your Honor.
 23 We recall Dr. Vigna to the stand, please.
 24 BY MS. KEEFE:

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1 Q. Good afternoon.
 2 A. Good afternoon.
 3 Q. Thank you.
 4 Right before we broke for lunch,
 5 we were talking about the photo table. Do you
 6 remember that?
 7 A. Yes.
 8 Q. And now in the photo table, there
 9 actually fourteen different columns that will
 10 contain different types of information. That's
 11 what we were talking about; right?
 12 A. Yes.
 13 Q. And single individual users don't
 14 have individual photo tables; right, there is --
 15 Facebook has a photo table for which numerous
 16 entries about different photos can be entered;
 17 is that correct?
 18 A. That is correct.
 19 Q. So, for example, the first row may
 20 be metadata about the photo that I entered. So
 21 my profile picture, and the very next row may
 22 actually be the metadata about John Vineyard's
 23 photo; is that correct?
 24 A. That's all metadata. It's all

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1 part of the metadata that is stored on the
 2 metadata storage component.
 3 Q. But in this particular instance,
 4 it is the metadata about the photo in the
 5 particular row of the photo table; correct?
 6 To be -- just to be precise, that
 7 would be the context information that is
 8 captured and it's stored as metadata --
 9 A. That is correct.
 10 Q. -- in that row of the photo table?
 11 A. Absolutely.
 12 Q. Now, the database schema that you
 13 were looking at earlier, showing us earlier,
 14 tells us how to create -- sorry, not us. It
 15 tells Facebook how to create lots of different
 16 tables; is that correct?
 17 A. That's correct.
 18 Q. Could you actually pull up that
 19 database schema code again, please?
 20 A. Of course.
 21 Q. The portion for create and please
 22 go to the very first page. Let's just see how
 23 we start learning how to do these.
 24 A. That's the very first page.

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1 Q. Okay. So can you scroll down
 2 until you find the instructions for creating a
 3 table called add market?
 4 A. Add market?
 5 Q. I think there's one in there for
 6 that.
 7 A. What -- oh, typing in the wrong
 8 place. Now, I'm changing the schema of
 9 Facebook. I don't want to do that.
 10 I don't want to do that. It's
 11 add__market?
 12 Q. I believe so. If not, we can pick
 13 another one.
 14 A. I'll find it. Don't worry.
 15 That's my job.
 16 It's not --
 17 Q. I think it might be A-D-D?
 18 A. Oh, add market. Okay.
 19 Whoops. No.
 20 Q. Okay. You know what --
 21 A. What if I look for market?
 22 Q. We can go ahead and go back up to
 23 the very top and find -- what's the first one?
 24 A. Sorry.

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1 Q. I'm just trying to --
 2 A. This one is ads.
 3 Q. And how many -- let's see how
 4 many -- that's a long one.
 5 How about a short one? Can you
 6 find me a short one?
 7 A. This is pretty short.
 8 Q. Ads_disallow is a brilliant one.
 9 Let's try that one.
 10 A. Yeah.
 11 Q. Okay. So I'm going to go over to
 12 the white board, so I'm going to have to yell a
 13 little bit. But actually I'm loud enough
 14 probably.
 15 If I were to draw the table the
 16 way that the code tells me to for
 17 ads__disallow --
 18 A. Correct.
 19 Q. -- so we'll say this is the
 20 ads_disallow. That's kind of our table; right?
 21 A. Yes.
 22 Q. So I would draw a box. How many
 23 columns would I put in the ads__market disallow
 24 table?

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1 A. Two.
 2 Q. And what would my -- what would
 3 the titles of my columns be?
 4 A. It would be ID and list.
 5 Q. That's L-I-S-T?
 6 A. Yeah, like a list of ads.
 7 Q. And then if the Facebook source
 8 code were to call on this table -- in other
 9 words, if there was an insert into command, it
 10 would say insert information from the website
 11 into ads_disallow, ID, list?
 12 A. Not necessarily. That -- one
 13 possibility would be that. It would be a subset
 14 of those columns.
 15 Q. But it's -- but this particular
 16 table would contain the particularized set of
 17 information that the source code required for
 18 ads_disallow table with these columns?
 19 A. Sorry. I don't understand when
 20 you say source. It would require -- it's not --
 21 so you mean that the source code would perform
 22 an operation?
 23 Q. Yes.
 24 A. It would insert some information

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1 in that table?
 2 Q. Yes.
 3 A. Absolutely. Yes.
 4 Q. And could you pull up the photo
 5 table again?
 6 And while it's possible, for
 7 example, the column headers between photo table
 8 and ads_disallow table, in this case, are
 9 different; is that right?
 10 A. That is correct.
 11 Q. And it's possible that sometimes
 12 tables will include some of the same information
 13 in terms of the fact that there may be a column
 14 that is similar, but that the totality of the
 15 information in one table will be different from
 16 the totality or the set of information in
 17 another table; is that right?
 18 A. I would have to see what tables
 19 you're talking about in order to be able to
 20 answer, first of all.
 21 Q. Okay.
 22 A. There is replication. But, for
 23 example, in this case, if I look at information
 24 in ads_disallowed and for table, they're

1 different tables.

2 Q. And the information -- the subset
3 of information -- so if you took just the
4 information that had been stored into those
5 tables, the metadata, --

6 A. Correct.

7 Q. -- it would be different from the
8 metadata that was stored in the total set of
9 metadata that was stored in the ads_disallow
10 table?

11 A. Well, I have to be careful
12 answering here, because I don't think that it's
13 metadata that's installed in that particular
14 table.

15 Q. Okay.

16 A. I mean, let me explain.
17 Relational database is one way to store
18 information. So you can store -- it's like a
19 file system.

20 So it would be like a file system
21 of a computer. On the disk, you can store
22 anything. You can store pictures. You can
23 store Word documents.

24 And it's how you use it that gives

1 information in ads_disallow is going to be
2 different from the information in photo table as
3 a total set? Total set ads_disallow, if you put
4 it here would be different from the total set of
5 information for photo table put in here?

6 A. Fantastic. If you want to
7 clarify, if you write in the first row two
8 numbers that are not appearing in the first row
9 of photo table, I will be happy to say yes.

10 Q. Okay.

11 A. You can put alpha and beta. Yeah.

12 Perfect. Now, I'm absolutely sure
13 that those set of data aren't there.

14 Q. Now, if we go back to your use
15 case in the very beginning, I think of all the
16 use cases, you had a profile photo being
17 uploaded to John Vineyard's profile page; is
18 that right?

19 A. I'm not sure if that's true for
20 use case number three, but I think you're right
21 actually.

22 Q. It's in the flow somewhere?

23 A. Yeah. Yeah. Yeah. It is how it
24 starts, because it's the first data. Yeah.

1 meaning to the particular data that you store.
2 So when you're talking about this storage
3 component, it uses memory, the file system and
4 the database.

5 The type of data in this case, you
6 show the photo table for me that is context
7 information that stores metadata. I'm not sure
8 what ads_disallow does.

9 But if I have to perform a wild
10 guess, it's to block certain ads from appearing,
11 and to me is not metadata that is being captured
12 as context information.

13 Q. So if it were to be data that was
14 stored in that table, it would be different data
15 from the metadata in the photo table?

16 A. Let's -- it could.

17 Q. Okay.

18 A. Okay. But for example, it could
19 be a copy of the data. It could be the same.

20 It's difficult to tell. You know,
21 if you show me an instance and I have sufficient
22 context, I would perfectly be able to tell. But
23 it's a little hypothetical.

24 Q. I only want to know if the

1 Q. Because you still have to bring
2 that in as the first data, --

3 A. Correct.

4 Q. -- the user to find data?

5 So this was the page that would
6 show up after you had uploaded John Vineyard's
7 photo; right?

8 A. Right.

9 Q. And again, sorry, I'm going to
10 have to approach and put the claim up.

11 A. That's fine. Let me do it for
12 you.

13 Q. Oh, thank you very much.

14 A. Which one do you want.

15 Q. Claim 1, please.

16 Thank you, Doctor.

17 Just because -- bring us back to
18 the claim. That data, the photo that you had
19 uploaded was the user created content, the user
20 defined data.

21 I think it's on the third line
22 there --

23 A. Yeah.

24 Q. -- which you created in the first

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1 context in your profile page?
 2 A. That is correct.
 3 Q. And the metadata that captured
 4 context information about that photo was stored
 5 in the photo to the row of the photo table we
 6 had been talking about?
 7 A. It was stored in the metadata
 8 using the database.
 9 Q. In that row of the photo table;
 10 correct?
 11 A. Absolutely.
 12 Q. So now in the use case, John
 13 Vineyard can move from his profile page over to
 14 Mary Smith's profile page; is that right?
 15 A. That is correct.
 16 Q. Can we do that so John has just
 17 moved from John's page to Mary's page? So we've
 18 actually had, according to the claim, a change
 19 of the user from a first context to a second
 20 context; is that right?
 21 A. That is correct.
 22 Q. So in this case, the first context
 23 would be John's profile?
 24 A. Mm-hmm.

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1 Q. And the second context would be
 2 Mary's profile?
 3 A. That is correct.
 4 Q. And you've told us that there is a
 5 tracking component on the Facebook website --
 6 A. Correct.
 7 Q. -- that watches this movement?
 8 A. That tracks the actions of the
 9 user. And as I explained, it does determine who
 10 you are, where you go and what you do.
 11 Q. And in fact --
 12 A. As a subset. Sorry.
 13 Q. No, please go ahead.
 14 A. As a subset that tracks that you
 15 move from one profile to the next.
 16 Q. And the tracking part -- sorry.
 17 Let me rephrase.
 18 And the tracking component tracks
 19 the user in Facebook by relying on information
 20 that is sent back and forth between the user's
 21 computer and Facebook in terms of the user ID in
 22 a cookie; is that correct?
 23 A. That is part of how tracking
 24 happens.

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1 Q. What's the other part?
 2 A. Well, so as I explained, the
 3 cookie has an identifier that is incorporated in
 4 every request performed to the website. And by
 5 doing this, they're able to track where the user
 6 performs the request.
 7 But then they also track other
 8 action. So when the user performs an action,
 9 for example, it writes on the wall of Mary
 10 Smith. They track this action, okay, on the
 11 basis of the fact that they know who this person
 12 is, and they store the tracking information in
 13 the metadata, updating the metadata as a
 14 consequence.
 15 Q. For just the move -- just the move
 16 that John made over to Mary's site, the tracking
 17 component on the Facebook system, in your
 18 opinion, is the use of the user ID in the cookie
 19 that knows where you were and where you've moved
 20 to; is that correct?
 21 A. So if I understand what you're
 22 saying, the tracking component uses the cookie
 23 and that information in the request to track the
 24 fact that a user moved from one profile to

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1 another?
 2 Q. Yes.
 3 A. That is correct.
 4 Q. Now, when John moves to Mary's
 5 profile, is it possible that John just sits
 6 there and does nothing? He can just look at the
 7 things on Mary's profile, realize that she's had
 8 kind of a boring day and then leave; is that
 9 possible?
 10 A. That is possible.
 11 Q. And so it's entirely possible that
 12 John can access the information on Mary's
 13 profile and do no action?
 14 In other words --
 15 A. What do you mean by "access the
 16 information"?
 17 Q. In other words, he can see the
 18 information that's on Mary's tile just by moving
 19 there?
 20 A. Yes.
 21 Q. And in fact, John could navigate
 22 to Farmville from here and feed his sheep?
 23 A. I'm not familiar with Farmville,
 24 but I guess you know more than I do. Yeah, I

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1 guess so.

2 Q. And then he can go back to his

3 profile at the very end of the day just to see

4 if anything else has happened and then maybe go

5 to bed, something like that?

6 A. Correct.

7 Q. Similarly, John can come to Mary's

8 profile, and he can choose to write like you

9 discussed earlier in the box on her Wall; is

10 that correct?

11 A. That is correct.

12 Q. And in order to accomplish the How

13 are you, he has to actually type into his

14 keyboard the words How are you; is that right?

15 A. In this particular example, that's

16 what is suggested.

17 Q. And right now, again, sometimes

18 the phone rings, something goes crazy, John

19 could get distracted and leave and not share the

20 Wall post; is that correct?

21 A. That is correct.

22 Q. And he may even decide, I don't

23 want to write on Mary's wall today. I'm just

24 going to go talk to somebody else or go back to

Page 803

1 my profile page; is that right?

2 A. Absolutely.

3 Q. And if John does not push share,

4 is the phrase that he typed in stored anywhere

5 on Facebook?

6 A. Not. At this point, no.

7 Q. So now John decides, no, I really

8 do want to talk to Mary. I do want to see how

9 she's doing today.

10 In order to cause the information

11 How are you to be sent to Facebook so that it

12 can be stored and people can access it, he has

13 to push the share button; is that right?

14 A. That is correct.

15 Q. Okay. So let's push share.

16 And what we've seen here is that

17 John has now posted a comment. I think that's

18 the word they use at Facebook; right?

19 He's posted a comment on Mary's

20 Wall?

21 A. Yes.

22 Q. Is that language that you're

23 familiar with?

24 A. Yeah. Yeah.

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1 It's equivalent in what other

2 people would say.

3 Q. Now, when John posted that

4 information on Mary's wall, when you were

5 talking about, I think it was Claim 7, you said

6 that that Wall post, the exact words, How are

7 you, that's also user created data; is that

8 right?

9 A. Can you bring up Claim 7?

10 Q. It's right behind you. It's on

11 the board.

12 A. Oh, okay.

13 Q. So you have --

14 A. Correct.

15 Q. Okay. So the language, how are

16 you is also user created data, this time in the

17 second context?

18 A. Yes.

19 Q. And that is information itself

20 that will be stored somewhere on Facebook's

21 servers?

22 A. Correct.

23 Q. Now, at the same time, Facebook

24 also captures context information that is user

Page 805

1 created data; is that right?

2 A. That is correct.

3 Q. And if I remember right, that

4 happens in the Wall table; is that correct?

5 A. The context information about the

6 Wall post will be stored in the Wall table. I

7 think you're correct.

8 Q. Can you go back to the source code

9 for us, please?

10 A. Yes.

11 Q. The schema. And this time, go to

12 the Create wall table, please.

13 A. Okay.

14 Q. And here, these are the

15 instructions to create a table just like we've

16 been talking about, but this time for

17 information, context information about what has

18 been created on the wall; is that correct?

19 A. That is correct.

20 Q. And I had a drawing of what the

21 Wall table would look like because the headers

22 on the columns are different.

23 So on the Wall table, again,

24 create gave us the columns by giving us those

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<p>1 little bits of information; right?</p> <p>2 And those bits of information were</p> <p>3 each used to create different columns in the</p> <p>4 Wall table; is that correct?</p> <p>5 A. I'm sorry. I missed it.</p> <p>6 Q. The same way that the photo table</p> <p>7 was created, you had the --</p> <p>8 A. Oh, yeah.</p> <p>9 Yeah. Absolutely.</p> <p>10 Q. -- the table and then the</p> <p>11 information?</p> <p>12 A. Sorry. I couldn't understand.</p> <p>13 Yes.</p> <p>14 Q. Same thing done here; right?</p> <p>15 A. Same thing.</p> <p>16 Q. And so here, we're now going to</p> <p>17 create Wall table using the command Create table</p> <p>18 with the columns that are specified; right?</p> <p>19 A. That is correct.</p> <p>20 Q. Now, in the photo table, I think</p> <p>21 we had 14 columns. Does that sound about right?</p> <p>22 A. Yeah.</p> <p>23 Q. And in the wall table, we have 1</p> <p>24 think it's eight?</p>	<p>1 A. Sorry. Can you repeat that?</p> <p>2 Q. The metadata here is the single</p> <p>3 row of information in the Wall table about that</p> <p>4 Wall post; correct?</p> <p>5 A. So when that metadata -- when the</p> <p>6 Wall is posted, they're actually two pieces of</p> <p>7 metadata that are created as execution of the</p> <p>8 code. There is the capturing of the context</p> <p>9 that I showed there as part of the metadata, and</p> <p>10 there's also the creation of tracking</p> <p>11 information that is also part of the metadata.</p> <p>12 And so this shows the context</p> <p>13 information that is captured by the context</p> <p>14 component.</p> <p>15 Q. And so the metadata about the Wall</p> <p>16 post captured in context information is here</p> <p>17 in the first row of the Wall table; correct?</p> <p>18 A. Right.</p> <p>19 Q. There is also metadata that is</p> <p>20 stored in the tracking metadata as reaction to</p> <p>21 posting this particular data.</p> <p>22 And that's the MiniFeed Wall</p> <p>23 table, the MiniFeed story table; is that right?</p> <p>24 A. That is correct.</p>
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<p>1 A. That is correct.</p> <p>2 Q. And so when the data was created</p> <p>3 on the Wall post in that second context,</p> <p>4 Facebook also captured context information about</p> <p>5 that Wall post and entered it into the Wall</p> <p>6 table; is that right?</p> <p>7 A. That is correct.</p> <p>8 Q. And was that also done using the</p> <p>9 other part of the code this time that said</p> <p>10 insert into Wall and then the string of column</p> <p>11 identifiers for the Wall?</p> <p>12 A. Yes. Correct.</p> <p>13 Q. And so here we would have metadata</p> <p>14 about the Wall post, so context information</p> <p>15 captured in metadata about the Wall post stored</p> <p>16 in a single row of the Wall table; is that</p> <p>17 right?</p> <p>18 A. So, it will be the context</p> <p>19 information that is captured by the context</p> <p>20 component and that is stored by the storage</p> <p>21 component in the metadata.</p> <p>22 Q. And the metadata here is the</p> <p>23 single row of the wall table which relates to</p> <p>24 the Wall post; correct?</p>	<p>1 Q. Okay. So can you find the source</p> <p>2 code for me that -- so this is the Wall table</p> <p>3 for the metadata about the user created data,</p> <p>4 which was the Wall post in the second context.</p> <p>5 And now the tracking information,</p> <p>6 can you pull up for me the code that sets up the</p> <p>7 MiniFeed story's table, please?</p> <p>8 A. Absolutely. Let me find it super</p> <p>9 fast.</p> <p>10 Here it is. Let's see if I can</p> <p>11 find it.</p> <p>12 Here it is.</p> <p>13 Q. And again, that's fine. This is</p> <p>14 the second step; right?</p> <p>15 This is where the tables have</p> <p>16 already been created and now we have --</p> <p>17 A. Oh, sorry. Sorry.</p> <p>18 Q. No. No.</p> <p>19 No. It's okay.</p> <p>20 It's okay. I think we all know</p> <p>21 now you create it first.</p> <p>22 A. One click away.</p> <p>23 Q. Okay. So now we create it.</p> <p>24 And --</p>