IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

VISA INC.,	)IPR 2024-00486
	)Patent No. 9,251,531
Petitioner,	)
	)IPR 2024-00488
	)Patent No. 9,954,854
V.	)
	)IPR 2024-00489
	)Patent No. 10,749,859
CORTEX MCP, INC.,	)
	)IPR 2024-00490
Patent Owner.	)Patent No. 11,329,973
	)

REMOTE VIDEOTAPED DEPOSITION OF
MICHAEL IAN SHAMOS, PH.D., J.D.

September 25, 2024
8:58 a.m. Eastern Daylight Time

Reported by: Lori J. Goodin, RPR, CRR, RSA,
California CSR #13959

DIGITAL EVIDENCE GROUP
1730 M Street, NW, Suite 812
Washington, D.C. 20036
(202) 232-0646

1 REMOTE VIDEOTAPED DEPOSITION of
2 MICHAEL IAN SHAMOS, PH.D., J.D.,
3 a Witness in the above-titled action, held on
4 Wednesday, September 25, 2024, commencing at
5 approximately time 8:58 a.m. before Lori J.
6 Goodin, RPR, CRR, RSA, California CSR #13959,
7 Registered Professional Reporter, Certified
8 Realtime Reporter, Realtime Systems
9 Administrator, and Certified Shorthand Reporter,
10 and Notary Public of the State of Florida, State
11 of California, State of Maryland, District of
12 Columbia, State of Delaware and Commonwealth of
13 Pennsylvania.
14
15
16
17
18
19
20
21
22

1 REMOTE APPEARANCES:
ON BEHALF OF PETITIONER VISA:
2 WILSON SONSINI GOODRICH & ROSATI
BY: MATTHEW A. ARGENTI, ESQUIRE
3 650 Page Mill Road
Palo Alto, California 94304
4 212-493-9300
margenti@wsgr.com
5 AND
WILSON SONSINI GOODRICH & ROSATI
6 BY: PATRICK M. MEDLEY, ESQUIRE
701 Fifth Avenue, Suite 5100
7 Seattle, Washington 98104
206-883-2500
8 pmedley@wsgr.com
AND
9 WILSON SONSINI GOODRICH & ROSATI
BY: JOSEPH M. BAILLARGEON, ESQUIRE
10 1700 K Street, Northwest, Fifth Floor
Washington, D.C. 20006
11 202-973-8800
jbaillargeon@wsgr.com
12
ON BEHALF OF PATENT OWNER CORTEX MCP, INC:
13 ARMOND WILSON LLP
BY: DOUG WILSON, ESQUIRE
14 BY: PATRICK MALONEY, ESQUIRE
15 13785 Research Boulevard, Suite 125
16 Austin, Texas 78750
17 512-267-1663
18 doug.wilson@armondwilson.com
19 patrick.maloney@armondwilson.com
20
21 Also Present:
22 Daniel Holmstock, Video/Document Tech

1 INDEX TO EXAMINATION

2 WITNESS: MICHAEL IAN SHAMOS, PH.D., J.D.

3

4 EXAMINATION BY PAGE

5 MR. WILSON 7

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

1 INDEX TO EXHIBITS

2 PREVIOUSLY MARKED EXHIBITS

3 FIRST REFERRAL

EXHIBIT NUMBER	PAGE
Exhibit 1005, Tab 105, Declaration, U.S. Patent 9,251,531	14
Exhibit 1005, Tab 107, Declaration, U.S. Patent 9,954,854	15
Exhibit 1005, Tab 108, Declaration, U.S. Patent 10,749,859	15
Exhibit 1005, Tab 109, Declaration, U.S. Patent 11,329,973	16
Exhibit 1011, U.S. Patent Application 2012/0316992, Oborne	21
Exhibit 1013, U.S Patent Application 2013/0054454, Purves	105

1 WEDNESDAY, SEPTEMBER 25, 2024, 8:58 a.m. EDT
2
3 PROCEEDINGS
4 THE VIDEOGRAPHER: We are on now on
5 the record. This is Video Number 1 in the
6 video recorded deposition of Dr. Michael
7 Shamos taken in the matter of Visa, Inc.,
8 petitioner, v. Cortex MCP, Inc., pending
9 before the United States Patent and Trademark
10 Office before the Patent Trial and Appeal
11 Board for the following IPR numbers: IPR
12 2024-00486, 00488, 00489, and 00490.
13 This deposition is being conducted
14 by Zoom video remote conferencing on
15 September 25, 2024. The time on the video
16 screen is 8:58 a.m., Eastern Daylight Time.
17 My name is Daniel Holmstock; I am
18 the legal videographer from Digital Evidence
19 Group. And our court reporter today is Lori
20 Goodin, also in association with Digital
21 Evidence Group.
22 All parties have stipulated to the

1 witness being sworn in remotely.
2 Counsel, will you please state your
3 appearances and whom you represent, followed
4 by the court reporter administering the oath.
5 MR. WILSON: Douglas Wilson for the
6 patent owner, Cortex. And with me is Patrick
7 Maloney.
8 MR. ARGENTI: Matt Argenti, for
9 petitioner, Visa. And with me is Patrick
10 Medley.
11 * * *
12 Whereupon,
13 MICHAEL IAN SHAMOS, PH.D., J.D.,
14 a witness called for examination, having been
15 first duly sworn, was examined and testified as
16 follows:
17 * * *
18 EXAMINATION
19 BY MR. WILSON:
20 Q. Good morning, Dr. Shamos.
21 A. Good morning.
22 Q. Could you please state your full

1 name for the record.
2 A. Yes, it is Michael Ian, I-A-N,
3 Shamos, S-H-A-M-O-S.
4 Q. And where are you currently sitting
5 at the moment?
6 A. I am at home in Pittsburgh,
7 Pennsylvania.
8 Q. Okay. Do you understand you are
9 testifying under oath this morning?
10 A. Yes.
11 Q. You have been deposed before,
12 correct?
13 A. Yes.
14 Q. Approximately how many times?
15 A. I'm not sure, because the way I
16 count it is the number of cases in which I have
17 been deposed. And sometimes I get deposed
18 multiple times in the same case.
19 Q. Okay.
20 A. So, this will be the 160th case in
21 which I have been deposed.
22 Q. Okay. Fair to say you are pretty

1 familiar with how a deposition goes, correct?
2 A. That is fair.
3 Q. Okay. Is there anything as you sit
4 here today that would prevent you from testifying
5 fully and truthfully and accurately?
6 A. Not really, except that we are
7 having a severe thunderstorm which may result in
8 a power failure.
9 But other than that, no.
10 Q. Okay. Well, if the power fails we
11 will notice, so --
12 A. Okay.
13 Q. All right. And you understand that
14 everybody here has agreed to conduct your
15 deposition remotely, correct?
16 A. Yes. Me, too.
17 Q. Yes. And, so, you mentioned before
18 we started that you have copies of all of the
19 filings in all of these IPRs on your computer in
20 front of you, correct?
21 A. Yes.
22 Q. Now, do any of those have any notes

1 in them or comments or anything of that nature?
2 A. No. They are freshly downloaded
3 from the PTAB website.
4 Q. Okay. Do you have any other notes
5 or other documents from which you plan to testify
6 in front of you today?
7 A. No.
8 Q. Okay. Do you have any open
9 communication channels other than this video link
10 available to you as you are testifying today?
11 A. No. Well, when you say available, I
12 certainly have such apps on my computer but they
13 are not running now.
14 Q. Okay. So, would you agree to let me
15 know during the deposition today if anyone
16 attempts to contact you while the deposition is
17 on the record?
18 A. Yes. I will tell you. But my
19 expectation is that no one will.
20 Q. Okay.
21 MR. ARGENTI: Sorry, counsel.
22 Before we get too deep into things, I'm

1 having some technical issues on my end.
2 Maybe we could go off the record for a
3 second.
4 MR. WILSON: Sure.
5 THE VIDEOGRAPHER: The time
6 is 9:01 a.m. and we are going off the record.
7 (Recess taken -- 9:01 a.m.)
8 (After recess -- 9:02 a.m.)
9 THE VIDEOGRAPHER: The time
10 is 9:02 a.m. and we are back on the record.
11 BY MR. WILSON:
12 Q. Okay. Dr. Shamos, if something goes
13 wrong or is not working correctly for you today,
14 there is lag or anything like that, please let us
15 know. We will stop the deposition and attempt to
16 correct it. Does that make sense?
17 A. I will do that. As of now, there
18 are no problems.
19 Q. Okay. And if you do not understand
20 a question I ask, please ask for clarification.
21 If you answer a question without
22 asking for clarification, I will assume that you

1 understood it. Okay?
2 A. Yes. I will assume the same thing.
3 Q. Okay. And, as the read-on
4 indicated, you understand we are here today for
5 four IPRs. Those IPRs are IPR 2024-00486, 488,
6 489, and 490.
7 A. Yes.
8 Q. Okay. And you understand that
9 IPR 2024-00487 has been joined to 486?
10 A. Yes. They were consolidated.
11 Q. Right. Okay. So, if I refer to
12 these IPRs by the last three digits, such as 486
13 or 488, you will know what I mean?
14 A. I will. Although, at this point
15 they are uniquely associated with patent numbers.
16 Q. Okay. Fair enough. So, if I refer
17 to them by the patent numbers, you will know what
18 I mean?
19 A. Yes.
20 Q. And, in particular, by the last
21 three digits of the patent numbers?
22 A. Right.

1 Q. Okay. Okay. And if I refer to
2 Visa, Inc. as Visa, and Cortex MCP, Inc. as
3 Cortex, you will know what I mean?
4 A. Yes.
5 Q. All right. Now, in each of these
6 IPRs, all four, your deposition was marked as
7 Exhibit 1005, correct?
8 A. My declaration was marked.
9 Q. Oh, sorry. Your declaration was
10 marked as Exhibit 1005, correct?
11 A. Yes.
12 Q. Okay. So, I may refer to your
13 declaration then by the last three digits of the
14 patent number associated with the IPR in
15 conjunction with your declaration.
16 Such as, for the 486 IPR, I might
17 refer to it as the '531 declaration.
18 Will that make sense to you?
19 A. Totally.
20 MR. WILSON: Okay. So now, Dan, we
21 can pull up Tab 100.
22 BY MR. WILSON:

1 Q. And, Dr. Shamos, that is
2 Exhibit 1005 in the '531 IPR.
3 A. Yes. Wait a second.
4 Q. Oh, I'm sorry. That is not --
5 MR. WILSON: I meant Tab 105, Dan.
6 THE WITNESS: Yes. That is it.
7 (Whereupon, previously marked
8 Exhibit 1005, Tab 105,
9 first referral.)
10 BY MR. WILSON:
11 Q. Okay. So, Dr. Shamos, you have a
12 copy of your '531 declaration, correct?
13 A. Yes, it is open in Acrobat now.
14 Q. Okay. And if you go to the last
15 page. That is your signature, correct?
16 A. Yes.
17 Q. And it was executed on January 25th,
18 2024?
19 A. Yes.
20 Q. Okay. So, now, rather than go
21 through Exhibit 1005 in the 487, the other '531
22 IPR.

1 Let me just ask you: Is your
2 declaration identical in the two '531 IPRs?
3 A. Yes.
4 Q. Okay. Now, let's jump to the '854
5 declaration.
6 MR. WILSON: Dan, that is Tab 107.
7 THE WITNESS: Yes, that is it.
8 (Whereupon, previously marked
9 Exhibit 1005, Tab 107,
10 first referral.)
11 BY MR. WILSON:
12 Q. Okay. If you jump to the last page.
13 Again, that is your signature and it was signed
14 on January 26, 2024?
15 A. Correct.
16 Q. Okay. The other two I will just ask
17 you quickly. So, these are Tabs 108. Let's
18 start with 108, which is the '859 declaration.
19 A. Yes, it is.
20 (Whereupon, previously marked
21 Exhibit 1005, Tab 108,
22 first referral.)

1 BY MR. WILSON:
2 Q. Okay. Again, same question, last
3 page, that is your signature and it was signed on
4 January 26, 2024?
5 A. Yes.
6 Q. Okay. Same thing for -- let's pull
7 up Tab 109, which is your '973 declaration.
8 A. That is it.
9 (Whereupon, previously marked
10 Exhibit 1005, Tab 109,
11 first referral.)
12 BY MR. WILSON:
13 Q. And last page, this declaration
14 contains your signature. And it was signed on
15 January 26, 2024. Correct?
16 A. Yes.
17 Q. Now, did you review --
18 MR. WILSON: And, Dan, you can take
19 it down.
20 BY MR. WILSON:
21 Q. Did you review each of these
22 declarations prior to testifying this morning?

1 A. Yes.
2 Q. Okay. Did you find any mistakes,
3 any errors, anything that you thought needed to
4 be corrected?
5 A. No.
6 Q. Okay. So, you are, as you sit here
7 this morning, confident in all of the opinions
8 that you expressed in each of those four
9 declarations?
10 A. Yes.
11 Q. Okay. How much time did you spend
12 preparing for your deposition this morning?
13 A. A little over ten hours.
14 Q. And when did you spend that time?
15 A. Over the past weekend, and on
16 Monday, this week.
17 Q. Did you meet with anyone other than
18 counsel in preparing for your deposition?
19 A. No.
20 Q. Did you speak to anyone about
21 preparing for your deposition other than counsel?
22 A. No.

1 Q. Okay. I want to start with your
2 '531 declaration. That is Tab 105. And
3 Paragraph 20.
4 A. I am there.
5 Q. Okay. So, in Paragraph 20, you list
6 the materials you reviewed in preparing this
7 declaration. Correct?
8 A. Yes. Well, the list -- okay.
9 Paragraph 20 says that I looked at three things.
10 The '531 patent and its prosecution history is
11 Number 1.
12 Number 2 is the materials cited in
13 the declaration; that is number two. And then,
14 this list of exhibits is Number 3.
15 Q. Okay. Outside of those materials,
16 did you review anything else in preparing this
17 declaration? Or did you rely on anything else in
18 preparing this declaration?
19 A. I don't believe I relied on anything
20 documentary.
21 Q. Now, the other three declarations,
22 the '854, '859 and '973 declarations contain the

1 same Paragraph 20.
2 And I assume your answer would be
3 the same for those three as well?
4 A. Yes, it will.
5 MR. WILSON: Okay, Dan, you can pull
6 that down.
7 BY MR. WILSON:
8 Q. In addition to your Ph.D., you have
9 a J.D., correct?
10 A. Yes.
11 Q. You are an attorney, correct?
12 A. Yes.
13 Q. Are you representing Visa in a legal
14 capacity in these IPRs?
15 A. No. I haven't represented anyone in
16 a legal capacity in many years.
17 Q. Okay.
18 MR. WILSON: Okay. So, Dan, let's
19 go back to Tab 105 and let's go to
20 Paragraph 25.
21 BY MR. WILSON:
22 Q. And Dr. Shamos, that is your '531

1 declaration, Paragraph 25.
2 A. I am there.
3 Q. Okay. So, here you say that,
4 "Counsel for Patent Owner has informed me of the
5 legal principles that apply in this proceeding."
6 Do you see that?
7 A. Yes, I see that. I now see the
8 error of my way there.
9 Q. Okay. So, I assume you meant
10 counsel for petitioner?
11 A. I did. And this material is so
12 rote, apparently, that nobody noticed that.
13 Q. Okay. So, Visa's counsel explained
14 the legal principles to you, correct?
15 A. Well, here is the way it works.
16 So, I have done a lot of these and I
17 have a lot of stock paragraphs that deal with
18 legal principles.
19 I choose the paragraphs that are
20 pertinent to the particular declaration,
21 particular IPR.
22 Then I put those in my draft. And

1 when counsel reviews the draft they would inform
2 me of any changes that are necessary.
3 Q. Okay.
4 A. So, they didn't actually feed this
5 to me. I fed it to them and they vetted it.
6 Q. Okay. But, given that you are an
7 attorney, you agree with the legal principles
8 that are stated here in this section?
9 MR. ARGENTI: Objection, form.
10 THE WITNESS: Well, if you are
11 asking me for a legal opinion, I will give
12 it. It is my legal opinion that these are
13 correct statements of the law.
14 MR. WILSON: Okay. Now, let's take
15 a look at Tab 119, which is Exhibit 1011
16 which is Oborne.
17 (Whereupon, previously marked
18 Exhibit 1011, Tab 119,
19 first referral.)
20 THE WITNESS: I have it.
21 BY MR. WILSON:
22 Q. Okay. And you have reviewed Oborne,

1 correct?
2 A. Yes.
3 Q. And, were you familiar with Oborne
4 before you work on these IPRs?
5 A. I don't think so. I could probably
6 check, but I haven't checked.
7 Q. Okay. Let's take a look at
8 Figure 6A.
9 A. Yes. So, in my copy the figure is
10 rotated. So, I will look at it on the screen.
11 Q. Okay. So, this figure shows the
12 start of an example of a token-based purchase
13 transaction, correct?
14 A. Yes.
15 Q. Okay. And this process starts with
16 a user 601 providing purchase input 611 into a
17 client 602.
18 Correct?
19 A. Yes.
20 Q. Okay. The purchase input -- sorry,
21 let me strike that.
22 Okay. This purchase input is

1 entered into the client indicating that the user
2 wants to purchase the product, correct?
3 A. Yes.
4 Q. And there are a number of ways that
5 this purchase input can be entered into the
6 client, correct?
7 A. Yes. Well, we -- when you say the
8 client, I think you mean the client device,
9 right?
10 They call it the client. It is in
11 quotes in 602.
12 But, client is a confusing word
13 because it can often refer to a human being. So,
14 I'm going to call it the client device.
15 Q. Okay. Sure. Yes. There are a
16 number of ways that the purchase input could be
17 entered into the client device, correct?
18 A. Yes.
19 Q. For example, a user could use a
20 mouse attached to the client device and click on
21 a link for the product. Correct?
22 A. Yes.

1 Q. Alternatively, a user could swipe
2 their credit card through the client device to
3 give the client device the user's credit card
4 information, correct?
5 A. Yes. So, I want to find the portion
6 of Oborne where this is all described.
7 Because what you are talking about,
8 of course, in the real world is completely
9 reasonable. What I am trying to do is tie it to
10 disclosures of Oborne.
11 Q. Okay. Take a look at Paragraph 49
12 of Oborne.
13 A. Okay. I am there. It is actually
14 really useful for me to have the figure up on the
15 screen. Otherwise, I'm going to have to modify
16 my PDF.
17 MR. WILSON: Yes. No, that is fine.
18 Dan, we can keep the figure up.
19 THE WITNESS: I am happy to do it.
20 It would take 15 seconds, but I haven't done
21 it.
22 BY MR. WILSON:

1 Q. Okay.
2 A. Let me explain. So, when I was
3 preparing the declaration, of course the IPRs had
4 not been filed yet.
5 So, I had copies of the patents and
6 the references which I obtained from Free Patents
7 dot com.
8 And so there I had rotated the
9 figures properly when I was preparing my
10 declaration.
11 The documents that I am looking at
12 now are the ones that were literally cleanly
13 downloaded from the PTAB website.
14 And the ones, the copies on the PTAB
15 website have these diagrams rotated. As you can
16 see in the header, instead of being on the top of
17 the page is on the right-hand side. So, it has
18 been rotated.
19 Q. Right. Yes. Okay.
20 So, back to my previous question.
21 A user could swipe their credit card
22 through the client device to give the client

1 device the user's credit card information.
2 And that would be purchase
3 input 611, correct?
4 A. Yes. Typically purchase input will
5 include what you want to buy and how you intend
6 to pay for it.
7 Q. Okay. And according to
8 Paragraph 49, purchase input 611 could also be
9 voice commands, correct?
10 A. Yes.
11 Q. And, according to Paragraph 49,
12 purchase input 611 could also be activating an
13 RFID/NFC enabled hardware device, for example an
14 electronic card having multiple accounts,
15 smartphone, tablet, et cetera.
16 Correct?
17 A. Yes.
18 Q. Now, Oborne describes the input at
19 purchase input 611 as indicating the user's
20 desire to purchase the product. Correct?
21 A. It literally says that, yes.
22 Q. Now, Oborne says that the user input

1 may include but not be limited to keyboard entry.
2 Correct?
3 A. Yes.
4 Q. Now, other than purchase input
5 indicating the user's desire to purchase the
6 product, Oborne does not say what specific
7 information is entered via keyboard entry,
8 correct?
9 A. I am looking. Well, in
10 Paragraph 49, no. I am happy to look for
11 occurrences of keyboard throughout the rest of
12 Oborne.
13 Well, there is material in
14 Paragraph 113 about a virtual keyboard, which
15 would not be the physical keyboard that we are
16 talking about.
17 In Paragraph 127, there is reference
18 to a keyboard. There is reference to keyboards
19 in 128, and also Paragraph 135.
20 So, with that, if you can repeat the
21 question.
22 Q. Yes. Oborne does not say what

1 specific information is entered via keyboard
2 entry other than purchase input indicating the
3 user's desire to purchase the product. Correct?
4 A. Well, I don't think it is stated
5 expressly. But I think a POSITA reading the
6 paragraph would understand that, for example, the
7 keyboard could be used for selecting product.
8 Because there is discussion of using
9 a browser and using hyperlinks, for example, to
10 select a product, in other paragraphs.
11 Q. Okay. So, after a keyboard entry,
12 Oborne next mentions a card swipe, correct?
13 A. Yes.
14 Q. Now, Oborne does not say what
15 specific information is entered via the card
16 swipe, other than purchase input indicating the
17 user's desire to purchase the product, correct?
18 A. That is what it literally says,
19 although I have to go through and look for other
20 occurrences of card swipe, because we are only
21 talking about Paragraph 49.
22 But, I think a POSITA would

1 understand that the purpose of a card swipe is to
2 convey payment credentials so the merchant could
3 charge a credit card or other payment source.
4 So, for example, if you look at
5 Paragraph 27, it extends from the left-hand side
6 of Page 3 to the right-hand side of Page 3.
7 About, it looks like the 12th line
8 down or so. "In some implementations such
9 setting of default options may allow the user to
10 initiate the purchase transaction via a single
11 click, tap, swipe, and/or other remedial user
12 input action, e.g., 205."
13 So, it seems clear that this swipe
14 has to do with payment.
15 Q. And, sorry, where were you reading?
16 A. I was reading in Paragraph 27, but
17 on the right-hand side of Page 3, I thought it
18 was about the 12th line down, but maybe it was
19 closer to the top. One, two, three -- six, seven
20 --
21 It is the 10th line.
22 Q. Okay.

1 A. In some implementations, dot, dot,
2 dot.
3 Q. Okay. There is nothing in
4 Paragraph 49 that indicates that these default
5 options are set in the examples listed in
6 Paragraph 49, correct?
7 A. Well, no. It is, the information in
8 Paragraph 27 is not repeated in Paragraph 49.
9 Q. Okay. So, back to my question which
10 is: Oborne does not say what specific
11 information is entered via the card swipe, other
12 than purchase input indicating the user's desire
13 to purchase the product, correct?
14 A. No, that is not correct, because we
15 just read Paragraph 27, which talks about the
16 card having payment credentials.
17 Q. And -- okay. But again Paragraph 49
18 doesn't say this default option is set in the
19 card swipe example in Paragraph 49, correct?
20 A. It is literally not in Paragraph 49.
21 It is elsewhere in the specification.
22 Q. Okay. But, in the line that you

1 read in Paragraph 27, it doesn't say that -- it
2 says in some implementations.
3 Correct?
4 A. Yes.
5 Q. Okay. Which implementations are
6 those?
7 A. It doesn't say in some embodiment.
8 It says in some implementations.
9 And so it would be up to the person
10 who is practicing the patent to decide whether to
11 adopt these options or not.
12 Q. Okay. So, it is optional in Oborne?
13 MR. ARGENTI: Objection, form.
14 THE WITNESS: What is optional, the
15 use of swiping a card? Yes, that would be
16 optional.
17 BY MR. WILSON:
18 Q. Where --
19 A. The other way, it is a pain.
20 Q. Whether you set default options that
21 may allow the user to initiate the purchase
22 transaction via a single click, tap, swipe, or

1 other remedial user input action is optional in
2 Oborne, correct?
3 A. Yes.
4 Q. Okay. Back to Paragraph 49.
5 A. Okay.
6 Q. Oborne mentions activating an
7 RFID/NFC enabled hardware device as a purchase
8 input, correct?
9 A. Yes.
10 Q. Okay. And Oborne does not say what
11 specific information is entered via activating
12 the RFID/NFC enabled hardware device other than
13 purchase input indicating the user's desire to
14 purchase the product, correct?
15 A. Well, not in Paragraph 49, but now
16 we've got to go take a look for RFID/NFC
17 elsewhere in the specification.
18 Paragraph 26 deals with it, about a
19 little past halfway down.
20 "For example, the authentication
21 chip and the card may communicate signals via
22 Bluetooth, WiFi, RFID tags, cellular connectivity

1 (e.g., 3G 4G) and/or the like.
2 "Thus in order to make a purchase
3 with the payment token, in some implementations,
4 the user may be required to present the payment
5 token physical card to the authentication chip
6 disposed in communication with the client before
7 the user can make a purchase order using the
8 token."
9 So, that provides further
10 explication of what goes on with the RFID tag.
11 Q. Okay. And what kind of physical
12 card is being referenced here?
13 A. The card that is going to
14 communicate with the RFID/NFC enabled hardware
15 device.
16 Q. Okay. So, so, if you go up in the
17 paragraph just a few lines and it says --
18 A. Sorry. Which paragraph?
19 Q. 26.
20 A. Okay.
21 Q. It says, "For example, the
22 authentication chip may be configured to

1 recognize the user's payment token physical card
2 when the card is in the vicinity of the
3 authentication chip."
4 Correct?
5 A. I'm sorry. I'm sure you are right,
6 but I would like to find where it is. Where were
7 you reading from, Paragraph 26?
8 Q. Yes. It is just below the middle of
9 Paragraph 26.
10 A. What are the first words of the
11 sentence?
12 Q. For example.
13 A. Oh, yeah. That is what I read --
14 actually I read the sentence after that.
15 Q. Right.
16 A. Well look, we all know what we are
17 talking about here.
18 You've got a credit card. The
19 credit card has an RFID chip in it.
20 You bring it near -- this happens to
21 have that, the card that I'm holding up.
22 You bring it near a reader at the

1 merchant and an NFC communication takes place in
2 which your payment credential is communicated
3 from the card to the merchant's reader.
4 That is how you make a payment.
5 Q. Now you are characterizing that as a
6 NFC communication.
7 That is an RFID communication,
8 correct?
9 A. RFID was an early version of NFC.
10 RFID was used for a long time. And then folks in
11 the industry thought that NFC was more descript.
12 So, it is very often you will see
13 RFID/NFC. In fact, Oborne contains that in
14 Paragraph 49.
15 Q. Okay. So, in your opinion RFID and
16 NFC are the same thing?
17 A. No. RFID is a member of the set of
18 NFCs. NFC is broader than RFID.
19 Q. Okay. So, everything that would be
20 RFID would be an NFC communication in your
21 opinion?
22 A. Yes.

1 Q. Okay. Okay. Let's look at
2 Paragraph 53 of Oborne.
3 A. I am there.
4 Q. Okay. So the first sentence there
5 says, "In various implementations the token
6 server may be part of the merchant system (e.g.,
7 a merchant process), or part of the payment
8 network (e.g., a pay network server), or an
9 independent server operating in conjunction with
10 the merchant, issuer, acquirer, and payment
11 network."
12 Did I read that correctly?
13 A. Yes.
14 Q. So, the next line says -- or the
15 next sentence says, sorry, "In general, it is to
16 be understood that any entity and/or component
17 included in the PPT may serve as a token
18 arbitrator."
19 Did I read that correctly?
20 A. Yes.
21 Q. Okay. When Oborne says token
22 arbitrator, it means the same thing as token

1 server, correct?
2 A. I haven't considered that. So,
3 let's take a look at what Oborne actually says.
4 Q. Well, if it makes you more
5 comfortable, you can look at your '531
6 declaration, Paragraph 232.
7 A. All right. We will see if it makes
8 me more comfortable. 232?
9 Q. Yes.
10 A. I am there. But, I am looking
11 around for the phrase "token arbitrator."
12 Q. Four lines down in Paragraph 232.
13 "The system includes a token server also referred
14 to as a token arbitrator."
15 Do you see that?
16 A. Oh. I now see the problem. I am
17 looking at the wrong declaration. I was looking
18 at --
19 Q. Oh, okay.
20 A. I was looking at the '854
21 declaration. Okay. 232?
22 Q. Yes. In the '531 declaration.

1 A. Okay. Yes. So, I am citing there
2 to Paragraph 53 of Oborne.
3 Q. Right. But the first part of your
4 fourth line down in Paragraph 232 says, "The
5 system includes a token server also referred to
6 as a token arbitrator."
7 Do you see that?
8 A. Yes, and I am assuming that in
9 Paragraph 53, there is language that justifies
10 that. I mean Paragraph 53 of Oborne.
11 Q. Yes. That is not my question. But,
12 feel free to confirm that if you, if you would
13 like.
14 A. Well, Paragraph 53 is talking about
15 the token server essentially performing the token
16 arbitration steps.
17 And so something that performs token
18 arbitration steps would be the token arbitrator.
19 And that seems to be something -- I
20 mean it seems to be, have the same meaning as
21 token server in Paragraph 53.
22 Q. Right. Okay. So, in Paragraph 53,

1 you would agree that the token arbitrator is the
2 token server, correct?
3 A. Yes. The token server may do more
4 things than that, but it performs the token
5 arbitration function.
6 Q. Okay. Now, and you would agree that
7 Paragraph 53 is talking about Oborne's Figure 6,
8 correct?
9 A. Well, I think so. I can verify
10 that. Yes, because the content begins in
11 Paragraph 49 which begins with the words,
12 "Figure 6A-E show," dot, dot, dot.
13 Q. Okay.
14 A. And there is no new figure
15 introduced between Paragraph 49 and Paragraph 53.
16 So, yes.
17 Q. Okay. And since we have Fig 6A up
18 here on the screen already, Figure 6A you would
19 agree is showing the PPT, correct?
20 A. Yes.
21 Q. Okay. So, every component in
22 Figure 6A is part of the PPT, correct?

1 A. Well, I would think so. But let me
2 verify that.
3 See, the reason I pause is that
4 user 601 is shown as a human being. And, you
5 know, it is, it is difficult to consider the
6 human being as part of a system.
7 Q. Okay. So, excluding the user 601,
8 every component shown in Figure 6A is part of the
9 PPT, correct?
10 A. I think so. I don't know.
11 Q. Okay. So, just let's clarify for a
12 second.
13 So, the token server, the merchant
14 server, the token database, the merchant
15 database, the client device are all components of
16 the PPT, correct?
17 A. Well, so when you say the PPT, the
18 slight problem is that in Paragraph 22, Oborne
19 defines the phrase -- defines what PPT means.
20 And it means payment privacy
21 tokenization apparatuses, methods and systems.
22 All of that is PPT.

1 Then, there is this phrase, PPT
2 components, which are going to be performing
3 various steps of the PPT methods.
4 Q. Okay.
5 A. So, we have already excluded the
6 human as not being part of the PPT. I would have
7 to look over everything else in there to decide
8 whether there is -- there might be something that
9 isn't part of the PPT.
10 Q. Okay. Let's go back to Paragraph 53
11 for a second. And let me ask you, when it says,
12 "any entity and/or component included in the PPT
13 may so serve as a token arbitrator," what PPT is
14 it referring to?
15 A. So, in general what is going to
16 happen is that there is going to be an
17 implementation. So, that is what is referred to
18 in the first sentence of Paragraph 53. It says,
19 "in various implementations."
20 Then the components of the
21 implementation that are performing the methods
22 of, the PPT methods that are described in the

1 specification, you could refer to that as the
2 PPT, although that is not exactly what Oborne
3 does.
4 Oborne is a little bit fuzzy about
5 this, because it talks about the PPT, but it
6 defines the PPT to include apparatuses, systems
7 and methods.
8 So, the user, we have already agreed
9 is not part of the PPT. And I just have to
10 figure out from this what else might not be part
11 of the PPT.
12 PPT is the implementation that has
13 been built in order to effectuate the methods
14 described in the patent.
15 Q. So, let me ask you this, looking at
16 Figure 6A.
17 Do you think the client device can
18 serve as the token arbitrator?
19 A. Do I think it could? So, the
20 statement that you read from Paragraph 53, it
21 says, "In general, it is to be understood that
22 any entity and/or component included in the PPT

1 may serve as a token arbitrator."
2 So, following that instruction, a
3 POSITA who is implementing the process might be
4 able to figure out a way for the client device to
5 be a token arbitrator. It normally isn't, but
6 that doesn't mean it would be impossible.
7 And the client device, for example,
8 could be connected to a token server in the back
9 office of the merchant, for example. Now, if the
10 client device is simply a keyboard and display, I
11 don't see how that could be a token arbitrator.
12 On the other hand, if it is a full
13 computer, it is a PC, it could. It would be
14 unusual to do that, but Oborne teaches it.
15 Q. Okay. Now I want to take a look
16 at -- I'm not sure how best to do this, but I
17 want to look at Figures 4, 5, 6, and 7.
18 But, let's start with Oborne's
19 Figure 4.
20 A. All right. To do this, let me get a
21 different copy of Oborne, not the one that was
22 sent to the PTAB but the one that I was working

1 from.
2 That way I'm going to have all of
3 the drawings with the right orientation.
4 Okay. I have them. So, which one
5 are we starting with?
6 Q. Figure 4.
7 A. Figure 4. Yes. Figure 4, similar
8 to Figure 6, not identical.
9 Q. Okay. So, Figure 4, and if it helps
10 you at all, I am literally just asking this
11 question out of Paragraph 9 of Oborne.
12 So if you want to follow along, the
13 words that I'm reading are right out of the
14 paragraph. But, I just want to confirm, Oborne's
15 Figure 4 is, "A data flow diagram illustrating an
16 example procedure to enroll in a token-based
17 purchase payment program in some embodiments of
18 the PPT."
19 Correct?
20 A. Yes.
21 Q. Okay. Figure 5, and this is coming
22 out of Paragraph 10, Oborne's Figure 5 is, "A

1 logic flow diagram illustrating example aspects
2 of enrolling in a token-based purchase payment
3 program in some embodiments of the PPT, for
4 example a Token-Based Purchase Enrollment
5 component 500."
6 Correct?
7 A. Substantially. You changed a few
8 words. But you didn't change the meaning.
9 Q. Okay. So, now let's look at Figure
10 6A through E. This is coming from Paragraph 11.
11 "Oborne's Figure 6A through E shows
12 data flow diagrams illustrating an example
13 procedure to execute a token-based purchase
14 transaction in some embodiments of the PPT."
15 Correct?
16 A. Yes.
17 Q. And, next paragraph, Paragraph 12.
18 "Oborne's Figure 7A through F show logic flow
19 diagrams illustrating example aspects of
20 executing a token-based purchase transaction in
21 some embodiments of the PPT, for example, a
22 Token-Based Purchase Transaction Execution,

1 component 700." Correct?
2 A. Yes.
3 Q. Okay. So, Figures 4 and 5 relate to
4 enrolling in a token-based purchase payment
5 program, correct?
6 A. Yes.
7 Q. And Figure 6 and 7 relate to
8 carrying out token-based purchase transactions,
9 correct?
10 A. Yes.
11 Q. Okay. In your opinion, do Figures 4
12 and 5 represent the same embodiment in Oborne?
13 A. Well, the same embodiment of what?
14 Because there is an enrollment phase, followed by
15 an actual execution phase where you are actually
16 buying something.
17 Q. Well, Figure 4 and 5 both relate to
18 the enrollment phase, correct?
19 A. Yes.
20 Q. So, do Figures 4 and 5 both
21 represent the same embodiment of the PPT in
22 Oborne?

1 A. Oh, I'm sorry. 4, do you mean
2 does 4 --
3 We are just looking at 4 and 5, not
4 6 and 7?
5 Q. Yes.
6 A. 4 and 5. Let's see.
7 Well, I think that Figure 5 is a
8 flow chart that is showing the steps that are
9 performed by the apparatus in Figure 4.
10 Q. Okay. So, in your opinion, they are
11 the same embodiment?
12 A. Well, when you say the same
13 embodiment, they are -- they may be the same
14 overall embodiment. But there may be options to
15 change the way certain steps occur.
16 Q. Do they represent the same
17 algorithm?
18 A. Well, as I said, I think the flow
19 chart in Figure 5 is explaining the steps that
20 are performed by the apparatus that is disclosed
21 in Figure 4.
22 Q. Okay. In your opinion, do Figures 6

1 and 7 represent the same embodiment of the PPT in
2 Oborne?
3 MR. ARGENTI: Objection, form.
4 THE WITNESS: So, when you say the
5 same embodiment -- so, there are various
6 options.
7 For example, we already talked about
8 this, the purchase input. The purchase input
9 can be through various devices.
10 The steps that are performed in --
11 and I am going back to Figures 4 and 5 --
12 well, let's stay with 6 and 7. It is okay.
13 Okay. So, in Figure 6A, the input
14 can be -- in one implementation, the input
15 can be by a card swipe.
16 In another implementation, it can be
17 by keyboard entry. Now, are those different
18 embodiments or are they variations on the
19 same embodiment?
20 If they are variations on the same
21 embodiment, then yes, then I think Figure 7
22 is the same embodiment as figures -- 7A is

1 the same embodiment as 6A.
2 However, I can change the purchase
3 input device without changing anything in
4 Figure 7A.
5 And so, I'm not sure what you mean
6 by the same embodiment, exactly.
7 BY MR. WILSON:
8 Q. Well, Figure 6A just says purchase
9 input 611, correct?
10 It doesn't specify which methodology
11 is used for the purchase of input 611, correct?
12 A. Yes, but Figure 6A is a template.
13 And substitutions can be made for various of
14 these devices. And if you are thinking of those
15 as all of the same embodiment, then yes, Figure 7
16 is the same embodiment as Figure 6.
17 But, if they are not the same
18 embodiment, then Figure 7 can cover more than one
19 embodiment.
20 Q. Okay. So, in your opinion, do
21 Figures 6 and 7 represent a continuation of the
22 same embodiment reflected in Figures 4 and 5?

1 MR. ARGENTI: Objection, form.
2 THE WITNESS: When you talk about
3 the same embodiment, I'm just not exactly
4 sure what you mean.
5 So, the reason for this is there are
6 two phases: There is the enrollment phase
7 and the purchase phase.
8 I can imagine using one embodiment
9 for the enrollment phase that would get us to
10 the point where the user is carrying around a
11 token.
12 And then a different embodiment for
13 the actual reading and processing of the
14 token.
15 So, these drawings are not
16 identified as embodiments. They are
17 described as, in some implementations you can
18 do this.
19 And, I guess, we haven't nailed down
20 what the difference is, if any, between
21 embodiment and implementation.
22 BY MR. WILSON:

1 Q. Okay. What do you think the
2 difference is between embodiments and
3 implementations, if any?
4 A. I don't know. I'm going to have to
5 look at what Oborne says about it. In
6 particular, I'm going to look for embodiment.
7 So, going back to the paragraphs
8 that we read earlier, actually beginning at
9 Paragraph 6 of Oborne.
10 That one says, "Figs 1A-B show block
11 diagrams illustrating example aspects of payment
12 tokenization in some embodiments of the PPT."
13 And so, it is not one embodiment.
14 It is in some embodiments of the PPT.
15 And, likewise, Paragraph 9.
16 "Figure 4 shows a data flow diagram illustrating
17 an example procedure to enroll in a token-based
18 purchase payment program in some embodiments of
19 the PPT."
20 And then the next paragraph,
21 Figure 10 it uses the phrase "some embodiments."
22 Then 11, describing Figure 6A

1 through E, it is "some embodiments."
2 And 7F -- 7A through F in
3 Paragraph 12, "some embodiments."
4 And so these are overall diagrams
5 intended to educate the POSITA as to what he
6 needs to do to make implementations of the
7 invention.
8 It is not saying that this is one
9 embodiment and that is one embodiment. It is an
10 overall description of some of a collection of
11 embodiments.
12 Q. Okay. So, you would agree that each
13 of Figures 4 through 7 represent multiple
14 embodiments?
15 A. I think that is accurate, yes.
16 Q. Okay. Okay.
17 MR. WILSON: Dan, we can drop those
18 figures now.
19 BY MR. WILSON:
20 Q. Dr. Shamos, you are familiar with
21 Cortex's '531, '854, '859 and '973 patents,
22 correct?

1 A. Yes.
2 Q. And you are familiar with the terms
3 used in the claims, such as an OVER engine, an
4 OVER file client storage device for the user and
5 an OVER file third party client verifying device.
6 Correct?
7 A. When you ask if I am familiar with
8 those terms, I am certainly familiar with the
9 terms.
10 If you are asking have I defined
11 those terms, that would be a different question,
12 but I'm certainly familiar with them.
13 Q. Okay. And it is your opinion that
14 each of these limitations are disclosed by
15 Oborne, correct?
16 A. Wait a second. You just asked me
17 about terms. And then your immediately following
18 question was about limitations.
19 So, what are you talking about?
20 Q. Okay. I am talking about --
21 A. The limitation is a component of a
22 claim.

1 Q. Okay. So, you are familiar with the
2 fact that OVER engine, for example, appears in a
3 claim?
4 A. Yes.
5 Q. Okay. OVER engine is a limitation
6 of the claims, correct?
7 A. It is an element of the claim.
8 Q. Okay. We can use your terminology.
9 The OVER file client storage device
10 of the user is an element of a claim, correct?
11 A. Yes.
12 Q. And the OVER file third party client
13 verifying device is an element of a claim,
14 correct?
15 A. Yes.
16 Q. And it is your opinion that Oborne
17 discloses each of these elements of the claims,
18 correct?
19 A. Yes. Under Cortex's interpretation
20 of the claims.
21 Q. Okay. So, I want to switch to
22 your 488 declaration -- or sorry, your '854

1 Patent declaration.
2 MR. WILSON: And, Dan, that is 116.
3 THE WITNESS: Okay.
4 MR. WILSON: Oops, sorry -- my
5 mistake, Dan. That is Tab 107.
6 BY MR. WILSON:
7 Q. Okay. So, this is your '854 Patent
8 declaration in the 488 IPR.
9 And let's take a look at
10 Paragraph 221.
11 Yes. Now, here you say that, "The
12 PPT apparatus supports the use of tokens for
13 transactions, corresponding to the recited OVER
14 file."
15 Did I read that correctly?
16 A. Yes.
17 Q. Okay. When you say tokens for
18 transactions, what do you mean?
19 A. Okay. Let's see. So, token is a
20 term that appears in Oborne more than 300 times.
21 So, let's go look at all of the
22 cases -- or at least the first few to see what

1 Oborne means by token.
2 Q. Well, it may help you and it may
3 not, I don't know, to look at Paragraph 223, just
4 a couple of paragraphs down in your declaration.
5 A. Okay. I will take your suggestion.
6 Q. Just that first sentence there.
7 A. Well, I'm mapping token to the OVER
8 file. But, I don't see -- okay. So, I think the
9 next page is more elucidating.
10 Q. Okay.
11 A. Where it says, "As depicted in
12 Fig 1B below, the token is a virtual
13 representation of a credential such as a credit
14 card."
15 Q. Okay. So, again, so, I thought from
16 that first sentence you say the data structure
17 for a token, parentheses, OVER file.
18 So you are not saying that the data
19 structure for a token is the OVER file, correct?
20 A. Well, I think the OVER file contains
21 the data structure. But it talks about -- it
22 says, "The token server uses these stored values

1 to generate a data record and a data structure
2 for a token."
3 Q. So, in that sentence, when you put
4 the parentheses, OVER file, after token, are you
5 saying the data structure for a token is the OVER
6 file.
7 Or are you saying just the token is
8 an OVER file?
9 A. Oh, the token is the OVER file.
10 Q. Okay. So, again, then, maybe we
11 need to go back to Oborne.
12 But what do you mean by token?
13 A. Well, here what I mean by token is
14 what Oborne means by token. This is the thing
15 that is going to be processed by the token
16 server. It is going to be issued to the, to the
17 user during enrollment, et cetera.
18 Q. Okay. You are saying the high level
19 concept of a token?
20 A. Well, the token is a high level
21 concept, but there is specific implementations of
22 tokens that are described in Oborne.

1 Q. Right. But yeah, I'm trying to
2 figure out exactly what you mean by token.
3 You know, when you say here that the
4 OVER file is a token, what specifically are you
5 referring to in Oborne that constitutes an OVER
6 file?
7 A. The token of Oborne is the OVER
8 file.
9 Q. Okay. If we look at Figure 1B,
10 which you've got there on Page 93 of your
11 declaration, all that is shown there are tokens,
12 like token 101B with the number.
13 A. Hang on a second. Yeah, I think the
14 number that is below there is intended to
15 represent the contents of the token.
16 Q. Okay. When you say the contents of
17 the token, you are distinguishing token from the
18 number that is there.
19 Are you saying the number that is
20 there is the token, and thus the OVER file?
21 A. I'm not sure that in Figure 1B, the
22 number is the entire contents of the token. It

1 may be. It may not be.
2 Q. So, okay. So, what you are saying,
3 I think, is that the token that is the OVER file
4 in Figure 1B is that number and may be other
5 things but may be only that number?
6 A. Yes.
7 Q. Okay. Now, going back to the
8 beginning of Paragraph 223, you say the "data
9 structure for a token, (OVER file) as well as a
10 token identifier representing the token."
11 Correct?
12 A. Yes.
13 Q. So, you are distinguishing the token
14 identifier from the token, correct?
15 A. So, the token identifier is
16 typically a character string. The character
17 string may be included in the token itself and
18 also may be stored in a data record at the token
19 server.
20 In fact, normally it would be, so
21 that the token server can properly identify a
22 token that it issued when that token is presented

1 to it.
2 So, a good example, I think, is on
3 Page 9 of Oborne.
4 So, here is this XML data structure.
5 This is a token data structure. And, there is a
6 tag on the second line called token.
7 And then under that there is another
8 tag that says unique ID. And there is a number
9 that is the -- well, it is a -- it is a character
10 string. It is a character string that is the
11 unique ID of this token.
12 So, the token ID can be in the token
13 and also can be stored elsewhere, for example in
14 the token server.
15 Otherwise the token server would not
16 have a way of recognizing that it issued this
17 token.
18 Q. Okay. So, looking at Figure 1B
19 there, what are the numbers that are shown under
20 each token?
21 A. I don't know. It is some, it is
22 some numerical string that is intended to

1 represent the token. I don't know. I would have
2 to go look at Oborne to see its description of
3 Figure 1B to see what explanation it gives.
4 Q. Okay. So, that is not a token
5 identifier?
6 A. I don't know. Let's look. Let's
7 see what Oborne says about it.
8 Well, there is a long explanation in
9 Paragraph 25 about what is going on in Figure 1B.
10 Around the 10th or 11th line. "For
11 example, the user may be able to pass a token,
12 e.g., 101B, 102B, 103B, 104B, to a merchant
13 instead of complete card information, cash, or
14 account information."
15 And then there is a description of
16 Figs 9A through 14B about what happens with that
17 token.
18 I don't think that Figure 1B is
19 intended to show the entire contents of the
20 token. In fact, I mean Oborne doesn't say the
21 entire contents of the token are shown in
22 Figure 1B.

1 Q. Okay. But my question really was
2 whether the number that is shown in Figure 1B
3 under each token is a token identifier.
4 A. Well, I'm going to look to see if
5 Oborne says that. I'm looking for token
6 identifier.
7 So, the first occurrence token
8 identifier is in Paragraph 47. About the middle
9 of it, it says, "For example, the token server
10 may generate a unique and resolvable token
11 identifier irrespective of the token requesting
12 channel," dot, dot, dot.
13 "Token server keeps track of all
14 generated tokens via token identifiers. And as
15 each is created, subsequent requests for creation
16 of a token with the same token identifier will be
17 denied."
18 Of course it has to be denied or the
19 token identifier would not be unique.
20 So, I don't think there is a
21 statement that the -- what is going on in
22 Figure 1B are the token identifiers. It might be

1 rational to consider them that way.
2 My position is that I don't think
3 Figure 1B is intended to show the entire contents
4 of the token.
5 Q. Okay. Let's take a look at Oborne
6 Paragraph 50.
7 A. Okay. Yes. I am there.
8 Q. Okay. And you look down at the
9 bottom of the page -- or at the bottom of that
10 column, you see, "Below is an example HTTPS get
11 message including an XML formatted purchase order
12 message for the merchant server."
13 Do you see that?
14 A. Yes.
15 Q. If you look down at the last line on
16 that same page, do you see the reference to a
17 token ID?
18 A. Yes.
19 Q. Okay. That token ID there looks
20 just like the last one in Figure 1B. Right?
21 Token 104A, correct?
22 A. Good call. You are right.

1 Q. Okay. So, you agree that the
2 numbers in Figure 1B under each token are a token
3 ID, correct?
4 A. Probably.
5 Q. Okay. Okay. So, let's go back to
6 the question I started with which is, when we are
7 talking about a token in Oborne and your opinion
8 that the token constitutes an OVER file, your
9 opinion is that the OVER file in Oborne is the
10 token with all of its contents, whatever they
11 might be, correct?
12 A. Yes.
13 Q. Okay. That includes at least the
14 token identifier and maybe more. Correct?
15 A. Well, it certainly can include a
16 identifier, a token identifier, and can include
17 more.
18 What I'm wrestling with is whether
19 it has to include the token identifier. It
20 probably does. But I would have to look around
21 at Oborne to see if that is an essential
22 component of the token.

1 Q. Well, you just read in Paragraph 47
2 how Oborne uses the token identifier to
3 distinguish tokens, correct?
4 A. Yes.
5 Q. So, doesn't it have to have a token
6 identifier?
7 A. It certainly is logical that it
8 would have a token identifier. I'm trying to
9 figure out is whether it is absolutely required.
10 I can put it another way. I don't
11 think there is a disclosure of Oborne of a token
12 that doesn't have one.
13 I also don't think that there is --
14 I don't recall a positive statement that it has
15 to.
16 There has to be a token identifier
17 associated with it, that is true. And that is
18 going to get stored in the token server.
19 It would makes sense to also have it
20 in the token, but I'm looking around for a
21 statement that that is required.
22 MR. WILSON: Okay. So, we have been

1 going I guess a little over an hour. I'm
2 happy to stop and take a break here or we can
3 keep going. It is up to you.
4 THE WITNESS: Five minutes would be
5 plenty for me. I just have to get another
6 Diet Coke.
7 MR. WILSON: Okay, sure. Let's go
8 off the record.
9 THE VIDEOGRAPHER: All right. The
10 time is 10:07 a.m. We are going off the
11 record.
12 (Recess taken -- 10:07 a.m.)
13 (After recess -- 10:14 a.m.)
14 THE VIDEOGRAPHER: The time
15 is 10:14 a.m. and we are back on the record.
16 BY MR. WILSON:
17 Q. Okay. Now, let's go back to your
18 declaration.
19 A. Which one?
20 Q. The '854 declaration. Okay. And I
21 want to look at Paragraph 218.
22 That is on page, PDF Page 92.

1 A. I am there.
2 Q. Okay. And that first line there you
3 say, "Oborne teaches an OVER engine, in the form
4 of a payment privacy tokenization apparatus or
5 PPT apparatus."
6 Correct?
7 A. Yes.
8 Q. Okay. And so, in the next sentence
9 you say, "The system includes a token server,
10 also referred to as a token arbitrator, that may
11 be any entity involved in the PPT such as part of
12 the payment network (e.g., a pay network
13 server)."
14 Did I read that correctly?
15 A. Yes. That is from Oborne.
16 Q. Okay. And when you say the system
17 in that sentence, you mean the PPT apparatus,
18 correct?
19 A. Yes.
20 Q. Okay. And Oborne's PPT apparatus
21 includes a token server and a number of other
22 entities, such as a payment network, correct?

1 A. Well, yes. But it also says that
2 the token server can be part of the payment
3 network.
4 Q. Right. Okay. So, just to clarify
5 here, you are not saying that Oborne's token
6 server is by itself an OVER engine, are you?
7 A. So, I guess there is a difference
8 between what I said or didn't say and what I
9 actually believe.
10 So, I don't think I have a statement
11 that says that the token server is the OVER
12 engine.
13 Q. Right. I, I think what you are
14 saying, and correct me if I'm wrong, is that
15 Oborne's token server is part of Oborne's PPT
16 apparatus, the PPT apparatus being the OVER
17 engine.
18 A. Yes, so, the PPT apparatus does a
19 lot of stuff, not all of which are functions of
20 the OVER engine.
21 So, the OVER engine is a subset of
22 the PPT apparatus.

1 Q. Okay. And the OVER engine includes
2 the token server but is not exclusively the token
3 server?
4 A. I don't see a statement in Oborne
5 that says it is exclusively confined to the token
6 server.
7 Q. Okay. Now, in Paragraph 219, you
8 have Figure 4 depicted there, right?
9 A. Yes.
10 Q. And you said, "Oborne depicts the
11 general arrangement of customers, parties and the
12 pay network server (which can include the PPT
13 apparatus)."
14 Correct?
15 A. Yes.
16 Q. Okay. Are you saying that the pay
17 network server can include the PPT apparatus?
18 A. I am actually looking in Figure 4
19 for the pay network server, and I am not
20 instantaneously seeing it in Figure 4.
21 So, let's take a look at some other
22 figures.

1 Yes. So, Figure 4 does say pay
2 network server. It is under token server.
3 Right?
4 It says, "e.g., merchant processor,
5 pay network server, independent arbitration
6 server, et cetera."
7 So, it is identifying that the token
8 server can be part of the pay network server, can
9 be the pay network server.
10 Q. Okay. So, again my question is, in
11 Paragraph 219, are you saying that the pay
12 network server can include the PPT apparatus?
13 A. No, I think it is the general
14 arrangement can include the PPT apparatus.
15 Q. Okay. The general arrangement is
16 part of the PPT apparatus, correct?
17 A. Well, sort of. As we have
18 discussed, the human user is not part of it.
19 Q. Okay. Yeah. Sorry, let me correct
20 that.
21 So, excluding the user 401, what is
22 depicted in Figure 4 is the PPT apparatus,

1 correct?
2 A. Probably. I mean, I said I would
3 have to look over every element of it to see if
4 there is anything that needs to be excluded from
5 it.
6 I'm not seeing anything
7 instantaneously.
8 Q. Okay. Now, earlier we talked about
9 Oborne -- your opinion that Oborne's token server
10 is a part of the OVER engine but maybe not the
11 whole of the OVER engine.
12 So, what else in the PPT apparatus
13 would be included in Oborne's OVER engine in your
14 opinion?
15 A. Oh, so, we have to look at the
16 claims to see what steps are performed by the
17 OVER engine.
18 Because -- so, the OVER engine does
19 many things. One of the thing is it generates
20 token and another thing it verifies token.
21 And so we have to go look at the
22 functions recited for the OVER engine. And then

1 I can point to which components of the PPT
2 apparatus perform that.
3 Q. Okay. And well, if it needs to
4 generate tokens and then verify the tokens, which
5 components would be included?
6 A. Well the components in Figure 4 are
7 part of the generation. And then the components
8 in Figure 6 are part of the verification.
9 And there may be more things that
10 the OVER engine has to do. We can look at them
11 individually, claim by claim.
12 Q. Okay. So, when you say then the
13 components in Figure 6 are part of the
14 verification --
15 A. They are used during the
16 verification process.
17 Q. Okay. Are you saying all of the
18 components in Figure 6 are then part of the OVER
19 engine?
20 A. You mean did I say that in my
21 declaration or am I saying that now?
22 Q. Yes. Are you saying that now? I

1 don't think you said that in your declaration.
2 Maybe I'm wrong.
3 But, I'm just trying to figure out
4 what constitutes the OVER engine.
5 A. Yeah, and so we have another problem
6 which is that down on the right-hand side of
7 Figure 6A, there is a little flag that says 6C.
8 So, 6C is included in Figure 6A.
9 Q. Yeah, I mean, I think you will find
10 cross-references all of the way from Figure 6A
11 through 6E.
12 So, yeah, when I say Figure 6, I
13 mean 6A through 6E.
14 A. Yes, all of it.
15 So, looking at it sitting here, I'm
16 not seeing anything other than the user that is
17 not part of the PPT apparatus.
18 Q. Okay. In Figure 6, you are saying?
19 A. Figure 6 and I think also Figure 4.
20 Q. Okay. So, my question though is a
21 little different. And that is what in Figure 6
22 constitutes the OVER engine, if the OVER engine

1 has to both generate and verify token?
2 A. Well, I can't tell because it
3 depends on the implementation.
4 So, what it says is, for example,
5 that the token server could be the client device.
6 It could be the merchant server.
7 So, this is a general overall
8 diagram that varies by implementation.
9 And so in a particular
10 implementation, we would have to find those
11 components that are performing the steps required
12 of the OVER engine. And that is what would
13 constitute the OVER engine.
14 Q. Okay. So it may vary by claim,
15 then?
16 A. Not just by claim. It may vary by
17 implementation.
18 Q. Okay.
19 A. I don't think it varies by claim. I
20 think, I think what we looked at is the totality
21 of what the OVER engine has to do from all of the
22 claims, that is the thing that is the OVER

1 engine.
2 But it certainly can vary by
3 implementation. It might vary by claim,
4 actually.
5 Q. Okay. And, that is generally true
6 across your '854, '859, and '973 and '531
7 declarations?
8 MR. ARGENTI: Objection, form.
9 THE WITNESS: Yes, when you say
10 that, you mean the statement that I just made
11 that it varies by implementation?
12 BY MR. WILSON:
13 Q. Yes.
14 A. Yes.
15 Q. Your opinion as to what constitutes
16 the OVER engine doesn't change from, from one
17 patent declaration to the next. Correct?
18 A. Well, it may. I mean, it depends on
19 what claims are in the patent that that
20 declaration applies to.
21 Q. But I thought you just said it
22 wouldn't change depending on the claim.

1 A. And then later I corrected that and
2 said it may change based on the claim.
3 Q. Okay. All right. Fair enough.
4 Okay.
5 So, some components may come and go
6 from what constitutes the OVER engine, depending
7 on what the claim requires to be carried out by
8 the OVER engine, correct?
9 A. Right.
10 Q. Okay. All right.
11 Now, back to your '854 declaration.
12 And back to Paragraph 219 there.
13 And looking at the bottom of the
14 page you say, "This system includes the OVER file
15 verifying device (e.g., merchant point-of-sale
16 device in communication with merchant server)."
17 Do you see that?
18 A. Yes.
19 Q. Okay. Okay. Now, you are saying
20 that the claimed OVER file verifying device is
21 met by the combination of the merchant's
22 point-of-sale device and the merchant's server,

1 correct?
2 A. Okay. Let's take a look at the '854
3 claims to see what the verifying device has to
4 do.
5 Okay, so, in Claim 1, Step 1.1,
6 recites, "Accessing by an officially verifiable
7 electronic representation OVER file verifying
8 device.
9 "A first OVER file stored on a first
10 OVER file client device." Okay.
11 So, that accessing step is performed
12 by the OVER file verifying device. That
13 accessing occurs at the client device there.
14 And the client device is -- I still
15 have this problem with the word "client" because
16 normally the user would be the client, but in
17 Figure 4, in Figure 6 the user is not the client.
18 The client device is operated by the merchant.
19 And so, the point-of-sale device,
20 for example, is the one that is going to
21 communicate with the -- that is interesting.
22 Hang on a second.

1 Yes. So, the client device captures
2 the OVER file from the user.
3 It then sends it to the merchant
4 server so that it can be verified. Let's look --
5 we should be looking at Figure 6 instead of
6 Figure 4.
7 Let me get to Figure 6. Yes. So,
8 the client device is capturing the OVER file from
9 the user -- or from the user's, from the user's
10 device.
11 And then it sends it to the merchant
12 server so that the token can be verified.
13 So, the merchant server is -- in
14 some implementations, the merchant server is a
15 part of the first client verifying device --
16 sorry, the OVER file verifying device.
17 Now let's look at other functions
18 that have to be performed by it. Okay.
19 So, Step 1.2, "Transmitting by the
20 OVER file verifying device to the OVER engine a
21 first verifying request."
22 That is performed by the merchant

1 server. The merchant server is communicating
2 with the token server in Figure 6.
3 Then Step 1.3, "Receiving by the
4 OVER file verifying device a first authentication
5 message, comprising a first indication of whether
6 a first scan associated with the first OVER file
7 on the first OVER file client device of the user
8 corresponds to the information."
9 And so, I still have to be looking
10 at Figure 6. And it is Figure 4 that is on the
11 screen. So, let me look at that.
12 Yes. So, that transmission is
13 occurring from the token server to the client
14 device. And so the token server is part of the,
15 the OVER file verifying device.
16 Because that is what receives it.
17 That is what receives the authentication message.
18 Q. Okay. But in Paragraph 219 of your
19 declaration here you say that the over FILE
20 verifying device is the merchant point-of-sale
21 device in communication with the merchant server.
22 Correct?

1 A. Yes.
2 Q. But now you are saying the token
3 server is also part of the OVER file verifying
4 device?
5 A. Yes, but everything depends on
6 implementation. These devices can be combined.
7 The token server can be part of the merchant
8 server. It all depends on the implementation.
9 Q. Okay. So, for Claim 1 of the '854
10 patent, in your opinion, the token server is also
11 part of the OVER file verifying device?
12 A. If the components are separate, as
13 shown in Figure 6, then yes. They don't have to
14 be separate.
15 And where I get this from is, if you
16 look at, if you look at Figure 6, there is an
17 arrow 8 from the merchant server to the token
18 server, but there is no arrow back to the
19 merchant server.
20 And so the token server, the
21 authentication confirmation is shown as arrow 12,
22 which is going from the token server to the

1 client device.
2 So, the token server is
3 performing -- at least in this configuration, the
4 token server is performing one of the steps
5 required of the OVER file verifying device.
6 Q. Okay. But, in your scenario, in
7 which Oborne satisfies these claims, the token
8 server is run by the issuer, correct?
9 A. Yes.
10 Q. Okay. So, the token server is not
11 part of the merchant server, correct?
12 A. That sounds correct, yes.
13 Q. Okay. So, you would agree, then,
14 that some components of what is required by the
15 OVER file verifying device in Claim 1 of the '854
16 patent are not satisfied by the merchant
17 point-of-sale device in communication with the
18 merchant server alone, correct?
19 A. Just give me the beginning part of
20 that question?
21 Q. You would agree that in Claim 1 --
22 in your opinion regarding Claim 1 of the '854

1 patent being disclosed or rendered obvious in
2 view of Oborne, at least some of the requirements
3 of the OVER file verifying device are not
4 performed by the merchant point-of-sale device in
5 communication with the merchant server, correct?
6 MR. ARGENTI: Objection to form.
7 THE WITNESS: No, I'm not agreeing
8 with that.
9 BY MR. WILSON:
10 Q. Okay.
11 A. So, I think we already talked about
12 there being different possible implementations.
13 And there are different configurations.
14 And the question is what does Oborne
15 disclose.
16 And Oborne discloses that the token
17 server and the merchant server can be the same,
18 in which case the two of them are communicating
19 with the client device.
20 And so in that implementation,
21 Oborne discloses Claim 1.
22 Q. Okay. But, that is not the

1 implementation you relied on, correct?
2 A. Well, I'm not sure. Let's take a
3 look.
4 Well, I am looking at my
5 declaration, and I'm trying to see where I rely
6 on something on some other configuration than
7 that.
8 Q. Okay. Let's look at Paragraph 218.
9 Let's pull the paragraph up.
10 A. Yes.
11 Q. About the middle of the paragraph
12 there, starting on the right-hand side after the
13 cite to Paragraph 53, it says, "Oborne states
14 that the source of the token may be the issuer, a
15 funding source for the user's account."
16 Correct?
17 A. Yes. And then I later say that,
18 "Alternatively, token administrator may be
19 different from funding source."
20 Let's put it this way, there is
21 always a verifying device, otherwise you could
22 not engage in a payment transaction.

1 Q. Okay. So, just to be clear, after
2 Paragraph 218, are you relying on the source of
3 the token being the issuer, or not?
4 A. Sorry. You mean after Paragraph 218
5 or in Paragraph 218?
6 Q. In Paragraph 218.
7 A. Well, Oborne is disclosing that it
8 is possible for the source of the token to be the
9 issuer. That it is also possible for it not to
10 be the issuer.
11 It says alternate -- in the second
12 to the last line of Page 88, "Alternatively,
13 token administrator may be different from funding
14 source."
15 So, Oborne is disclosing many
16 possibilities.
17 Q. Agreed that there are many
18 possibilities disclosed in Oborne.
19 I'm asking you which of the
20 possibilities are you relying on.
21 A. For what?
22 Q. For the token server. Is it run by

1 the issuer, or not?
2 A. It can be run by the issuer.
3 Q. So, you were relying -- you were
4 relying, you are saying, on it being run by the
5 issuer or not being run by the issuer, or both?
6 A. We have to look at a different
7 paragraph for the reliance.
8 218 is a statement of what Oborne
9 teaches. We will have to look later to see what
10 I rely on.
11 I'm looking down at the subsequent
12 paragraphs.
13 So, in Paragraph 224, just talking
14 about verified by the issuing agency. Oborne
15 discloses that the issuing agency can also
16 perform verification, because the issuing agency
17 can also be -- provide the token server.
18 Q. Right. And the last sentence in
19 Paragraph 224 you say, "By generating the token
20 and providing it to the user to represent the
21 credential it has issued, the issuer would be
22 verifying it to be an official representation of

1 the credential." Correct?
2 A. That's right.
3 Q. So, you were relying on the issuer
4 being the token server, or running the token
5 server, correct?
6 A. Well, when you say relying. So, I
7 have many arguments in these different
8 paragraphs.
9 I am not taking there to be a
10 pending question.
11 Q. Okay. Well, so, yes, let me just
12 ask a clarifying question then.
13 In your opinion for Oborne to meet
14 or disclose or render obvious the requirements of
15 the claims of the '854 patent, does the issuer
16 have to run the token server?
17 A. I don't think that I have offered
18 that opinion. It is certainly -- if the issuer
19 runs the token server, then the limitations of
20 Claim 1 are met in '854.
21 Q. Okay. What about if the issuer
22 doesn't run the token server?

1 A. I'm not sure I have considered that.
2 So, you want me to --
3 Q. So, the only scenario in which, in
4 your opinion, Oborne renders obvious the claims
5 of the '854 patent is the scenario in which the
6 issuer runs the token server, correct?
7 MR. ARGENTI: Objection, form.
8 THE WITNESS: I don't think I have
9 posited a different configuration.
10 BY MR. WILSON:
11 Q. Okay.
12 A. I'm not saying that this is the only
13 way in which it would be rendered obvious.
14 I'm saying this is one way in which
15 it would be rendered obvious.
16 Q. Okay. So now, back to Claim 2 -- or
17 Paragraph 218 -- sorry, 219 -- actually strike
18 that. Never mind.
19 Okay. Yeah, back to Paragraph 219.
20 Bottom of the page there, you refer to, "the
21 first OVER file client device (user device, such
22 as a card or mobile device communicating with the

1 verifying device)."
2 Correct?
3 A. Yes. So, so I think there is a
4 distinction between client device, as the way it
5 is used in the figures, and OVER file clients
6 device. So, let me verify that.
7 You know, it is not Oborne I should
8 be looking at. It is the '854.
9 Very confusing, because there is a
10 client device in Oborne and there is an OVER file
11 client device in the patents which are different.
12 Yes.
13 So, in '854, the truth is the term
14 "OVER file client device" only appears in the
15 claims.
16 But, I am looking at the figures.
17 Yeah. The word "client" is used differently in
18 Oborne than it is in the patents. In the patents
19 the user who has the token, is the client.
20 In Oborne, the client is this device
21 that is offered by the merchant that the user can
22 communicate with.

1 And so the OVER file client device
2 in the claims is something that is held by the
3 user. Something that is, has the OVER file on
4 it.
5 So, with that, what is the question?
6 Q. Okay. So, when you referred to in
7 Paragraph 219 a user device as satisfying the
8 first OVER file client device, you are
9 specifically referring to Oborne's disclosure of
10 an RFID/NFC enabled hardware device, correct?
11 A. Well, that is one example. There
12 are many other examples.
13 Could be a device capable of
14 communicating by Bluetooth or WiFi, et cetera.
15 Q. Okay. Okay. Now, let's turn to
16 Paragraph 231 of your declaration.
17 Okay. Paragraph 231, three lines
18 down you say, "This NFC interaction triggers a
19 tokenized purchase with the merchant via the
20 third party client verifying device" --
21 A. Wait. Which deck are you in?
22 Q. The same one, the '854.

1 A. Okay, right.
2 Q. Do you have Paragraph 231?
3 A. Yes, I am there. You have read it
4 correctly.
5 Q. All right. So, well, you see the
6 sentence begins three lines down, "This NFC
7 interaction triggers a tokenized purchase with
8 the merchant"?
9 A. Yes, it does.
10 Q. Okay. All right. So, in this
11 paragraph you provide two different theories of
12 what in Oborne corresponds to the third -- the
13 OVER file verifying device, correct?
14 And to be more specific, you are
15 saying it is either the merchant server alone or
16 it is the merchant server in conjunction with the
17 merchant's point-of-sale device interacting with
18 the user's device via NFC.
19 A. Yeah. So, recalling that the OVER
20 file verifying device has to do certain things.
21 And in this claim step, it has to
22 receive a first authentication message.

1 Now, if we go back to the drawings
2 of Oborne, what is receiving the authentication
3 message is the client device, point-of-sale
4 terminal, for example.
5 Q. Okay. So, are you saying no, you
6 are only offering one theory that it has to
7 include the merchant's point-of-sale device?
8 A. It has to receive -- getting back to
9 Figure 6A, yes. It has to receive a first
10 authentication message comprising a first
11 indication of whether a first scan associated
12 with the first OVER file dot, dot, dot,
13 corresponds to the information.
14 And if we look around in Figure 6
15 for where the authentication message is received,
16 the authentication message is received at the
17 client device.
18 It is arrow 12, token authentication
19 confirmation.
20 Q. Right. The client device 602 in
21 Figure 6.
22 A. Yes. So, it has to include that,

1 because that is what is doing the receiving.
2 Q. Okay.
3 A. Well, let's take a look. There is
4 always this tricky Figure 6C we have to look at.
5 Yeah, I think it is correct.
6 Because it is the token server that knows what
7 the contents of the token are and whether it
8 issued the token.
9 Q. Okay. Let's take a look at your
10 '531 declaration for a second.
11 MR. WILSON: And, Dan, that is going
12 to be Tab 105. And let's look at
13 Paragraph 244, which begins on PDF Page 107.
14 THE WITNESS: Uh-huh.
15 BY MR. WILSON:
16 Q. Okay. So, here you are referencing
17 activating an RFID/NFC enabled hardware device
18 which you contend is the OVER file client
19 device -- OVER file storage client device of the
20 user. Correct?
21 A. I'm sorry. Where are you reading
22 from?

1 Q. I'm just looking at Paragraph 244,
2 the second sentence.
3 A. Yes, it is a quotation from Oborne.
4 Q. Right. So, in this Paragraph 244,
5 for Limitation 1.5, you are relying on the
6 RFID/NFC enabled hardware device as the OVER file
7 storage client device of the user, correct?
8 A. Yes.
9 Q. And you go on to say, "This NFC
10 interaction triggers a tokenized purchase with
11 the merchant via a third-party client verifying
12 device (the merchant server, alone or in
13 conjunction with the merchant's point-of-sale
14 device interacting with the user's device via
15 NFC)."
16 So, in this paragraph, are you again
17 saying that the third-party client verifying
18 device has to be the merchant server in
19 conjunction with the merchant's point-of-sale
20 device?
21 A. Well, again it is the same argument.
22 We have to look at what that

1 verifying device has to do. It performs various
2 steps.
3 And we look at the elements that
4 perform those steps, and that is the third party
5 client verifying device.
6 Q. Okay. So, is it still optional that
7 the third party client verifying device include
8 the merchant's point-of-sale device?
9 Or does it need to be included? I
10 mean Limitation 1.5 is right there.
11 A. Yes. So, I think what it says is,
12 that the verifying request has to be received
13 from an OVER file third-party client verifying
14 device.
15 Now, I guess there is an issue
16 whether "from" means from directly or whether
17 through an intermediary.
18 But the original purchase request
19 gets made through what Oborne calls the client
20 device, and then it goes to the merchant server.
21 And the merchant server is making a request for
22 verification.

1 So it depends on the reading of
2 "from." Ultimately, it is begun at the client
3 device. It goes through the merchant server to
4 the token server.
5 And so, depending on what the word
6 "from" means, it is either the merchant server
7 alone or the merchant server in conjunction with
8 the client device.
9 But, we have to look at the other
10 steps of the claim to see what else the
11 third-party client verifying device has to do.
12 Q. Okay. Let's take a look -- let's go
13 back to Oborne now, Exhibit 1011.
14 A. Uh-huh.
15 MR. WILSON: And that is Tab 119.
16 And I want to look at paragraph -- well
17 actually let's start with Figure 5.
18 So -- and Dan I think you are
19 showing Figure 6A.
20 Can you go back to Figure 5? Yep.
21 There you go.
22 BY MR. WILSON:

1 Q. Okay. So, if we look across the
2 bottom. Do you see, do you see at the bottom of
3 Figure 5 there, Step 517, "Provide token
4 identifier to the client."
5 And then the "Client displays token
6 identifier for the user," in Step 518?
7 Do you see that?
8 A. Yes.
9 Q. Okay. Now let's go to Paragraph 48.
10 That is on PDF Page 55.
11 A. Uh-huh. Yes.
12 Q. Okay. So, about the precise middle
13 of that paragraph, right after the Number 516, it
14 says, "The token server may also provide a token
15 identifier, e.g., 517, to the client."
16 Do you see that?
17 A. Yes.
18 Q. Okay. That is the step we just
19 looked at, correct?
20 A. Yes.
21 Q. Okay. It goes on to say a "token
22 may be provided as a data structure, via HTTP(S)

1 POST, as a file via file transport protocols, as
2 an attachment (e.g., via e-mail), and/or
3 otherwise provided to the client device for later
4 use."
5 Did I read that correctly?
6 A. Yes.
7 Q. Okay. Now, in that sentence, it
8 says the token may be provided as a data
9 structure, et cetera.
10 What do you understand token to mean
11 there?
12 A. It is what Oborne says token means.
13 Q. Okay. Is it the token identifier?
14 A. No. Token identifier is typically
15 just a character string. The data structure is a
16 lot more than that.
17 Q. Okay. Does it include the token
18 identifier?
19 A. It may. It is -- we talked about
20 this earlier. It is disclosed at Page 9.
21 We talked about this, that the --
22 after the token tag in that XML file, the next

1 tag is unique ID, which I take to be the token
2 ID.
3 Q. Okay. So, in your opinion, what is
4 referenced in Paragraph 48, when it says the
5 token may be provided as a data structure.
6 Is the data structure shown on
7 Page 9 of, and following over to Page 10 of
8 Oborne, correct?
9 A. Yes.
10 Q. Okay. Now go back to Paragraph 48.
11 A. Uh-huh.
12 Q. Okay. The last sentence says, "The
13 client may store the token identifier and/or
14 display the token identifier for the user,
15 e.g., 518."
16 Correct?
17 A. Yes.
18 Q. Okay. And that is the step we just
19 looked at in Figure 5, correct?
20 A. Well, we looked at 517. But, yes.
21 Q. And we looked at 518, correct?
22 A. I'm going back and looking at 518.

1 Well, what is shown in Figure 5 is
2 partially -- is a part of what is disclosed in
3 Paragraph 48, because it doesn't describe storing
4 in Figure 5.
5 Q. Okay. But it does describe the
6 client displays token identifier for user,
7 correct?
8 A. Yes.
9 Q. And in Paragraph 48, it says the
10 client may store the token identifier and/or
11 display the token identifier for the user 518,
12 correct?
13 A. Yes.
14 Q. Okay. So, now back to Paragraph 48.
15 What happens then to the rest of
16 that data structure if only the token identifier
17 is stored?
18 A. Well, it doesn't say that only the
19 token identifier is stored. It says the client
20 may store the token identifier.
21 So, this, for example, would cover
22 the case in which the token itself does not have

1 an identifier inside it, but the token identifier
2 is supplied separately.
3 Q. Okay. So, in your opinion, this
4 reference to storing the token identifier means
5 that the token identifier was sent separately
6 from the data structure?
7 A. It doesn't have to be. But if it
8 is, then it may be stored.
9 Q. Okay. But the data structure you
10 just pointed to on Page 9 has a token identifier
11 in it, correct?
12 A. Yes, but I don't know that it has
13 to. So, the data structure in Page 9 is
14 exemplary of a token.
15 I don't think, I don't think every
16 field in the, in that XML file is required in the
17 token.
18 Q. Okay. So, the data structure may
19 look like the data structure on Page 9 or it may
20 not.
21 A. That's right.
22 Q. Okay. Is there anything in Oborne

1 that tells you what must be included in the data
2 structure referred to here in Paragraph 48?
3 A. Well, so I'm looking at the bottom
4 of Paragraph 47, which is right before the
5 exemplary XML file.
6 It says, "For example, the token
7 server may generate a token data structure
8 similar to the example XML encoded data structure
9 below."
10 And so I'm looking around in Oborne,
11 it would take me a while, to figure out if there
12 is anything that he says that must be in the
13 token. If there is any specific field that has
14 to be there.
15 It has to be able to serve as a
16 surrogate for a payment instrument, for example.
17 So, there has to be some, there has to be some
18 information in there. But I'm not sure what
19 Oborne requires. It just teaches doing this.
20 You may do something similar to
21 that, as it says. I mean it would depend on the
22 purpose for which the token is being used.

1 Q. Okay. It is possible that the data
2 structure referenced in Paragraph 48 has a token
3 identifier in it. Correct?
4 A. Oh, sure. That is disclosed.
5 Q. Okay. And so, if it does, then the
6 last sentence of Paragraph 48 refers to,
7 essentially taking the token identifier out and
8 storing it. Correct?
9 A. Well, I don't think it says taking
10 it out. It says storing it. If it is in there,
11 and it stores the whole token, it may pluck out
12 the token identifier and store it separately for
13 later use. As opposed to --
14 So, here is the example. Normally
15 when you want to -- when you want to verify a
16 token, you can use the token ID for that purpose.
17 You don't have to send the entire token.
18 And so, for convenience, you might
19 pluck the token identifier out of the token and
20 store it separately as being associated with this
21 transaction.
22 Or, if the token ID were not in the

1 token itself, you might store the token ID for
2 exactly the same purpose.
3 Q. Okay. So, let's look back for a
4 second at the Page 9, which is the token data
5 structure.
6 A. Yes.
7 Q. Okay. Why would the server send
8 back to a user device the accounts that are
9 listed here, Accounts 1, 2, and 3?
10 A. Because the user may want it -- in
11 making a particular transaction, the user may
12 want to make a choice of which account he wanted
13 to use to make the payment.
14 Q. Right. But that choice is already
15 made in the token, correct? I mean it literally
16 shows you here that the cost share is 65 percent
17 for the bank account, it is 10 percent for this
18 pre-funded account, and then it is 25 percent for
19 this Bank C account. Correct?
20 A. Yeah, but I don't understand why the
21 user couldn't use his Bank A account or his
22 Bank C account.

1 Q. Well, this token that is shown on
2 Page 9 already has a default percentage from each
3 of these three accounts selected, correct?
4 A. Yes. So, as it turns out the
5 account number in Bank A and the account number
6 in Bank C are the same. It just seems a little
7 bit strange.
8 Q. So, do you think that means those
9 are the same account?
10 A. Probably not, because they are in
11 different banks. I think the string 123456789
12 was just exemplary of an account number.
13 I don't think there is an intention
14 that you have to have the same account number in
15 every bank in which it has issued you a credit
16 card.
17 MR. WILSON: Okay. Now let's look
18 at Exhibit 1013, which is Tab 121.
19 THE WITNESS: Okay. Hang on, let me
20 get there.
21 MR. ARGENTI: If we are switching to
22 another exhibit, does it make sense to take a

1 break?
2 MR. WILSON: Oh, sure. Yes, we can
3 take a break.
4 MR. ARGENTI: It has been about an
5 hour.
6 THE VIDEOGRAPHER: Okay. The time
7 is 11:06 a.m., we are going off the record.
8 (Recess taken -- 11:06 a.m.)
9 (After recess -- 11:18 a.m.)
10 THE VIDEOGRAPHER: The time
11 is 11:18 a.m. and we are back on the record.
12 (Whereupon, previously marked
13 Exhibit 1013, Tab 121,
14 first referral.)
15 BY MR. WILSON:
16 Q. Okay. Now, we were talking about
17 Purves, Exhibit 1013.
18 And looking at the first page there
19 of Purves, Purves teaches Methods and Systems For
20 a Wallet Service Enrollment Platform, correct?
21 A. Yes.
22 Q. Okay. Now, let's look at Figure 22B

1 of Purves.
2 A. I am there.
3 Q. Okay. This figure shows the
4 different parties and components of the wallet
5 account enrollment process, correct?
6 A. Generally, yes.
7 Q. Okay. There is a user 2212, with a
8 client device 2225, correct?
9 A. Yes. Different from the client
10 device of Oborne.
11 Q. Right. And, Purves also has a
12 wallet server 2217 and an issuer server 2215.
13 Correct?
14 A. Yes.
15 Q. Okay. Now let's go to Figure 23A.
16 Okay.
17 Figures 23A and B show a logic flow
18 diagram for Purves' wallet account enrollment
19 process, correct?
20 A. Yes.
21 Q. Okay. On, Figure 23A, the user's
22 client device connects to the wallet server and

1 either logs into an existing virtual wallet or
2 sets up a new virtual wallet, correct?
3 A. Yes.
4 Q. And after logging in or setting up a
5 wallet, the wallet serves as a display of the add
6 card button of the user's client device, correct?
7 A. So, what figure are we in?
8 Q. 23A.
9 A. Yes. Step 3314.
10 Q. All right. In Figure 23B, we start
11 with the user clicking the add card button,
12 correct?
13 A. Yes.
14 Q. Okay. Next, Purves' user either
15 provides the wallet server with the information
16 for the account being enrolled or authorizes the
17 wallet server to retrieve the information from
18 the issuer.
19 Correct?
20 A. Yes. So, there is a decision block
21 2317 where it sees whether consent has been
22 retrieved or consent to retrieve card info from

1 the user has been given.
2 Q. Okay. So, after that decision
3 block 2317, the wallet server requests a card
4 image for the account being enrolled from a card
5 image server. Correct?
6 A. I am just looking for card image
7 server.
8 You mean from 2329?
9 Q. Yes. Do you see on the top right?
10 A. Over on the right, yes.
11 Q. Yes.
12 A. Uh-huh.
13 Q. Okay. So, my question is, is it
14 correct that Purves' wallet server requests a
15 card image for the account being enrolled from a
16 card image server?
17 A. Yes.
18 Q. Okay. And do you know if the card
19 image server is part of the issuer or is that a
20 separate entity?
21 A. I am looking. So, when you say
22 separate entity, do you mean a separate

1 organization or a separate device?
2 Q. Separate organization.
3 A. I doubt that it is a separate
4 organization.
5 Q. Okay.
6 A. And the reason that I doubt that is
7 that in order for it to generate a card image, it
8 would have to be given all of the card
9 information to generate an image of the card.
10 Q. Okay. So --
11 A. So, that would be a security
12 problem. So, normally you wouldn't do it.
13 Unless, I mean I suppose one could set up a
14 trusted service that various banks would
15 subscribe to.
16 But the way I understand this is
17 there is certain information about your credit
18 card that doesn't change, for example, the
19 account number. The expiration date won't change
20 until the card expires.
21 However, the card imagery, the logo
22 of the bank, its color scheme, et cetera, that

1 may change.
2 And so you could have a separate
3 card server that would give an up-to-date image
4 of the card.
5 Even though there isn't a physical
6 card, it would look as if it were a physical
7 card.
8 Q. Okay. So, it is probably the same
9 entity but may be a different server that is the,
10 that is the card image server versus the issuer
11 server; is that correct?
12 A. Yes, when I say that it may be a
13 third party, I'm kind of dreaming that up. I'm
14 looking at the disclosure of Purves, and saying,
15 okay, who is going to run this card image server.
16 It certainly has to be somebody who
17 is in privity with the bank or that the bank
18 trusts. I mean, that seems certain.
19 The most secure way of doing it
20 would be for the bank to operate that device. It
21 is probably a separate device, because it is
22 named separately. There is wallet server 2319

1 and there is card image server 2329.
2 So, they are probably physically
3 separate devices.
4 Q. Okay. After the wallet server
5 receives the card image, it displays the card
6 image along with the account data on the user's
7 client device.
8 Correct?
9 A. Yes.
10 Q. After that, the user clicks save on
11 the client device and the wallet server registers
12 the account in the user's virtual wallet,
13 correct?
14 A. Yes.
15 Q. Okay. At this point, the wallet
16 server has set up a virtual wallet for the user
17 on the wallet server and received the account
18 information and a card image, correct?
19 A. Yes.
20 Q. And the wallet server stores this
21 account details and card image, correct?
22 A. Yes. I think it had better.

1 Q. Okay. So, the wallet server shows
2 the account details and card image to the user's
3 device at the end, step 2325. Correct?
4 A. Well, when you say at the end, it is
5 not the end. But it does disclose the card
6 image, display the card image to the user.
7 Q. Okay. But the wallet server does
8 not store this information on the user's device.
9 Correct?
10 A. So, as a general matter, the wallet
11 server can't store something on somebody else's
12 device. There can be an app or there can be an
13 action taken by the user on his own device to
14 store it.
15 Q. Okay. But nothing is disclosed here
16 about storing the account details and card image
17 on the user's device, correct?
18 MR. ARGENTI: Objection, form.
19 THE WITNESS: I am, when you say
20 here, yes. It is not in figure -- it is not
21 in Figure 23B.
22 BY MR. WILSON:

1 Q. Right.
2 A. But I am looking at the rest of
3 Purves. There are 80 occurrences of store, so it
4 will take a bit.
5 So, Paragraph 51 of Purves says,
6 "Some embodiments of the WSEP may provide
7 consumers facilities for easily and conveniently
8 personalizing new prepaid accounts with their
9 issuer using previously verified personal
10 information stored in an online wallet, and
11 expediting provisioning a prepaid account to a
12 digital wallet.
13 "Once a prepaid card is connected
14 with the wallet, the WSEP provides the consumer
15 an easy to remember authentication tool to sign
16 on to view and manage their prepaid account."
17 So, I think what you are asking is
18 whether the information is permanently stored on
19 the user device or whether the user simply can
20 access it through the wallet server.
21 Is that the question?
22 Q. That is the question, yes.

1 A. Okay. Well, that is not disclosed
2 in Paragraph 51. So, I'm going on. I am getting
3 there.
4 Q. Okay. Take your time.
5 A. I'm not seeing a disclosure in
6 Purves in which the material that is sent in 2025
7 is stored locally on the user's device.
8 Q. And by the material sent in 2025,
9 you mean the account information and card image
10 displayed in step 2325?
11 A. Right.
12 MR. WILSON: Okay. All right. We
13 don't have any further questions.
14 MR. ARGENTI: In that case, why
15 don't we take a short break and then maybe
16 can we take ten minutes?
17 MR. WILSON: Sure.
18 THE VIDEOGRAPHER: Okay. The time
19 is 11:31 a.m. We are going off the record.
20 (Recess taken -- 11:31 a.m.)
21 (After recess -- 11:42 a.m.)
22 THE VIDEOGRAPHER: The time

1 is 11:42 a.m. and we are back on the record.
2 MR. ARGENTI: No questions from me,
3 Dr. Shamos. Thank you.
4 THE WITNESS: I would like to read
5 and sign.
6 THE VIDEOGRAPHER: Okay. If there
7 are no further statements for the record, we
8 will be going off.
9 The time is 11:42 a.m. on
10 September 25, 2024. We are going off the
11 record completing today's video recorded
12 session.
13 (Whereupon, signature not having been waived,
14 the deposition suspended at 11:42 a.m.)
15 * * *
16
17
18
19
20
21
22

1 CERTIFICATE OF NOTARY

I, LORI J. GOODIN, RPR, CRR,

2 CA CSR # 13959 the Notary for this deposition, do hereby certify that the witness whose testimony

3 appears in the foregoing deposition was sworn by me; that I am neither counsel for, related to,

4 nor employed by any of the parties to the action in which this deposition was taken; and, further, that I am

5 not a relative or employee of any attorney or counsel employed by the parties hereto, or

6 financially or otherwise interested in the outcome of this action.

7

8 Lori J. Goodin

LORI J. GOODIN, RPR, CLR, CRR

9 Notary Public in and for:

10 STATE OF FLORIDA, COUNTY OF SARASOTA

Notary Commission Number: GG987804

11 My Commission expires: May 12, 2028

STATE OF CALIFORNIA, CA CSR# 13959

12 My Commission expires: February 22, 2025

13

14 STATE OF MARYLAND, COUNTY OF ANNE ARUNDEL

15 My Commission expires: August 2, 2025

16 DISTRICT OF COLUMBIA, WASHINGTON DC

17 My Commission expires: June 1, 2026

18

19 STATE OF DELAWARE, COUNTY OF KENT

20 My Commission expires: September 9, 2025

21 COMMONWEALTH OF PENNSYLVANIA, COUNTY OF LEHIGH

22 My Commission expires: April 5, 2025

1 Michael Ian Shamos, Ph.D., J.D., c/o
2 WILSON SONSINI GOODRICH & ROSATI
3 650 Page Mill Road
4 Palo Alto, California 94304
5
6 Case: Visa Inc. v. Cortex MCP, Inc.
7 Date of deposition: September 25, 2024
8 Deponent: Michael Ian Shamos, Ph.D., J.D.
9
10 Please be advised that the transcript in the above
11 referenced matter is now complete and ready for signature.
12 The deponent may come to this office to sign the transcript,
13 a copy may be purchased for the witness to review and sign,
14 or the deponent and/or counsel may waive the option of
signing. Please advise us of the option selected.
15 Please forward the errata sheet and the original signed
signature page to counsel noticing the deposition, noting the
16 applicable time period allowed for such by the governing
Rules of Procedure. If you have any questions, please do
17 not hesitate to call our office at (202)-232-0646.
18 Sincerely,
19 Digital Evidence Group
20 Copyright 2024 Digital Evidence Group
21 Copying is forbidden, including electronically, absent
22 express written consent.

1 Digital Evidence Group, L.L.C.
2 1730 M Street, NW, Suite 812
3 Washington, D.C. 20036
4 (202) 232-0646
5
6 SIGNATURE PAGE
7 Case: Visa Inc. v. Cortex MCP, Inc.
8 Witness Name: Michael Ian Shamos, Ph.D., J.D.
9 Deposition Date: September 25, 2024
10
I do hereby acknowledge that I have read
11 and examined the foregoing pages
of the transcript of my deposition and that:
12
(Check appropriate box):
13 ( ) The same is a true, correct and
complete transcription of the answers given by
14 me to the questions therein recorded.
( ) Except for the changes noted in the
15 attached Errata Sheet, the same is a true,
correct and complete transcription of the
16 answers given by me to the questions therein
recorded.
17
18 _____ _____
19 DATE WITNESS SIGNATURE
20
21 _____ _____
22 DATE NOTARY

1 Digital Evidence Group, LLC
2 1730 M Street, NW, Suite 812
3 Washington, D.C. 20036
4 (202)232-0646
5
6 ERRATA SHEET
7
8 Case: Visa Inc. v. Cortex MCP, Inc.
9 Witness Name: Dr. Michael Ian Shamos, Ph.D., J.D.
10 Deposition Date: September 25, 2024
11 Page No. Line No. Change
12
13
14
15
16
17
18
19
20
21 _____ _____
22 Signature Date

A

a.m 1:16 2:5 6:1 6:16 11:6,7,8 11:10 66:10,12 66:13,15 105:7 105:8,9,11 114:19,20,21 115:1,9,14
able 43:4 61:11 101:15
above-titled 2:3
absent 117:21
absolutely 65:9
access 113:20
accessing 77:6,11 77:13
account 61:14 83:15 103:12 103:17,18,19 103:21,22 104:5,5,9,12,14 106:5,18 107:16 108:4 108:15 109:19 111:6,12,17,21 112:2,16 113:11,16 114:9
accounts 26:14 103:8,9 104:3 113:8
accurate 52:15
accurately 9:5
acknowledge 118:10
acquirer 36:10
Acrobat 14:13
action 2:3 29:12 32:1 112:13 116:4,6
activating 26:12 32:6,11 92:17
actual 46:15 50:13
add 107:5,11
addition 19:8
administering 7:4
administrator 2:9 83:18 84:13
adopt 31:11
advise 117:14
advised 117:10
agency 85:14,15 85:16
agree 10:14 21:7 39:1,6,19 52:12 64:1 81:13,21
agreed 9:14 42:8 84:17
agreeing 82:7
algorithm 47:17
allow 29:9 31:21
allowed 117:16
alternate 84:11
Alternatively 24:1 83:18 84:12
Alto 3:3 117:4
and/or 29:11 33:1 36:16 41:12 42:22 97:2 98:13 99:10 117:14
ANNE 116:14
answer 11:21 19:2
answers 118:13 118:16
app 112:12
apparatus 47:9 47:20 55:12 67:4,5,17,20 68:16,16,18,22 69:13,17 70:12 70:14,16,22 71:12 72:2 73:17
apparatuses 40:21 42:6
apparently 20:12
Appeal 1:2 6:10
appearances 3:1 7:3
appears 54:2 55:20 88:14 116:3
applicable 117:16
Application 5:13 5:15
applies 75:20
apply 20:5
appropriate 118:12
approximately 2:5 8:14
apps 10:12
April 116:22
arbitration 38:16 38:18 39:5 70:5
arbitrator 36:18 36:22 37:11,14 38:6,18 39:1 41:13 42:18 43:1,5,11 67:10
Argenti 3:2 7:8,8 10:21 21:9 31:13 48:3 50:1 75:8 82:6 87:7 104:21 105:4 112:18 114:14 115:2
argument 93:21
arguments 86:7
ARMOND 3:13
arrangement 69:11 70:14,15
arrow 80:17,18 80:21 91:18
ARUNDEL 116:14
asked 53:16
asking 11:22 21:11 44:10 53:10 84:19 113:17
aspects 45:1,19 51:11
associated 12:15 13:14 65:17 79:6 91:11 102:20
association 6:20
assume 11:22 12:2 19:2 20:9
assuming 38:8
attached 23:20 118:15
attachment 97:2
attempt 11:15
attempts 10:16
attorney 19:11 21:7 116:5
August 116:15
Austin 3:16
authentication 32:20 33:5,22 34:3 79:4,17 80:21 90:22 91:2,10,15,16 91:18 113:15
authorizes 107:16
available 10:10 10:11
Avenue 3:6

B

B 106:17
back 11:10 19:19 25:20 30:9 32:4 41:10 43:8 48:11 51:7 57:11 59:7 64:5 66:15,17 76:11 76:12 80:18 87:16,19 91:1,8 95:13,20 98:10 98:22 99:14 103:3,8 105:11 115:1
BAILLARGE... 3:9
bank 103:17,19 103:21,22 104:5,6,15 109:22 110:17 110:17,20
banks 104:11 109:14
based 76:2
beginning 51:8 59:8 81:19
begins 39:10,11 90:6 92:13
begun 95:2
BEHALF 3:1,12
believe 18:19 68:9
best 43:16
better 111:22
bit 42:4 104:7 113:4
block 51:10 107:20 108:3
Bluetooth 32:22 89:14
Board 1:2 6:11
bottom 63:9,9 76:13 87:20 96:2,2 101:3
Boulevard 3:15
box 118:12
break 66:2 105:1 105:3 114:15
bring 34:20,22
broader 35:18
browser 28:9
built 42:13
button 107:6,11
buy 26:5
buying 46:16

C

C 103:19,22 104:6
c/o 117:1
CA 116:2,11
California 1:19 2:6,11 3:3 116:11 117:4
call 23:10,14 63:22 117:17
called 7:14 60:6

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 120

calls 94:19
capable 89:13
capacity 19:14 19:16
captures 78:1
capturing 78:8
card 24:2,3 25:21 26:1,14 28:12 28:15,20 29:1,3 30:11,16,19 31:15 32:21 33:5,12,13 34:1 34:2,18,19,21 35:3 48:15 56:14 61:13 87:22 104:16 107:6,11,22 108:3,4,6,15,16 108:18 109:7,8 109:9,18,20,21 110:3,4,6,7,10 110:15 111:1,5 111:5,18,21 112:2,5,6,16 113:13 114:9
carried 76:7
carrying 46:8 50:10
case 8:18,20 82:18 99:22 114:14 117:6 118:7 119:8
cases 8:16 55:22
cash 61:13
cellular 32:22
certain 47:15 90:20 109:17 110:18
certainly 10:12 53:8,12 64:15 65:7 75:2 86:18 110:16
CERTIFICATE 116:1
Certified 2:7,9
certify 116:2
cetera 26:15 57:17 70:6 89:14 97:9 109:22
change 45:8 47:15 49:2 75:16,22 76:2 109:18,19 110:1 119:11
changed 45:7
changes 21:2 118:14
changing 49:3
channel 62:12
channels 10:9
character 59:16 59:16 60:9,10 97:15
characterizing 35:5
charge 29:3
chart 47:8,19
check 22:6 118:12
checked 22:6
chip 32:21 33:5 33:22 34:3,19
choice 103:12,14
choose 20:19
cite 83:13
cited 18:12
citing 38:1
claim 53:22 54:3 54:7,10,13 72:11,11 74:14 74:16,19 75:3 75:22 76:2,7 77:5 80:9 81:15 81:21,22 82:21 86:20 87:16 90:21 95:10
claimed 76:20
claims 53:3 54:6 54:17,20 71:16 74:22 75:19 77:3 81:7 86:15 87:4 88:15 89:2
clarification 11:20,22
clarify 40:11 68:4
clarifying 86:12
cleanly 25:12
clear 29:13 84:1
click 23:20 29:11 31:22
clicking 107:11
clicks 111:10
client 22:17 23:1 23:6,8,8,10,12 23:14,17,20 24:2,3 25:22,22 33:6 40:15 42:17 43:4,7,10 53:4,5 54:9,12 74:5 77:10,13 77:14,15,16,17 77:18 78:1,8,15 79:7,13 81:1 82:19 87:21 88:4,10,11,14 88:17,19,20 89:1,8,20 91:3 91:17,20 92:18 92:19 93:7,11 93:17 94:5,7,13 94:19 95:2,8,11 96:4,5,15 97:3 98:13 99:6,10 99:19 106:8,9 106:22 107:6 111:7,11
clients 88:5
closer 29:19
Coke 66:6
collection 52:10
color 109:22
Columbia 2:12 116:16
column 63:10
com 25:7
combination 76:21
combined 80:6
come 76:5 117:12
comfortable 37:5 37:8
coming 44:21 45:10
commands 26:9
commencing 2:4
comments 10:1
Commission 116:10,11,12 116:15,17,20 116:22
Commonwealth 2:12 116:21
communicate 32:21 33:14 77:21 88:22
communicated 35:2
communicating 79:1 82:18 87:22 89:14
communication 10:9 33:6 35:1 35:6,7,20 76:16 79:21 81:17 82:5
complete 61:13 117:11 118:13 118:15
completely 24:8
completing 115:11
component 36:16 39:21 40:8 41:12 42:22 45:5 46:1 53:21 64:22
components 40:15 41:2,20 72:1,5,6,7,13 72:18 74:11 76:5 80:12 81:14 106:4
comprising 79:5 91:10
computer 9:19 10:12 43:13
concept 57:19,21
conduct 9:14
conducted 6:13
conferencing 6:14
confident 17:7
configuration 81:3 83:6 87:9
configurations 82:13
configured 33:22
confined 69:5
confirm 38:12 44:14
confirmation 80:21 91:19
confusing 23:12 88:9
conjunction 13:15 36:9 90:16 93:13,19 95:7
connected 43:8 113:13
connectivity 32:22
connects 106:22
consent 107:21 107:22 117:22
consider 40:5 63:1
considered 37:2 87:1
consolidated 12:10
constitute 74:13
constitutes 58:5 64:8 73:4,22 75:15 76:6
consumer 113:14
consumers 113:7
contact 10:16
contain 18:22
contains 16:14 35:13 56:20
contend 92:18
content 39:10

contents 58:15 58:16,22 61:19 61:21 63:3 64:10 92:7
continuation 49:21
convenience 102:18
conveniently 113:7
convey 29:2
copies 9:18 25:5 25:14
copy 14:12 22:9 43:21 117:13
Copying 117:21
Copyright 117:20
correct 8:12 9:1 9:15,20 11:16 13:7,10 14:12 14:15 15:15 16:15 18:7 19:9 19:11 20:14 21:13 22:1,13 22:18 23:2,6,17 23:21 24:4 26:3 26:9,16,20 27:2 27:8 28:3,12,17 30:6,13,14,19 31:3 32:2,8,14 34:4 35:8 37:1 39:2,8,19,22 40:9,16 44:19 45:6,15 46:1,5 46:9,18 49:9,11 52:22 53:6,15 54:6,10,14,18 56:19 59:11,14 63:21 64:3,11 64:14 65:3 67:6 67:18,22 68:14 69:14 70:16,19 71:1 75:17 76:8 77:1 79:22 81:8 81:11,12,18 82:5 83:1,16 86:1,5 87:6 88:2 89:10 90:13 92:5,20 93:7 96:19 98:8 98:16,19,21 99:7,12 100:11 102:3,8 103:15 103:19 104:3 105:20 106:5,8 106:13,19 107:2,6,12,19 108:5,14 110:11 111:8 111:13,18,21 112:3,9,17 118:13,15
corrected 17:4 76:1
correctly 11:13 36:12,19 55:15 67:14 90:4 97:5
corresponding 55:13
corresponds 79:8 90:12 91:13
Cortex 1:8 3:12 6:8 7:6 13:2,3 117:6 118:7 119:8
Cortex's 52:21 54:19
cost 103:16
counsel 7:2 10:21 17:18,21 20:4 20:10,13 21:1 116:3,5 117:14 117:15
count 8:16
COUNTY 116:10,14,19 116:21
couple 56:4
course 24:8 25:3 62:18
court 6:19 7:4
cover 49:18 99:21
created 62:15
creation 62:15
credential 35:2 56:13 85:21 86:1
credentials 29:2 30:16
credit 24:2,3 25:21 26:1 29:3 34:18,19 56:13 104:15 109:17
cross-references 73:10
CRR 1:18 2:6 116:1,8
CSR 1:19 2:6 116:2,11
currently 8:4
customers 69:11

D

D.C 1:21 3:10 118:3 119:3
Dan 13:20 14:5 15:6 16:18 19:5 19:18 24:18 52:17 55:2,5 92:11 95:18
Daniel 3:22 6:17
data 44:15 45:12 51:16 56:16,18 56:21 57:1,1,5 59:8,18 60:4,5 96:22 97:8,15 98:5,6 99:16 100:6,9,13,18 100:19 101:1,7 101:8 102:1 103:4 111:6
database 40:14 40:15
date 109:19 117:7 118:9,19 118:22 119:10 119:22
Daylight 1:16 6:16
DC 116:16
deal 20:17
deals 32:18
decide 31:10 41:7
decision 107:20 108:2
deck 89:21
declaration 5:5,7 5:9,11 13:8,9 13:13,15,17 14:12 15:2,5,18 16:7,13 18:2,7 18:13,17,18 20:1,20 25:3,10 37:6,17,21,22 54:22 55:1,8 56:4 58:11 66:18,20 72:21 73:1 75:17,20 76:11 79:19 83:5 89:16 92:10
declarations 16:22 17:9 18:21,22 75:7
deep 10:22
default 29:9 30:4 30:18 31:20 104:2
defined 53:10
defines 40:19,19 42:6
Delaware 2:12 116:19
denied 62:17,18
depend 101:21
depending 75:22 76:6 95:5
depends 74:3 75:18 80:5,8 95:1
depicted 56:11 69:8 70:22
depicts 69:10
deponent 117:8 117:12,14
deposed 8:11,17 8:17,21
deposition 1:12 2:1 6:6,13 9:1 9:15 10:15,16 11:15 13:6 17:12,18,21 115:14 116:2,3 116:4 117:7,15 118:9,11 119:10
describe 99:3,5
described 24:6 41:22 42:14 50:17 57:22
describes 26:18
describing 51:22
descript 35:11
description 52:10 61:2,15
desire 26:20 27:5 28:3,17 30:12 32:13
details 111:21 112:2,16
device 23:8,14,17 23:20 24:2,3 25:22 26:1,13 32:7,12 33:15 40:15 42:17 43:4,7,10 49:3 53:4,5 54:9,13 74:5 76:15,16 76:20,22 77:3,8 77:10,12,13,14 77:18,19 78:1,8 78:10,15,16,20 79:4,7,14,15,20 79:21 80:4,11 81:1,5,15,17 82:3,4,19 83:21 87:21,21,22 88:1,4,6,10,11 88:14,20 89:1,7 89:8,10,13,20 90:13,17,18,20 91:3,7,17,20 92:17,19,19

93:6,7,12,14,14 93:18,20 94:1,5 94:7,8,14,20 95:3,8,11 97:3 103:8 106:8,10 106:22 107:6 109:1 110:20 110:21 111:7 111:11 112:3,8 112:12,13,17 113:19 114:7
devices 48:9 49:14 80:6 111:3
diagram 44:15 45:1 51:16 74:8 106:18
diagrams 25:15 45:12,19 51:11 52:4
Diet 66:6
difference 50:20 51:2 68:7
different 43:21 48:17 50:12 53:11 73:21 82:12,13 83:19 84:13 85:6 86:7 87:9 88:11 90:11 104:11 106:4,9 110:9
differently 88:17
difficult 40:5
digital 1:20 6:18 6:20 113:12 117:19,20 118:1 119:1
digits 12:12,21 13:13
directly 94:16
disclose 82:15 86:14 112:5
disclosed 47:20 53:14 82:1 84:18 97:20 99:2 102:4 112:15 114:1
discloses 54:17 82:16,21 85:15
disclosing 84:7 84:15
disclosure 65:11 89:9 110:14 114:5
disclosures 24:10
discussed 70:18
discussion 28:8
display 43:10 98:14 99:11 107:5 112:6
displayed 114:10
displays 96:5 99:6 111:5
disposed 33:6
distinction 88:4
distinguish 65:3
distinguishing 58:17 59:13
District 2:11 116:16
documentary 18:20
documents 10:5 25:11
doing 92:1 101:19 110:19
dot 25:7 30:1,1,2 39:12,12,12 62:12,12,12 91:12,12,12
doubt 109:3,6
DOUG 3:13
doug.wilson@a... 3:18
Douglas 7:5
downloaded 10:2 25:13
Dr 6:6 7:20 11:12 14:1,11 19:22 52:20 115:3 119:9
draft 20:22 21:1
drawings 44:3 50:15 91:1
dreaming 110:13
drop 52:17
duly 7:15

E

E 45:10,11 52:1
e-mail 97:2
e.g 29:12 33:1 36:6,8 61:12 67:12 70:4 76:15 96:15 97:2 98:15
earlier 51:8 71:8 97:20
early 35:9
easily 113:7
Eastern 1:16 6:16
easy 113:15
EDT 6:1
educate 52:5
effectuate 42:13
either 90:15 95:6 107:1,14
electronic 26:14 77:7
electronically 117:21
element 54:7,10 54:13 71:3
elements 54:17 94:3
else's 112:11
elucidating 56:9
embodiment 31:7 46:12,13 46:21 47:11,13 47:14 48:1,5,19 48:21,22 49:1,6 49:15,16,18,19 49:22 50:3,8,12 50:21 51:6,13 52:9,9
embodiments 44:17 45:3,14 45:21 48:18 50:16 51:2,12 51:14,18,21 52:1,3,11,14 113:6
employed 116:4 116:5
employee 116:5
enabled 26:13 32:7,12 33:14 89:10 92:17 93:6
encoded 101:8
engage 83:22
engine 53:3 54:2 54:5 67:3 68:6 68:12,17,20,21 69:1 71:10,11 71:13,17,18,22 72:10,19 73:4 73:22,22 74:12 74:13,21 75:1 75:16 76:6,8 78:20
enroll 44:16 51:17
enrolled 107:16 108:4,15
enrolling 45:2 46:4
enrollment 45:4 46:14,18 50:6,9 57:17 105:20 106:5,18
entered 23:1,5,17 27:7 28:1,15 30:11 32:11
entire 58:22 61:19,21 63:3 102:17
entities 67:22
entity 36:16 41:12 42:22 67:11 108:20 108:22 110:9
entry 27:1,7 28:2 28:11 48:17
errata 117:15 118:15 119:6
error 20:8
errors 17:3
ESQUIRE 3:2,6 3:9,13,14
essential 64:21
essentially 38:15 102:7
et 26:15 57:17 70:6 89:14 97:9 109:22
everybody 9:14
Evidence 1:20 6:18,21 117:19 117:20 118:1 119:1
exactly 42:2 49:6 50:3 58:2 103:2
examination 4:1 4:4 7:14,18
examined 7:15 118:11
example 22:12 23:19 26:13 28:6,9 29:4 30:19 32:20 33:21 34:12 43:7,9 44:16 45:1,4,12,19,21 48:7 51:11,17 54:2 60:2,13 61:11 62:9 63:10 74:4 77:20 89:11 91:4 99:21 101:6,8,16 102:14 109:18
examples 30:5 89:12
excluded 41:5 71:4
excluding 40:7 70:21
exclusively 69:2 69:5
execute 45:13
executed 14:17
executing 45:20

execution 45:22 46:15
exemplary 100:14 101:5 104:12
exhibit 5:4,5,7,9 5:11,13,15 13:7 13:10 14:2,8,21 15:9,21 16:10 21:15,18 95:13 104:18,22 105:13,17
exhibits 5:1,2 18:14
existing 107:1
expectation 10:19
expediting 113:11
expiration 109:19
expires 109:20 116:11,12,15 116:17,20,22
explain 25:2
explained 20:13
explaining 47:19
explanation 61:3 61:8
explication 33:10
express 117:22
expressed 17:8
expressly 28:5
extends 29:5

F

F 45:18 52:2
facilities 113:7
fact 35:13 54:2 59:20 61:20
fails 9:10
failure 9:8
fair 8:22 9:2 12:16 76:3
familiar 9:1 22:3 52:20 53:2,7,8 53:12 54:1
February 116:12
fed 21:5
feed 21:4
feel 38:12
field 100:16 101:13
Fifth 3:6,10
Fig 39:17 56:12
Figs 51:10 61:16
figure 22:8,9,11 24:14,18 39:7 39:12,14,18,22 40:8 42:10,16 43:4,19 44:6,7 44:7,8,9,15,21 44:22 45:9,11 45:18 46:7,17 47:7,9,19,21 48:13,21 49:4,8 49:12,15,16,18 51:16,21,22 58:2,9,21 59:4 60:18 61:3,9,18 61:22 62:2,22 63:3,20 64:2 65:9 69:8,18,20 70:1,22 72:6,8 72:13,18 73:3,7 73:8,10,12,18 73:19,19,21 77:17,17 78:5,6 78:7 79:2,10,10 80:13,16 91:9 91:14,21 92:4 95:17,19,20 96:3 98:19 99:1 99:4 101:11 105:22 106:3 106:15,21 107:7,10 112:20,21
figures 25:9 43:17 46:3,11 46:20 47:22 48:11,22 49:21 49:22 52:13,18 69:22 88:5,16 106:17
file 53:4,5 54:9 54:12 55:14 56:8,17,19,20 57:4,6,8,9 58:4 58:6,8,20 59:3 59:9 64:8,9 76:14,20 77:7,9 77:10,12 78:2,8 78:16,20 79:4,6 79:7,15,19 80:3 80:11 81:5,15 82:3 87:21 88:5 88:10,14 89:1,3 89:8 90:13,20 91:12 92:18,19 93:6 94:13 97:1 97:1,22 100:16 101:5
filed 25:4
filings 9:19
financially 116:6
find 17:2 24:5 34:6 73:9 74:10
fine 24:17
first 5:3 7:15 14:9 15:10,22 16:11 21:19 34:10 36:4 38:3 41:18 55:22 56:6,16 62:7 67:2 77:9,9 78:15,21 79:4,5 79:6,6,7 87:21 89:8 90:22 91:9 91:10,11,12 105:14,18
Five 66:4
flag 73:7
Floor 3:10
Florida 2:10 116:10
flow 44:15 45:1 45:12,18 47:8 47:18 51:16 106:17
folks 35:10
follow 44:12
followed 7:3 46:14
following 6:11 43:2 53:17 98:7
follows 7:16
forbidden 117:21
foregoing 116:3 118:11
form 21:9 31:13 48:3 50:1 67:3 75:8 82:6 87:7 112:18
formatted 63:11
forward 117:15
four 12:5 13:6 17:8 37:12
fourth 38:4
free 25:6 38:12
freshly 10:2
front 9:20 10:6
full 7:22 43:12
fully 9:5
function 39:5
functions 68:19 71:22 78:17
funding 83:15,19 84:13
further 33:9 114:13 115:7 116:4
fuzzy 42:4

G

general 36:15 41:15 42:21 69:11 70:13,15 74:7 112:10
generally 75:5 106:6
generate 57:1 62:10 72:4 74:1 101:7 109:7,9
generated 62:14
generates 71:19
generating 85:19
generation 72:7
getting 91:8 114:2
GG987804 116:10
give 21:11 24:3 25:22 81:19 110:3
given 21:6 108:1 109:8 118:13 118:16
gives 61:3
go 11:2 14:14,20 19:19,19 28:19 32:16 33:16 41:10 55:21 57:11 61:2 64:5 66:7,17 71:21 76:5 91:1 93:9 95:12,20,21 96:9 98:10 106:15
goes 9:1 11:12 33:10 94:20 95:3 96:21
going 11:6 23:14 24:15 33:13 41:2,15,16 44:2 48:11 51:4,6,7 57:15,16 59:7 61:9 62:4,21 65:18 66:1,3,10 77:20 80:22 92:11 98:22 105:7 110:15 114:2,19 115:8 115:10
good 7:20,21 60:2 63:22
Goodin 1:18 2:6 6:20 116:1,8
GOODRICH 3:2 3:5,9 117:2
governing 117:16
Group 1:20 6:19 6:21 117:19,20 118:1 119:1
guess 50:19 66:1

68:7 94:15

H

halfway 32:19
hand 43:12
Hang 58:13 77:22 104:19
happen 41:16
happens 34:20 61:16 99:15
happy 24:19 27:10 66:2
hardware 26:13 32:7,12 33:14 89:10 92:17 93:6
header 25:16
held 2:3 89:2
help 56:2
helps 44:9
hereto 116:5
hesitate 117:17
high 57:18,20
history 18:10
holding 34:21
Holmstock 3:22 6:17
home 8:6
hour 66:1 105:5
hours 17:13
HTTP(S) 96:22
HTTPS 63:10
human 23:13 40:4,6 41:6 70:18
hyperlinks 28:9

I

I-A-N 8:2
Ian 1:13 2:2 4:2 7:13 8:2 117:1 117:8 118:8 119:9
ID 60:8,11,12 63:17,19 64:3 98:1,2 102:16 102:22 103:1
identical 15:2 44:8
identified 50:16
identifier 59:10 59:14,15 61:5 62:3,6,8,11,16 62:19 64:14,16 64:16,19 65:2,6 65:8,16 96:4,6 96:15 97:13,14 97:18 98:13,14 99:6,10,11,16 99:19,20 100:1 100:1,4,5,10 102:3,7,12,19
identifiers 62:14 62:22
identify 59:21
identifying 70:7
illustrating 44:15 45:1,12,19 51:11,16
image 108:4,5,6 108:15,16,19 109:7,9 110:3 110:10,15 111:1,5,6,18,21 112:2,6,6,16 114:9
imagery 109:21
imagine 50:8
immediately 53:17
implementation 41:17,21 42:12 48:14,16 50:21 74:3,8,10,17 75:3,11 80:6,8 82:20 83:1
implementations 29:8 30:1 31:2 31:5,8 33:3 36:5 41:19 50:17 51:3 52:6 57:21 78:14 82:12
implementing 43:3
impossible 43:6
include 26:5 27:1 42:6 64:15,16 64:19 69:12,17 70:12,14 91:7 91:22 94:7 97:17
included 36:17 41:12 42:22 59:17 71:13 72:5 73:8 94:9 101:1
includes 37:13 38:5 64:13 67:9 67:21 69:1 76:14
including 63:11 117:21
independent 36:9 70:5
INDEX 4:1 5:1
indicated 12:4
indicates 30:4
indicating 23:1 26:19 27:5 28:2 28:16 30:12 32:13
indication 79:5 91:11
individually 72:11
industry 35:11
info 107:22
inform 21:1
information 24:4 26:1 27:7 28:1 28:15 30:7,11 32:11 61:13,14 79:8 91:13 101:18 107:15 107:17 109:9 109:17 111:18 112:8 113:10 113:18 114:9
informed 20:4
initiate 29:10 31:21
input 22:16,20,22 23:5,16 26:3,4 26:8,12,18,19 26:22 27:4 28:2 28:16 29:12 30:12 32:1,8,13 48:8,8,13,14 49:3,9,11
inside 100:1
instantaneously 69:20 71:7
instruction 43:2
instrument 101:16
intend 26:5
intended 52:5 58:14 60:22 61:19 63:3
intention 104:13
interacting 90:17 93:14
interaction 89:18 90:7 93:10
interested 116:6
interesting 77:21
intermediary 94:17
interpretation 54:19
introduced 39:15
invention 52:7
involved 67:11
IPR 1:4,6,7,9 6:11,11 12:5,9 13:14,16 14:2 14:22 20:21 55:8
IPRs 9:19 12:5,5 12:12 13:6 15:2 19:14 22:4 25:3
irrespective 62:11
issue 94:15
issued 57:16 59:22 60:16 85:21 92:8 104:15
issuer 36:10 81:8 83:14 84:3,9,10 85:1,2,5,5,21 86:3,15,18,21 87:6 106:12 107:18 108:19 110:10 113:9
issues 11:1
issuing 85:14,15 85:16

J

J 1:18 2:5 116:1 116:8
J.D 1:13 2:2 4:2 7:13 19:9 117:1 117:8 118:8 119:9
January 14:17 15:14 16:4,15
jbaillargeon@... 3:11
joined 12:9
JOSEPH 3:9
jump 15:4,12
June 116:17
justifies 38:9

K

K 3:10
keep 24:18 66:3
keeps 62:13
KENT 116:19
keyboard 27:1,7 27:11,14,15,18 28:1,7,11 43:10 48:17
keyboards 27:18
kind 33:11 110:13
know 10:15 11:15 12:13,17 13:3 34:16 40:5 40:10 51:4 56:3 58:3 60:21 61:1 61:6 88:7

100:12 108:18
knows 92:6

L

L.L.C 118:1
lag 11:14
language 38:9
law 21:13
left-hand 29:5
legal 6:18 19:13 19:16 20:5,14 20:18 21:7,11 21:12
LEHIGH 116:21
let's 15:4,17 16:6 19:18,19 21:14 22:7 36:1 37:3 40:11 41:10 43:18 45:9 47:6 48:12 55:9,19 55:21 61:6,6 63:5 64:5 66:7 66:17 69:21 77:2 78:4,17 83:2,8,9,20 89:15 92:3,9,12 95:12,12,17 96:9 103:3 104:17 105:22 106:15
level 57:18,20
likewise 51:15
limitation 53:21 54:5 93:5 94:10
limitations 53:14 53:18 86:19
limited 27:1
line 29:7,18,21 30:22 36:14 38:4 60:6 61:10 63:15 67:2 84:12 119:11
lines 33:17 37:12 89:17 90:6
link 10:9 23:21
list 18:5,8,14
listed 30:5 103:9
literally 25:12 26:21 28:18 30:20 44:10 103:15
little 17:13 32:19 42:4 66:1 73:7 73:21 104:6
LLC 119:1
LLP 3:13
locally 114:7
logging 107:4
logic 45:1,18 106:17
logical 65:7
logo 109:21
logs 107:1
long 35:10 61:8
look 21:15 22:7 22:10 24:11 27:10 28:19 29:4 32:16 34:16 36:1 37:3 37:5 41:7 43:15 43:17 45:9 51:5 51:6 55:9,21 56:3 58:9 61:2 61:6 62:4 63:5 63:8,15 64:20 66:21 69:21 71:3,15,21 72:10 77:2 78:4 78:17 79:11 80:16,16 83:3,8 85:6,9 91:14 92:3,4,9,12 93:22 94:3 95:9 95:12,16 96:1 100:19 103:3 104:17 105:22 110:6
looked 18:9 74:20 96:19 98:19,20,21
looking 25:11 27:9 37:10,17 37:17,20 42:15 47:3 60:18 62:5 65:20 69:18 73:15 76:13 78:5 79:9 83:4 85:11 88:8,16 93:1 98:22 101:3,10 105:18 108:6 108:21 110:14 113:2
looks 29:7 63:19
Lori 1:18 2:5 6:19 116:1,8
lot 20:16,17 68:19 97:16

M

M 1:21 3:6,9 118:2 119:2
making 94:21 103:11
Maloney 3:14 7:7
manage 113:16
mapping 56:7
margenti@wsg... 3:4
marked 5:2 13:6 13:8,10 14:7 15:8,20 16:9 21:17 105:12
Maryland 2:11 116:14
material 20:11 27:13 114:6,8
materials 18:6,12 18:15
Matt 7:8
matter 6:7 112:10 117:11
MATTHEW 3:2
MCP 1:8 3:12 6:8 13:2 117:6 118:7 119:8
mean 12:13,18 13:3 23:8 38:10 38:20 43:6 47:1 49:5 50:4 55:18 57:12,13 58:2 61:20 67:17 71:2 72:20 73:9 73:13 75:10,18 84:4 94:10 97:10 101:21 103:15 108:8 108:22 109:13 110:18 114:9
meaning 38:20 45:8
means 36:22 40:19,20 56:1 57:14 94:16 95:6 97:12 100:4 104:8
meant 14:5 20:9
Medley 3:6 7:10
meet 17:17 86:13
member 35:17
mentioned 9:17
mentions 28:12 32:6
merchant 29:2 35:1 36:6,7,10 40:13,14 43:9 61:12 63:12 70:4 74:6 76:15 76:16 77:18 78:3,11,13,14 78:22 79:1,20 79:21 80:7,17 80:19 81:11,16 81:18 82:4,5,17 88:21 89:19 90:8,15,16 93:11,12,18 94:20,21 95:3,6 95:7
merchant's 35:3 76:21,22 90:17 91:7 93:13,19 94:8
message 63:11,12 79:5,17 90:22 91:3,10,15,16
met 76:21 86:20
methodology 49:10
methods 40:21 41:3,21,22 42:7 42:13 105:19
Michael 1:13 2:2 4:2 6:6 7:13 8:2 117:1,8 118:8 119:9
middle 34:8 62:8 83:11 96:12
Mill 3:3 117:3
mind 87:18
minutes 66:4 114:16
mistake 55:5
mistakes 17:2
mobile 87:22
modify 24:15
moment 8:5
Monday 17:16
morning 7:20,21 8:9 16:22 17:7 17:12
mouse 23:20
multiple 8:18 26:14 52:13

N

nailed 50:19
name 6:17 8:1 118:8 119:9
named 110:22
nature 10:1
near 34:20,22
necessary 21:2
need 57:11 94:9
needed 17:3
needs 52:6 71:4 72:3
neither 116:3
network 36:8,8 36:11 67:12,12 67:22 68:3 69:12,17,19 70:2,5,8,9,12
Never 87:18
new 39:14 107:2

113:8
NFC 35:1,6,9,11 35:16,18,20 89:18 90:6,18 93:9,15
NFCs 35:18
normally 43:5 59:20 77:16 102:14 109:12
Northwest 3:10
Notary 2:10 116:1,2,9,10 118:22
noted 118:14
notes 9:22 10:4
notice 9:11
noticed 20:12
noticing 117:15
noting 117:15
number 5:4 6:5 8:16 13:14 18:11,12,13,14 23:4,16 58:12 58:14,18,19,22 59:4,5 60:8 62:2 67:21 96:13 104:5,5 104:12,14 109:19 116:10
numbers 6:11 12:15,17,21 60:19 64:2
numerical 60:22
NW 1:21 118:2 119:2

O

oath 7:4 8:9
Objection 21:9 31:13 48:3 50:1 75:8 82:6 87:7 112:18
Oborne 5:14 21:16,22 22:3 24:6,10,12 26:18,22 27:6 27:12,22 28:12 28:14 30:10 31:12 32:2,6,10 35:13 36:2,21 37:3 38:2,10 40:18 42:2,4 43:14,21 44:11 46:12,22 48:2 51:5,9 53:15 54:16 55:20 56:1 57:11,14 57:22 58:5,7 60:3 61:2,7,20 62:5 63:5 64:7 64:9,21 65:2,11 67:3,15 69:4,10 71:9 81:7 82:2 82:14,16,21 83:13 84:7,15 84:18 85:8,14 86:13 87:4 88:7 88:10,18,20 90:12 91:2 93:3 94:19 95:13 97:12 98:8 100:22 101:10 101:19 106:10
Oborne's 39:7 43:18 44:14,22 45:11,18 67:20 68:5,15,15 71:9 71:13 89:9
obtained 25:6
obvious 82:1 86:14 87:4,13 87:15
occur 47:15
occurrence 62:7
occurrences 27:11 28:20 113:3
occurring 79:13
occurs 77:13
offered 86:17 88:21
offering 91:6
office 1:1 6:10 43:9 117:12,17
official 85:22
officially 77:6
Oh 13:9 14:4 34:13 37:16,19 47:1 57:9 71:15 102:4 105:2
okay 8:8,19,22 9:3,10,12 10:4 10:8,14,20 11:12,19 12:1,3 12:8,11,16 13:1 13:1,12,20 14:11,14,20 15:4,12,16 16:2 16:6 17:2,6,11 18:1,5,8,15 19:5,17,18 20:3 20:9,13 21:3,6 21:14,22 22:7 22:11,15,20,22 23:15 24:11,13 25:1,19 26:7 28:11 29:22 30:3,9,17,22 31:5,12 32:4,5 32:10 33:11,16 33:20 35:15,19 36:1,1,4,21 37:19,21 38:1 38:22 39:6,13 39:17,21 40:7 40:11 41:4,10 43:15 44:4,9,21 45:9 46:3,11 47:10,22 48:12 48:13 49:20 51:1 52:12,16 52:16 53:13,20 54:1,5,8,21 55:3,7,17,19 56:5,8,10,15 57:10,18 58:9 58:16 59:2,7 60:18 61:4 62:1 63:5,7,8,19 64:1,5,5,13 65:22 66:7,17 66:20 67:2,8,16 67:20 68:4 69:1 69:7,16 70:10 70:15,19 71:8 72:3,12,17 73:18,20 74:14 74:18 75:5 76:3 76:4,10,19,19 77:2,5,10 78:18 79:18 80:9 81:6 81:10,13 82:10 82:22 83:8 84:1 86:11,21 87:11 87:16,19 89:6 89:15,15,17 90:1,10 91:5 92:2,9,16 94:6 95:12 96:1,9,12 96:18,21 97:7 97:13,17 98:3 98:10,12,18 99:5,14 100:3,9 100:18,22 102:1,5 103:3,7 104:17,19 105:6,16,22 106:3,7,15,16 106:21 107:14 108:2,13,18 109:5,10 110:8 110:15 111:4 111:15 112:1,7 112:15 114:1,4 114:12,18 115:6
Once 113:13
ones 25:12,14
online 113:10
Oops 55:4
open 10:8 14:13
operate 110:20
operated 77:18
operating 36:9
opinion 21:11,12 35:15,21 46:11 47:10,22 49:20 53:13 54:16 64:7,9 71:9,14 75:15 80:10 81:22 86:13,18 87:4 98:3 100:3
opinions 17:7
opposed 102:13
option 30:18 117:14,14
optional 31:12,14 31:16 32:1 94:6
options 29:9 30:5 31:11,20 47:14 48:6
order 33:2,7 42:13 63:11 109:7
organization 109:1,2,4
orientation 44:3
original 94:18 117:15
outcome 116:6
Outside 18:15
overall 47:14 52:4,10 74:7
owner 1:9 3:12 7:6 20:4

P

page 3:3 4:4 5:4 14:15 15:12 16:3,13 25:17 29:6,6,17 56:9 58:10 60:3 63:9 63:16 66:22,22 76:14 84:12 87:20 92:13 96:10 97:20 98:7,7 100:10 100:13,19 103:4 104:2 105:18 117:3 117:15 118:6 119:11
pages 118:11
pain 31:19
Palo 3:3 117:4

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 127

paragraph 18:3,5 18:9 19:1,20 20:1 24:11 26:8 26:11 27:10,14 27:17,19 28:6 28:21 29:5,16 30:4,6,8,8,15 30:17,19,20 31:1 32:4,15,18 33:17,18 34:7,9 35:14 36:2 37:6 37:12 38:2,4,9 38:10,14,21,22 39:7,11,15,15 40:18 41:10,18 42:20 44:11,14 44:22 45:10,17 45:17 51:9,15 51:20 52:3 55:10 56:3 59:8 61:9 62:8 63:6 65:1 66:21 69:7 70:11 76:12 79:18 83:8,9,11 83:13 84:2,4,5 84:6 85:7,13,19 87:17,19 89:7 89:16,17 90:2 90:11 92:13 93:1,4,16 95:16 96:9,13 98:4,10 99:3,9,14 101:2 101:4 102:2,6 113:5 114:2
paragraphs 20:17,19 28:10 51:7 56:4 85:12 86:8
parentheses 56:17 57:4
part 36:6,7 38:3 39:22 40:6,8 41:6,9 42:9,10 67:11 68:2,15 70:8,16,18 71:10 72:7,8,13 72:18 73:17 78:15 79:14 80:3,7,11 81:11 81:19 99:2 108:19
partially 99:2
particular 12:20 20:20,21 51:6 74:9 103:11
parties 6:22 69:11 106:4 116:4,5
party 53:5 54:12 89:20 94:4,7 110:13
pass 61:11
patent 1:1,2,5,6,8 1:9,9 3:12 5:6,8 5:10,12,13,15 6:9,10 7:6 12:15,17,21 13:14 18:10 20:4 31:10 42:14 55:1,7 75:17,19 80:10 81:16 82:1 86:15 87:5
patents 25:5,6 52:21 88:11,18 88:18
Patrick 3:6,14 7:6,9
patrick.malone... 3:19
pause 40:3
pay 26:6 36:8 67:12 69:12,16 69:19 70:1,5,8 70:9,11
payment 29:2,3 29:14 30:16 33:3,4 34:1 35:2,4 36:7,10 40:20 44:17 45:2 46:4 51:11 51:18 67:4,12 67:22 68:2 83:22 101:16 103:13
PC 43:13
PDF 24:16 66:22 92:13 96:10
pending 6:8 86:10
Pennsylvania 2:13 8:7 116:21
percent 103:16 103:17,18
percentage 104:2
perform 72:2 85:16 94:4
performed 47:9 47:20 48:10 71:16 77:11 78:18,22 82:4
performing 38:15 41:2,21 74:11 81:3,4
performs 38:17 39:4 94:1
period 117:16
permanently 113:18
person 31:9
personal 113:9
personalizing 113:8
pertinent 20:20
petitioner 1:5 3:1 6:8 7:9 20:10
Ph.D 1:13 2:2 4:2 7:13 19:8 117:1 117:8 118:8 119:9
phase 46:14,15 46:18 50:6,7,9
phases 50:6
phrase 37:11 40:19 41:1 51:21
physical 27:15 33:5,11 34:1 110:5,6
physically 111:2
Pittsburgh 8:6
place 35:1
plan 10:5
Platform 105:20
please 7:2,22 11:14,20 117:10,14,15 117:16
plenty 66:5
pluck 102:11,19
pmedley@wsg... 3:8
point 12:14 50:10 72:1 111:15
point-of-sale 76:15,22 77:19 79:20 81:17 82:4 90:17 91:3 91:7 93:13,19 94:8
pointed 100:10
portion 24:5
POSITA 28:5,22 43:3 52:5
posited 87:9
position 63:2
positive 65:14
possibilities 84:16,18,20
possible 82:12 84:8,9 102:1
POST 97:1
power 9:8,10
PPT 36:17 39:19 39:22 40:9,16 40:17,19,22 41:1,3,6,9,12 41:13,22 42:2,5 42:6,9,11,12,22 44:18 45:3,14 45:21 46:21 48:1 51:12,14 51:19 55:12 67:5,11,17,20 68:15,16,18,22 69:12,17 70:12 70:14,16,22 71:12 72:1 73:17
practicing 31:10
pre-funded 103:18
precise 96:12
prepaid 113:8,11 113:13,16
preparing 17:12 17:18,21 18:6 18:16,18 25:3,9
present 3:21 33:4
presented 59:22
pretty 8:22
prevent 9:4
previous 25:20
previously 5:2 14:7 15:8,20 16:9 21:17 105:12 113:9
principles 20:5 20:14,18 21:7
prior 16:22
privacy 40:20 67:4
privity 110:17
probably 22:5 64:4,20 71:2 104:10 110:8 110:21 111:2
problem 37:16 40:18 73:5 77:15 109:12
problems 11:18
procedure 44:16 45:13 51:17 117:16
proceeding 20:5
PROCEEDIN... 6:3
process 22:15 36:7 43:3 72:16 106:5,19
processed 57:15
processing 50:13
processor 70:4
product 23:2,21 26:20 27:6 28:3

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 128

28:7,10,17 30:13 32:14
Professional 2:7
program 44:17 45:3 46:5 51:18
properly 25:9 59:21
prosecution 18:10
protocols 97:1
provide 85:17 90:11 96:3,14 113:6
provided 96:22 97:3,8 98:5
provides 33:9 107:15 113:14
providing 22:16 85:20
provisioning 113:11
PTAB 10:3 25:13 25:14 43:22
Public 2:10 116:9
pull 13:21 16:6 19:5 83:9
purchase 22:12 22:16,20,22 23:2,5,16 26:2 26:4,8,12,19,20 27:4,5 28:2,3 28:16,17 29:10 30:12,13 31:21 32:7,13,14 33:2 33:7 44:17 45:2 45:4,13,20,22 46:4,8 48:8,8 49:2,8,11 50:7 51:18 63:11 89:19 90:7 93:10 94:18
purchased 117:13
purpose 29:1 101:22 102:16 103:2
Purves 5:16 105:17,19,19 106:1,11 110:14 113:3,5 114:6
Purves' 106:18 107:14 108:14
put 20:22 57:3 65:10 83:20

Q

question 11:20 11:21 16:2 25:20 27:21 30:9 38:11 44:11 53:11,18 62:1 64:6 70:10 73:20 81:20 82:14 86:10,12 89:5 108:13 113:21,22
questions 114:13 115:2 117:16 118:14,16
quickly 15:17
quotation 93:3
quotes 23:11

R

rational 63:1
read 30:15 31:1 34:13,14 36:12 36:19 42:20 51:8 55:15 65:1 67:14 90:3 97:5 115:4 118:10
read-on 12:3
reader 34:22 35:3
reading 28:5 29:15,16 34:7 44:13 50:13 92:21 95:1
ready 117:11
real 24:8
really 9:6 24:14 62:1
Realtime 2:8,8
reason 40:3 50:5 109:6
reasonable 24:9
recall 65:14
recalling 90:19
receive 90:22 91:8,9
received 91:15 91:16 94:12 111:17
receives 79:16,17 111:5
receiving 79:3 91:2 92:1
recess 11:7,8 66:12,13 105:8 105:9 114:20 114:21
recited 55:13 71:22
recites 77:6
recognize 34:1
recognizing 60:16
record 6:5 8:1 10:17 11:2,6,10 57:1 59:18 66:8 66:11,15 105:7 105:11 114:19 115:1,7,11
recorded 6:6 115:11 118:14 118:16
refer 12:11,16 13:1,12,17 23:13 42:1 87:20
reference 27:17 27:18 63:16 100:4
referenced 33:12 98:4 102:2 117:11
references 25:6
referencing 92:16
referral 5:3 14:9 15:10,22 16:11 21:19 105:14
referred 37:13 38:5 41:17 67:10 89:6 101:2
referring 41:14 58:5 89:9
refers 102:6
reflected 49:22
regarding 81:22
Registered 2:7
registers 111:11
relate 46:3,7,17
related 116:3
relative 116:5
reliance 85:7
relied 18:19 83:1
rely 18:17 83:5 85:10
relying 84:2,20 85:3,4 86:3,6 93:5
remedial 29:11 32:1
remember 113:15
remote 1:12 2:1 3:1 6:14
remotely 7:1 9:15
render 86:14
rendered 82:1 87:13,15
renders 87:4
repeat 27:20
repeated 30:8
Reported 1:18
reporter 2:7,8,9 6:19 7:4
represent 7:3 46:12,21 47:16 48:1 49:21 52:13 58:15 61:1 85:20
representation 56:13 77:7 85:22
represented 19:15
representing 19:13 59:10
request 78:21 94:12,18,21
requesting 62:11
requests 62:15 108:3,14
required 33:4 65:9,21 74:11 81:5,14 100:16
requirements 82:2 86:14
requires 76:7 101:19
Research 3:15
resolvable 62:10
rest 27:11 99:15 113:2
result 9:7
retrieve 107:17 107:22
retrieved 107:22
review 16:17,21 18:16 117:13
reviewed 18:6 21:22
reviews 21:1
RFID 32:22 33:10 34:19 35:7,9,10,15,17 35:18,20
RFID/NFC 26:13 32:7,12,16 33:14 35:13 89:10 92:17 93:6
right 9:13 12:11 12:22 13:5 23:9 25:19 34:5,15 37:7 38:3,22 43:20 44:3,13 58:1 63:20,22 66:9 68:4,13 69:8 70:3 76:3

76:9,10 85:18 86:2 90:1,5,10 91:20 93:4 94:10 96:13 100:21 101:4 103:14 106:11 107:10 108:9 108:10 113:1 114:11,12
right-hand 25:17 29:6,17 73:6 83:12
Road 3:3 117:3
ROSATI 3:2,5,9 117:2
rotated 22:10 25:8,15,18
rote 20:12
RPR 1:18 2:6 116:1,8
RSA 1:18 2:6
Rules 117:16
run 81:8 84:22 85:2,4,5 86:16 86:22 110:15
running 10:13 86:4
runs 86:19 87:6

S

S-H-A-M-O-S 8:3
SARASOTA 116:10
satisfied 81:16
satisfies 81:7
satisfying 89:7
save 111:10
saying 52:8 56:18 57:5,7,18 58:19 59:2 68:5,14 69:16 70:11 72:17,21,22 73:18 76:19 80:2 85:4 87:12 87:14 90:15 91:5 93:17 110:14
says 18:9 26:21 26:22 28:18 31:2,8 33:17,21 36:5,14,15,21 37:3 38:4 41:11 41:18 42:21 49:8 51:5,10 56:11,22 60:8 61:7 62:5,9 68:1,11 69:5 70:4 73:7 74:4 83:13 84:11 94:11 96:14 97:8,12 98:4,12 99:9,19 101:6 101:12,21 102:9,10 113:5
scan 79:6 91:11
scenario 81:6 87:3,5
scheme 109:22
screen 6:16 22:10 24:15 39:18 79:11
Seattle 3:7
second 11:3 14:3 40:12 41:11 53:16 58:13 60:6 77:22 84:11 92:10 93:2 103:4
seconds 24:20
section 21:8
secure 110:19
security 109:11
see 20:6,7,7 25:16 35:12 37:7,15,16 38:7 40:3 43:11 47:6 55:19,22 56:8 61:2,3,7 62:4 63:10,13,16 64:21 69:4 71:3 71:16 76:17 77:3 83:5 85:9 90:5 95:10 96:2 96:2,7,16 108:9
seeing 69:20 71:6 73:16 114:5
sees 107:21
select 28:10
selected 104:3 117:14
selecting 28:7
send 102:17 103:7
sends 78:3,11
sense 11:16 13:18 65:19 104:22
sent 43:22 100:5 114:6,8
sentence 34:11 34:14 36:4,15 41:18 56:6,16 57:3 67:8,17 85:18 90:6 93:2 97:7 98:12 102:6
separate 80:12 80:14 108:20 108:22,22 109:1,2,3 110:2 110:21 111:3
separately 100:2 100:5 102:12 102:20 110:22
September 1:15 2:4 6:1,15 115:10 116:20 117:7 118:9 119:10
serve 36:17 41:13 42:18 43:1 101:15
server 36:6,8,9 37:1,13 38:5,15 38:21 39:2,3 40:13,14 43:8 56:22 57:16 59:19,21 60:14 60:15 62:9,13 63:12 65:18 67:9,13,21 68:2 68:6,11,15 69:2 69:3,6,12,17,19 70:2,2,5,6,8,8,9 70:12 71:9 74:5 74:6 76:16,22 78:4,12,13,14 79:1,1,2,13,14 79:21 80:3,7,8 80:10,17,18,19 80:20,22 81:2,4 81:8,10,11,18 82:5,17,17 84:22 85:17 86:4,5,16,19,22 87:6 90:15,16 92:6 93:12,18 94:20,21 95:3,4 95:6,7 96:14 101:7 103:7 106:12,12,22 107:15,17 108:3,5,7,14,16 108:19 110:3,9 110:10,11,15 110:22 111:1,4 111:11,16,17 111:20 112:1,7 112:11 113:20
serves 107:5
service 105:20 109:14
session 115:12
set 30:5,18 31:20 35:17 109:13 111:16
sets 107:2
setting 29:9 107:4
seven 29:19
severe 9:7
Shamos 1:13 2:2 4:2 6:7 7:13,20 8:3 11:12 14:1 14:11 19:22 52:20 115:3 117:1,8 118:8 119:9
share 103:16
sheet 117:15 118:15 119:6
short 114:15
Shorthand 2:9
show 39:12 45:18 51:10 61:19 63:3 106:17
showing 39:19 47:8 95:19
shown 40:4,8 58:11 60:19 61:21 62:2 80:13,21 98:6 99:1 104:1
shows 22:11 45:11 51:16 103:16 106:3 112:1
side 25:17 29:5,6 29:17 73:6 83:12
sign 113:15 115:5 117:12,13
signals 32:21
signature 14:15 15:13 16:3,14 115:13 117:11 117:15 118:6 118:19 119:22
signed 15:13 16:3 16:14 117:15
signing 117:14
similar 44:7 101:8,20
simply 43:10 113:19
Sincerely 117:18
single 29:10 31:22
sit 9:3 17:6
sitting 8:4 73:15
six 29:19
slight 40:18
smartphone 26:15
somebody 110:16

112:11
SONSINI 3:2,5,9 117:2
sorry 10:21 13:9 14:4 22:20 29:15 33:18 34:5 36:15 47:1 54:22 55:4 70:19 78:16 84:4 87:17 92:21
sort 70:17
sounds 81:12
source 29:3 83:14,15,19 84:2,8,14
speak 17:20
specific 27:6 28:1 28:15 30:10 32:11 57:21 90:14 101:13
specifically 58:4 89:9
specification 30:21 32:17 42:1
specify 49:10
spend 17:11,14
start 15:18 18:1 22:12 43:18 95:17 107:10
started 9:18 64:6
starting 44:5 83:12
starts 22:15
state 2:10,10,11 2:12 7:2,22 116:10,11,14 116:19
stated 21:8 28:4
statement 42:20 62:21 65:14,21 68:10 69:4 75:10 85:8
statements 21:13 115:7
states 1:1 6:9 83:13
stay 48:12
step 77:5,11 78:19 79:3 90:21 96:3,6,18 98:18 107:9 112:3 114:10
steps 38:16,18 41:3 47:8,15,19 48:10 71:16 74:11 81:4 94:2 94:4 95:10
stipulated 6:22
stock 20:17
stop 11:15 66:2
storage 53:4 54:9 92:19 93:7
store 98:13 99:10 99:20 102:12 102:20 103:1 112:8,11,14 113:3
stored 56:22 59:18 60:13 65:18 77:9 99:17,19 100:8 113:10,18 114:7
stores 102:11 111:20
storing 99:3 100:4 102:8,10 112:16
strange 104:7
Street 1:21 3:10 118:2 119:2
strike 22:21 87:17
string 59:16,17 60:10,10,22 97:15 104:11
structure 56:16 56:19,21 57:1,5 59:9 60:4,5 96:22 97:9,15 98:5,6 99:16 100:6,9,13,18 100:19 101:2,7 101:8 102:2 103:5
stuff 68:19
subscribe 109:15
subsequent 62:15 85:11
subset 68:21
Substantially 45:7
substitutions 49:13
suggestion 56:5
Suite 1:21 3:6,15 118:2 119:2
supplied 100:2
supports 55:12
suppose 109:13
sure 8:15 11:4 23:15 34:5 43:16 49:5 50:4 58:21 66:7 83:2 87:1 101:18 102:4 105:2 114:17
surrogate 101:16
suspended 115:14
swipe 24:1 25:21 28:12,16,20 29:1,11,13 30:11,19 31:22 48:15
swiping 31:15
switch 54:21
switching 104:21
sworn 7:1,15 116:3
system 36:6 37:13 38:5 40:6 67:9,16 76:14
systems 2:8 40:21 42:6 105:19

T

Tab 5:5,7,9,11 13:21 14:5,8 15:6,9,21 16:7 16:10 18:2 19:19 21:15,18 55:5 92:12 95:15 104:18 105:13
tablet 26:15
Tabs 15:17
tag 33:10 60:6,8 97:22 98:1
tags 32:22
take 16:18 21:14 22:7 24:11,20 32:16 37:3 43:15 55:9 56:5 63:5 66:2 69:21 77:2 83:2 92:3 92:9 95:12 98:1 101:11 104:22 105:3 113:4 114:4,15,16
taken 6:7 11:7 66:12 105:8 112:13 114:20 116:4
takes 35:1
talk 50:2
talked 48:7 71:8 82:11 97:19,21
talking 24:7 27:16 28:21 34:17 38:14 39:7 53:19,20 64:7 85:13 105:16
talks 30:15 42:5 56:21
tap 29:11 31:22
teaches 43:14 67:3 85:9 101:19 105:19
Tech 3:22
technical 11:1
tell 10:18 74:2
tells 101:1
template 49:12
ten 17:13 114:16
term 55:20 88:13
terminal 91:4
terminology 54:8
terms 53:2,8,9,11 53:17
testified 7:15
testify 10:5
testifying 8:9 9:4 10:10 16:22
testimony 116:2
Texas 3:16
Thank 115:3
theories 90:11
theory 91:6
thing 12:2 16:6 35:16 36:22 57:14 71:19,20 74:22
things 10:22 18:9 39:4 59:5 71:19 72:9 90:20
think 22:5 23:8 28:4,5,22 39:9 40:1,10 42:17 42:19 47:7,18 48:21 51:1 52:15 56:8,20 58:13 59:3 60:2 61:18 62:20 63:2 65:11,13 68:10,13 70:13 73:1,9,19 74:19 74:20,20 82:11 86:17 87:8 88:3 92:5 94:11 95:18 100:15 100:15 102:9 104:8,11,13 111:22 113:17
thinking 49:14
third 53:5 54:12 89:20 90:12 94:4,7 110:13
third-party 93:11,17 94:13 95:11

thought 17:3 29:17 35:11 56:15 75:21
three 12:12,21 13:13 18:9,21 19:3 29:19 89:17 90:6 104:3
thunderstorm 9:7
tie 24:9
time 1:16 2:5 6:15,16 11:5,9 17:11,14 35:10 66:10,14 105:6 105:10 114:4 114:18,22 115:9 117:16
times 8:14,18 55:20
today 6:19 9:4 10:6,10,15 11:13 12:4
today's 115:11
token 33:3,5,8 34:1 36:5,17,21 36:22 37:11,13 37:14 38:5,6,15 38:15,17,18,21 39:1,2,3,4 40:13,14 41:13 42:18 43:1,5,8 43:11 50:11,14 55:19 56:1,7,12 56:17,19,22 57:2,4,5,7,9,12 57:13,14,15,19 57:20 58:2,4,7 58:12,15,17,17 58:20,22 59:3,9 59:10,10,13,14 59:15,17,18,21 59:22,22 60:5,6 60:11,12,12,14 60:15,17,20 61:1,4,11,17,20 61:21 62:3,3,5 62:7,9,10,11,13 62:14,16,16,19 62:22 63:4,17 63:19,21 64:2,2 64:7,8,10,14,16 64:19,22 65:2,5 65:8,11,16,18 65:20 67:9,10 67:21 68:2,5,11 68:15 69:2,2,5 70:2,7 71:9,20 71:20 74:1,5 78:12 79:2,13 79:14 80:2,7,10 80:17,20,22 81:2,4,7,10 82:16 83:14,18 84:3,8,13,22 85:17,19 86:4,4 86:16,19,22 87:6 88:19 91:18 92:6,7,8 95:4 96:3,5,14 96:14,21 97:8 97:10,12,13,14 97:17,22 98:1,5 98:13,14 99:6 99:10,11,16,19 99:20,22 100:1 100:4,5,10,14 100:17 101:6,7 101:13,22 102:2,7,11,12 102:16,16,17 102:19,19,22 103:1,1,4,15 104:1
token-based 22:12 44:16 45:2,4,13,20,22 46:4,8 51:17
tokenization 40:21 51:12 67:4
tokenized 89:19 90:7 93:10
tokens 55:12,17 57:22 58:11 62:14 65:3 72:4 72:4
tool 113:15
top 25:16 29:19 108:9
totality 74:20
Totally 13:19
track 62:13
Trademark 1:1 6:9
transaction 22:13 29:10 31:22 45:14,20 45:22 83:22 102:21 103:11
transactions 46:8 55:13,18
transcript 117:10 117:12 118:11
transcription 118:13,15
transmission 79:12
Transmitting 78:19
transport 97:1
Trial 1:2 6:10
tricky 92:4
triggers 89:18 90:7 93:10
true 65:17 75:5 118:13,15
trusted 109:14
trusts 110:18
truth 88:13
truthfully 9:5
trying 24:9 58:1 65:8 73:3 83:5
turn 89:15
turns 104:4
two 15:2,16 18:13 29:19 50:6 82:18 90:11
typically 26:4 59:16 97:14

U

U.S 5:6,8,10,12 5:13,15
Uh-huh 92:14 95:14 96:11 98:11 108:12
Ultimately 95:2
understand 8:8 9:13 11:19 12:4 12:8 28:6 29:1 97:10 103:20 109:16
understood 12:1 36:16 42:21
unique 60:8,11 62:10,19 98:1
uniquely 12:15
United 1:1 6:9
unusual 43:14
up-to-date 110:3
use 23:19 31:15 54:8 55:12 97:4 102:13,16 103:13,21
useful 24:14
user 22:16 23:1 23:19 24:1 25:21 26:22 29:9,11 31:21 32:1 33:4,7 40:4,7 42:8 50:10 53:4 54:10 57:17 61:11 70:18,21 73:16 77:16,17 78:2,9 79:7 85:20 87:21 88:19,21 89:3,7 92:20 93:7 96:6 98:14 99:6,11 103:8,10,11,21 106:7 107:11 107:14 108:1 111:10,16 112:6,13 113:19,19
user's 24:3 26:1 26:19 27:5 28:3 28:17 30:12 32:13 34:1 78:9 78:9 83:15 90:18 93:14 106:21 107:6 111:6,12 112:2 112:8,17 114:7
uses 51:21 56:22 65:2

V

v 1:7 6:8 117:6 118:7 119:8
values 56:22
variations 48:18 48:20
varies 74:8,19 75:11
various 36:5 41:3 41:19 48:5,9 49:13 94:1 109:14
vary 74:14,16 75:2,3
verifiable 77:6
verification 72:8 72:14,16 85:16 94:22
verified 78:4,12 85:14 113:9
verifies 71:20
verify 39:9 40:2 72:4 74:1 88:6 102:15
verifying 53:5 54:13 76:15,20 77:3,7,12 78:15 78:16,20,21 79:4,15,20 80:3 80:11 81:5,15 82:3 83:21 85:22 88:1 89:20 90:13,20 93:11,17 94:1,5 94:7,12,13 95:11

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 132

version 35:9
versus 110:10
vetted 21:5
vicinity 34:2
video 6:5,6,14,15 10:9 115:11
Video/Document 3:22
videographer 6:4 6:18 11:5,9 66:9,14 105:6 105:10 114:18 114:22 115:6
VIDEOTAPED 1:12 2:1
view 82:2 113:16
virtual 27:14 56:12 107:1,2 111:12,16
Visa 1:4 3:1 6:7 7:9 13:2,2 19:13 117:6 118:7 119:8
Visa's 20:13
voice 26:9

W

Wait 14:3 53:16 89:21
waive 117:14
waived 115:13
wallet 105:20 106:4,12,18,22 107:1,2,5,5,15 107:17 108:3 108:14 110:22 111:4,11,12,15 111:16,17,20 112:1,7,10 113:10,12,14 113:20
want 18:1 24:5 26:5 43:15,17 44:12,14 54:21 66:21 87:2 95:16 102:15 102:15 103:10 103:12
wanted 103:12
wants 23:2
Washington 1:21 3:7,10 116:16 118:3 119:3
way 8:15 20:8,15 31:19 43:4 44:2 47:15 60:16 63:1 65:10 73:10 83:20 87:13,14 88:4 109:16 110:19
ways 23:4,16
we've 32:16
website 10:3 25:13,15
Wednesday 2:4 6:1
week 17:16
weekend 17:15
WiFi 32:22 89:14
Wilson 3:2,5,9,13 3:13 4:5 7:5,5 7:19 11:4,11 13:20,22 14:5 14:10 15:6,11 16:1,12,18,20 19:5,7,18,21 21:14,21 24:17 24:22 31:17 49:7 50:22 52:17,19 55:2,4 55:6 65:22 66:7 66:16 75:12 82:9 87:10 92:11,15 95:15 95:22 104:17 105:2,15 112:22 114:12 114:17 117:2
witness 2:3 4:2 7:1,14 14:6 15:7 21:10,20 24:19 31:14 48:4 50:2 55:3 66:4 75:9 82:7 87:8 92:14 104:19 112:19 115:4 116:2 117:13 118:8 118:19 119:9
word 23:12 77:15 88:17 95:5
words 34:10 39:11 44:13 45:8
work 22:4
working 11:13 43:22
works 20:15
world 24:8
wouldn't 75:22 109:12
wrestling 64:18
written 117:22
wrong 11:13 37:17 68:14 73:2
WSEP 113:6,14

X

XML 60:4 63:11 97:22 100:16 101:5,8

Y

yeah 34:13 58:1 58:13 70:19 73:5,9,12 87:19 88:17 90:19 92:5 103:20
years 19:16
Yep 95:20

Z

Zoom 6:14

0

00488 6:12
00489 6:12
00490 6:12

1

1 6:5 18:11 77:5 80:9 81:15,21 81:22 82:21 86:20 103:9 116:17
1.1 77:5
1.2 78:19
1.3 79:3
1.5 93:5 94:10
10 44:22 51:21 98:7 103:17
10,749,859 1:8 5:10
10:07 66:10,12
10:14 66:13,15
100 13:21
1005 5:5,7,9,11 13:7,10 14:2,8 14:21 15:9,21 16:10
1011 5:13 21:15 21:18 95:13
1013 5:15 104:18 105:13,17
101B 58:12 61:12
102B 61:12
103B 61:12
104A 63:21
104B 61:12
105 5:5,16 14:5,8 18:2 19:19 92:12
107 5:7 15:6,9 55:5 92:13
108 5:9 15:17,18 15:21
109 5:11 16:7,10
10th 29:21 61:10
11 45:10 51:22
11,329,973 1:9 5:12
11:06 105:7,8
11:18 105:9,11
11:31 114:19,20
11:42 114:21 115:1,9,14
113 27:14
116 55:2
119 21:15,18 95:15
11th 61:10
12 45:17 52:3 80:21 91:18 116:11
121 104:18 105:13
123456789 104:11
125 3:15
127 27:17
128 27:19
12th 29:7,18
135 27:19
13785 3:15
13959 1:19 2:6 116:2,11
14 5:6
14B 61:16
15 5:8,10 24:20
16 5:12
160th 8:20
1700 3:10
1730 1:21 118:2 119:2
1A-B 51:10
1B 56:12 58:9,21 59:4 60:18 61:3 61:9,18,22 62:2 62:22 63:3,20 64:2

2

2 18:12 87:16 103:9 116:15
20 18:3,5,9 19:1
20006 3:10
20036 1:21 118:3 119:3
2012/0316992 5:14
2013/0054454 5:16
202 1:22 118:4
202-973-8800 3:11

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 133

202)-232-0646 117:17
202)232-0646 119:4
2024 1:15 2:4 6:1 6:15 14:18 15:14 16:4,15 115:10 117:7 117:20 118:9 119:10
2024-00486 1:4 6:12 12:5
2024-00487 12:9
2024-00488 1:6
2024-00489 1:7
2024-00490 1:9
2025 114:6,8 116:12,15,20 116:22
2026 116:17
2028 116:11
205 29:12
206-883-2500 3:7
21 5:14
212-493-9300 3:4
218 66:21 83:8 84:2,4,5,6 85:8 87:17
219 69:7 70:11 76:12 79:18 87:17,19 89:7
22 40:18 116:12
221 55:10
2212 106:7
2215 106:12
2217 106:12
2225 106:8
223 56:3 59:8
224 85:13,19
22B 105:22
231 89:16,17 90:2
2317 107:21 108:3
2319 110:22
232 37:6,8,12,21 38:4
232-0646 1:22 118:4
2325 112:3 114:10
2329 108:8 111:1
23A 106:15,17,21 107:8
23B 107:10 112:21
244 92:13 93:1,4
25 1:15 2:4 6:1 6:15 19:20 20:1 61:9 103:18 115:10 117:7 118:9 119:10
25th 14:17
26 15:14 16:4,15 32:18 33:19 34:7,9
27 29:5,16 30:8 30:15 31:1

3

3 18:14 29:6,6,17 103:9
300 55:20
3314 107:9
3G 33:1

4

4 43:17,19 44:6,7 44:7,9,15 46:3 46:11,17,20 47:1,2,3,6,9,21 48:11 49:22 51:16 52:13 69:8,18,20 70:1 70:22 72:6 73:19 77:17 78:6 79:10
401 70:21
47 62:8 65:1 101:4
48 96:9 98:4,10 99:3,9,14 101:2 102:2,6
486 12:9,12 13:16
487 14:21
488 12:5,13 54:22 55:8
489 12:6
49 24:11 26:8,11 27:10 28:21 30:4,6,8,17,19 30:20 32:4,15 35:14 39:11,15
490 12:6
4G 33:1

5

5 43:17 44:21,22 46:3,12,17,20 47:3,6,7,19 48:11 49:22 95:17,20 96:3 98:19 99:1,4 116:22
50 63:6
500 45:5
51 113:5 114:2
5100 3:6
512-267-1663 3:17
516 96:13
517 96:3,15 98:20
518 96:6 98:15,21 98:22 99:11
53 36:2 38:2,9,10 38:14,21,22 39:7,15 41:10 41:18 42:20 83:13
531 13:17 14:2,12 14:21 15:2 18:2 18:10 19:22 37:5,22 52:21 75:6 92:10
55 96:10

6

6 39:7 43:17 44:8 46:7 47:4,22 48:12 49:16,21 51:9 72:8,13,18 73:12,18,19,21 77:17 78:5,7 79:2,10 80:13 80:16 91:14,21
601 22:16 40:4,7
602 22:17 23:11 91:20
611 22:16 26:3,8 26:12,19 49:9 49:11
65 103:16
650 3:3 117:3
6A 22:8 39:17,18 39:22 40:8 42:16 45:10,11 48:13 49:1,8,12 51:22 73:7,8,10 73:13 91:9 95:19
6A-E 39:12
6C 73:7,8 92:4
6E 73:11,13

7

7 4:5 43:17 46:7 47:4 48:1,12,21 49:15,18,21 52:13
700 46:1
701 3:6
78750 3:16
7A 45:18 48:22 49:4 52:2
7F 52:2

8

8 80:17
8:58 1:16 2:5 6:1 6:16
80 113:3
812 1:21 118:2 119:2
854 15:4 18:22 37:20 52:21 54:22 55:7 66:20 75:6 76:11 77:2 80:9 81:15,22 86:15 86:20 87:5 88:8 88:13 89:22
859 15:18 18:22 52:21 75:6
88 84:12

9

9 44:11 51:15 60:3 97:20 98:7 100:10,13,19 103:4 104:2 116:20
9,251,531 1:5 5:6
9,954,854 1:6 5:8
9:01 11:6,7
9:02 11:8,10
92 66:22
93 58:10
94304 3:3 117:4
973 16:7 18:22 52:21 75:6
98104 3:7
9A 61:16

CORTEX EX2016
Visa v. Cortex, IPR2024-00490
Page 134