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

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REMOTE VIDEOTAPED DEPOSITION of

MICHAEL IAN SHAMOS, PH.D., J.D.,

a Witness in the above-titled action, held on Wednesday, September 25, 2024, commencing at approximately time 8:58 a.m. before Lori J. Goodin, RPR, CRR, RSA, California CSR #13959, Registered Professional Reporter, Certified Realtime Reporter, Realtime Systems Administrator, and Certified Shorthand Reporter, and Notary Public of the State of Florida, State of California, State of Maryland, District of Columbia, State of Delaware and Commonwealth of Pennsylvania.

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REMOTE APPEARANCES:

ON BEHALF OF PETITIONER VISA:

WILSON SONSINI GOODRICH & ROSATI
BY: MATTHEW A. ARGENTI, ESQUIRE
650 Page Mill Road
Palo Alto, California 94304
212-493-9300
margenti@wsgr.com

AND

WILSON SONSINI GOODRICH & ROSATI
BY: PATRICK M. MEDLEY, ESQUIRE
701 Fifth Avenue, Suite 5100
Seattle, Washington 98104
206-883-2500
pmedley@wsgr.com

AND

WILSON SONSINI GOODRICH & ROSATI
BY: JOSEPH M. BAILLARGEON, ESQUIRE
1700 K Street, Northwest, Fifth Floor
Washington, D.C. 20006
202-973-8800
jbaillargeon@wsgr.com

ON BEHALF OF PATENT OWNER CORTEX MCP, INC:

ARMOND WILSON LLP
BY: DOUG WILSON, ESQUIRE
BY: PATRICK MALONEY, ESQUIRE
13785 Research Boulevard, Suite 125
Austin, Texas 78750
512-267-1663
doug.wilson@armondwilson.com
patrick.maloney@armondwilson.com

Also Present:

Daniel Holmstock, Video/Document Tech

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WEDNESDAY, SEPTEMBER 25, 2024, 8:58 a.m. EDT

PROCEEDINGS

THE VIDEOGRAPHER: We are on now on the record. This is Video Number 1 in the video recorded deposition of Dr. Michael Shamos taken in the matter of Visa, Inc., petitioner, v. Cortex MCP, Inc., pending before the United States Patent and Trademark Office before the Patent Trial and Appeal Board for the following IPR numbers: IPR 2024-00486, 00488, 00489, and 00490.

This deposition is being conducted by Zoom video remote conferencing on September 25, 2024. The time on the video screen is 8:58 a.m., Eastern Daylight Time.

My name is Daniel Holmstock; I am the legal videographer from Digital Evidence Group. And our court reporter today is Lori Goodin, also in association with Digital Evidence Group.

All parties have stipulated to the

witness being sworn in remotely.

Counsel, will you please state your appearances and whom you represent, followed by the court reporter administering the oath.

MR. WILSON: Douglas Wilson for the patent owner, Cortex. And with me is Patrick Maloney.

MR. ARGENTI: Matt Argenti, for petitioner, Visa. And with me is Patrick Medley.

* * *

Whereupon,

MICHAEL IAN SHAMOS, PH.D., J.D.,

a witness called for examination, having been first duly sworn, was examined and testified as follows:

* * *

EXAMINATION

BY MR. WILSON:

Q. Good morning, Dr. Shamos.

A. Good morning.

Q. Could you please state your full

name for the record.

A. Yes, it is Michael Ian, I-A-N, Shamos, S-H-A-M-O-S.

Q. And where are you currently sitting at the moment?

A. I am at home in Pittsburgh, Pennsylvania.

Q. Okay. Do you understand you are testifying under oath this morning?

A. Yes.

Q. You have been deposed before, correct?

A. Yes.

Q. Approximately how many times?

A. I'm not sure, because the way I count it is the number of cases in which I have been deposed. And sometimes I get deposed multiple times in the same case.

Q. Okay.

A. So, this will be the 160th case in which I have been deposed.

Q. Okay. Fair to say you are pretty

familiar with how a deposition goes, correct?

A. That is fair.

Q. Okay. Is there anything as you sit here today that would prevent you from testifying fully and truthfully and accurately?

A. Not really, except that we are having a severe thunderstorm which may result in a power failure.

But other than that, no.

Q. Okay. Well, if the power fails we will notice, so --

A. Okay.

Q. All right. And you understand that everybody here has agreed to conduct your deposition remotely, correct?

A. Yes. Me, too.

Q. Yes. And, so, you mentioned before we started that you have copies of all of the filings in all of these IPRs on your computer in front of you, correct?

A. Yes.

Q. Now, do any of those have any notes

in them or comments or anything of that nature?

A. No. They are freshly downloaded from the PTAB website.

Q. Okay. Do you have any other notes or other documents from which you plan to testify in front of you today?

A. No.

Q. Okay. Do you have any open communication channels other than this video link available to you as you are testifying today?

A. No. Well, when you say available, I certainly have such apps on my computer but they are not running now.

Q. Okay. So, would you agree to let me know during the deposition today if anyone attempts to contact you while the deposition is on the record?

A. Yes. I will tell you. But my expectation is that no one will.

Q. Okay.

MR. ARGENTI: Sorry, counsel. Before we get too deep into things, I'm

having some technical issues on my end. Maybe we could go off the record for a second.

MR. WILSON: Sure.

THE VIDEOGRAPHER: The time is 9:01 a.m. and we are going off the record.

(Recess taken -- 9:01 a.m.)

(After recess -- 9:02 a.m.)

THE VIDEOGRAPHER: The time is 9:02 a.m. and we are back on the record.

BY MR. WILSON:

Q. Okay. Dr. Shamos, if something goes wrong or is not working correctly for you today, there is lag or anything like that, please let us know. We will stop the deposition and attempt to correct it. Does that make sense?

A. I will do that. As of now, there are no problems.

Q. Okay. And if you do not understand a question I ask, please ask for clarification.

If you answer a question without asking for clarification, I will assume that you

understood it. Okay?

A. Yes. I will assume the same thing.

Q. Okay. And, as the read-on indicated, you understand we are here today for four IPRs. Those IPRs are IPR 2024-00486, 488, 489, and 490.

A. Yes.

Q. Okay. And you understand that IPR 2024-00487 has been joined to 486?

A. Yes. They were consolidated.

Q. Right. Okay. So, if I refer to these IPRs by the last three digits, such as 486 or 488, you will know what I mean?

A. I will. Although, at this point they are uniquely associated with patent numbers.

Q. Okay. Fair enough. So, if I refer to them by the patent numbers, you will know what I mean?

A. Yes.

Q. And, in particular, by the last three digits of the patent numbers?

A. Right.

Q. Okay. Okay. And if I refer to Visa, Inc. as Visa, and Cortex MCP, Inc. as Cortex, you will know what I mean?

A. Yes.

Q. All right. Now, in each of these IPRs, all four, your deposition was marked as Exhibit 1005, correct?

A. My declaration was marked.

Q. Oh, sorry. Your declaration was marked as Exhibit 1005, correct?

A. Yes.

Q. Okay. So, I may refer to your declaration then by the last three digits of the patent number associated with the IPR in conjunction with your declaration.

Such as, for the 486 IPR, I might refer to it as the '531 declaration.

Will that make sense to you?

A. Totally.

MR. WILSON: Okay. So now, Dan, we can pull up Tab 100.

BY MR. WILSON:

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Q. And, Dr. Shamos, that is Exhibit 1005 in the '531 IPR.

A. Yes. Wait a second.

Q. Oh, I'm sorry. That is not --

MR. WILSON: I meant Tab 105, Dan.

THE WITNESS: Yes. That is it.

(Whereupon, previously marked Exhibit 1005, Tab 105, first referral.)

BY MR. WILSON:

Q. Okay. So, Dr. Shamos, you have a copy of your '531 declaration, correct?

A. Yes, it is open in Acrobat now.

Q. Okay. And if you go to the last page. That is your signature, correct?

A. Yes.

Q. And it was executed on January 25th, 2024?

A. Yes.

Q. Okay. So, now, rather than go through Exhibit 1005 in the 487, the other '531 IPR.

Let me just ask you: Is your declaration identical in the two '531 IPRs?

A. Yes.

Q. Okay. Now, let's jump to the '854 declaration.

MR. WILSON: Dan, that is Tab 107.

THE WITNESS: Yes, that is it.

(Whereupon, previously marked Exhibit 1005, Tab 107, first referral.)

BY MR. WILSON:

Q. Okay. If you jump to the last page. Again, that is your signature and it was signed on January 26, 2024?

A. Correct.

Q. Okay. The other two I will just ask you quickly. So, these are Tabs 108. Let's start with 108, which is the '859 declaration.

A. Yes, it is.

(Whereupon, previously marked Exhibit 1005, Tab 108, first referral.)

BY MR. WILSON:

Q. Okay. Again, same question, last page, that is your signature and it was signed on January 26, 2024?

A. Yes.

Q. Okay. Same thing for -- let's pull up Tab 109, which is your '973 declaration.

A. That is it.

(Whereupon, previously marked Exhibit 1005, Tab 109, first referral.)

BY MR. WILSON:

Q. And last page, this declaration contains your signature. And it was signed on January 26, 2024. Correct?

A. Yes.

Q. Now, did you review --

MR. WILSON: And, Dan, you can take it down.

BY MR. WILSON:

Q. Did you review each of these declarations prior to testifying this morning?

A. Yes.

Q. Okay. Did you find any mistakes, any errors, anything that you thought needed to be corrected?

A. No.

Q. Okay. So, you are, as you sit here this morning, confident in all of the opinions that you expressed in each of those four declarations?

A. Yes.

Q. Okay. How much time did you spend preparing for your deposition this morning?

A. A little over ten hours.

Q. And when did you spend that time?

A. Over the past weekend, and on Monday, this week.

Q. Did you meet with anyone other than counsel in preparing for your deposition?

A. No.

Q. Did you speak to anyone about preparing for your deposition other than counsel?

A. No.

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Q. Okay. I want to start with your '531 declaration. That is Tab 105. And Paragraph 20.

A. I am there.

Q. Okay. So, in Paragraph 20, you list the materials you reviewed in preparing this declaration. Correct?

A. Yes. Well, the list -- okay. Paragraph 20 says that I looked at three things. The '531 patent and its prosecution history is Number 1.

Number 2 is the materials cited in the declaration; that is number two. And then, this list of exhibits is Number 3.

Q. Okay. Outside of those materials, did you review anything else in preparing this declaration? Or did you rely on anything else in preparing this declaration?

A. I don't believe I relied on anything documentary.

Q. Now, the other three declarations, the '854, '859 and '973 declarations contain the

same Paragraph 20.

And I assume your answer would be the same for those three as well?

A. Yes, it will.

MR. WILSON: Okay, Dan, you can pull that down.

BY MR. WILSON:

Q. In addition to your Ph.D., you have a J.D., correct?

A. Yes.

Q. You are an attorney, correct?

A. Yes.

Q. Are you representing Visa in a legal capacity in these IPRs?

A. No. I haven't represented anyone in a legal capacity in many years.

Q. Okay.

MR. WILSON: Okay. So, Dan, let's go back to Tab 105 and let's go to Paragraph 25.

BY MR. WILSON:

Q. And Dr. Shamos, that is your '531

declaration, Paragraph 25.

A. I am there.

Q. Okay. So, here you say that, "Counsel for Patent Owner has informed me of the legal principles that apply in this proceeding."

Do you see that?

A. Yes, I see that. I now see the error of my way there.

Q. Okay. So, I assume you meant counsel for petitioner?

A. I did. And this material is so rote, apparently, that nobody noticed that.

Q. Okay. So, Visa's counsel explained the legal principles to you, correct?

A. Well, here is the way it works.

So, I have done a lot of these and I have a lot of stock paragraphs that deal with legal principles.

I choose the paragraphs that are pertinent to the particular declaration, particular IPR.

Then I put those in my draft. And

when counsel reviews the draft they would inform me of any changes that are necessary.

Q. Okay.

A. So, they didn't actually feed this to me. I fed it to them and they vetted it.

Q. Okay. But, given that you are an attorney, you agree with the legal principles that are stated here in this section?

MR. ARGENTI: Objection, form.

THE WITNESS: Well, if you are asking me for a legal opinion, I will give it. It is my legal opinion that these are correct statements of the law.

MR. WILSON: Okay. Now, let's take a look at Tab 119, which is Exhibit 1011 which is Oborne.

(Whereupon, previously marked Exhibit 1011, Tab 119, first referral.)

THE WITNESS: I have it.

BY MR. WILSON:

Q. Okay. And you have reviewed Oborne,

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correct?

A. Yes.

Q. And, were you familiar with Oborne before you work on these IPRs?

A. I don't think so. I could probably check, but I haven't checked.

Q. Okay. Let's take a look at Figure 6A.

A. Yes. So, in my copy the figure is rotated. So, I will look at it on the screen.

Q. Okay. So, this figure shows the start of an example of a token-based purchase transaction, correct?

A. Yes.

Q. Okay. And this process starts with a user 601 providing purchase input 611 into a client 602.

Correct?

A. Yes.

Q. Okay. The purchase input -- sorry, let me strike that.

Okay. This purchase input is

entered into the client indicating that the user wants to purchase the product, correct?

A. Yes.

Q. And there are a number of ways that this purchase input can be entered into the client, correct?

A. Yes. Well, we -- when you say the client, I think you mean the client device, right?

They call it the client. It is in quotes in 602.

But, client is a confusing word because it can often refer to a human being. So, I'm going to call it the client device.

Q. Okay. Sure. Yes. There are a number of ways that the purchase input could be entered into the client device, correct?

A. Yes.

Q. For example, a user could use a mouse attached to the client device and click on a link for the product. Correct?

A. Yes.

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Q. Alternatively, a user could swipe their credit card through the client device to give the client device the user's credit card information, correct?

A. Yes. So, I want to find the portion of Oborne where this is all described.

Because what you are talking about, of course, in the real world is completely reasonable. What I am trying to do is tie it to disclosures of Oborne.

Q. Okay. Take a look at Paragraph 49 of Oborne.

A. Okay. I am there. It is actually really useful for me to have the figure up on the screen. Otherwise, I'm going to have to modify my PDF.

MR. WILSON: Yes. No, that is fine. Dan, we can keep the figure up.

THE WITNESS: I am happy to do it. It would take 15 seconds, but I haven't done it.

BY MR. WILSON:

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Q. Okay.

A. Let me explain. So, when I was preparing the declaration, of course the IPRs had not been filed yet.

So, I had copies of the patents and the references which I obtained from Free Patents dot com.

And so there I had rotated the figures properly when I was preparing my declaration.

The documents that I am looking at now are the ones that were literally cleanly downloaded from the PTAB website.

And the ones, the copies on the PTAB website have these diagrams rotated. As you can see in the header, instead of being on the top of the page is on the right-hand side. So, it has been rotated.

Q. Right. Yes. Okay.

So, back to my previous question.

A user could swipe their credit card through the client device to give the client

device the user's credit card information.

And that would be purchase input 611, correct?

A. Yes. Typically purchase input will include what you want to buy and how you intend to pay for it.

Q. Okay. And according to Paragraph 49, purchase input 611 could also be voice commands, correct?

A. Yes.

Q. And, according to Paragraph 49, purchase input 611 could also be activating an RFID/NFC enabled hardware device, for example an electronic card having multiple accounts, smartphone, tablet, et cetera.

Correct?

A. Yes.

Q. Now, Oborne describes the input at purchase input 611 as indicating the user's desire to purchase the product. Correct?

A. It literally says that, yes.

Q. Now, Oborne says that the user input

may include but not be limited to keyboard entry. Correct?

A. Yes.

Q. Now, other than purchase input indicating the user's desire to purchase the product, Oborne does not say what specific information is entered via keyboard entry, correct?

A. I am looking. Well, in Paragraph 49, no. I am happy to look for occurrences of keyboard throughout the rest of Oborne.

Well, there is material in Paragraph 113 about a virtual keyboard, which would not be the physical keyboard that we are talking about.

In Paragraph 127, there is reference to a keyboard. There is reference to keyboards in 128, and also Paragraph 135.

So, with that, if you can repeat the question.

Q. Yes. Oborne does not say what

specific information is entered via keyboard entry other than purchase input indicating the user's desire to purchase the product. Correct?

A. Well, I don't think it is stated expressly. But I think a POSITA reading the paragraph would understand that, for example, the keyboard could be used for selecting product.

Because there is discussion of using a browser and using hyperlinks, for example, to select a product, in other paragraphs.

Q. Okay. So, after a keyboard entry, Oborne next mentions a card swipe, correct?

A. Yes.

Q. Now, Oborne does not say what specific information is entered via the card swipe, other than purchase input indicating the user's desire to purchase the product, correct?

A. That is what it literally says, although I have to go through and look for other occurrences of card swipe, because we are only talking about Paragraph 49.

But, I think a POSITA would

understand that the purpose of a card swipe is to convey payment credentials so the merchant could charge a credit card or other payment source.

So, for example, if you look at Paragraph 27, it extends from the left-hand side of Page 3 to the right-hand side of Page 3.

About, it looks like the 12th line down or so. "In some implementations such setting of default options may allow the user to initiate the purchase transaction via a single click, tap, swipe, and/or other remedial user input action, e.g., 205."

So, it seems clear that this swipe has to do with payment.

Q. And, sorry, where were you reading?

A. I was reading in Paragraph 27, but on the right-hand side of Page 3, I thought it was about the 12th line down, but maybe it was closer to the top. One, two, three -- six, seven --

It is the 10th line.

Q. Okay.

A. In some implementations, dot, dot, dot.

Q. Okay. There is nothing in Paragraph 49 that indicates that these default options are set in the examples listed in Paragraph 49, correct?

A. Well, no. It is, the information in Paragraph 27 is not repeated in Paragraph 49.

Q. Okay. So, back to my question which is: Oborne does not say what specific information is entered via the card swipe, other than purchase input indicating the user's desire to purchase the product, correct?

A. No, that is not correct, because we just read Paragraph 27, which talks about the card having payment credentials.

Q. And -- okay. But again Paragraph 49 doesn't say this default option is set in the card swipe example in Paragraph 49, correct?

A. It is literally not in Paragraph 49. It is elsewhere in the specification.

Q. Okay. But, in the line that you

read in Paragraph 27, it doesn't say that -- it says in some implementations.

Correct?

A. Yes.

Q. Okay. Which implementations are those?

A. It doesn't say in some embodiment. It says in some implementations.

And so it would be up to the person who is practicing the patent to decide whether to adopt these options or not.

Q. Okay. So, it is optional in Oborne?

MR. ARGENTI: Objection, form.

THE WITNESS: What is optional, the use of swiping a card? Yes, that would be optional.

BY MR. WILSON:

Q. Where --

A. The other way, it is a pain.

Q. Whether you set default options that may allow the user to initiate the purchase transaction via a single click, tap, swipe, or

other remedial user input action is optional in Oborne, correct?

A. Yes.

Q. Okay. Back to Paragraph 49.

A. Okay.

Q. Oborne mentions activating an RFID/NFC enabled hardware device as a purchase input, correct?

A. Yes.

Q. Okay. And Oborne does not say what specific information is entered via activating the RFID/NFC enabled hardware device other than purchase input indicating the user's desire to purchase the product, correct?

A. Well, not in Paragraph 49, but now we've got to go take a look for RFID/NFC elsewhere in the specification.

Paragraph 26 deals with it, about a little past halfway down.

"For example, the authentication chip and the card may communicate signals via Bluetooth, WiFi, RFID tags, cellular connectivity

(e.g., 3G 4G) and/or the like.

"Thus in order to make a purchase with the payment token, in some implementations, the user may be required to present the payment token physical card to the authentication chip disposed in communication with the client before the user can make a purchase order using the token."

So, that provides further explication of what goes on with the RFID tag.

Q. Okay. And what kind of physical card is being referenced here?

A. The card that is going to communicate with the RFID/NFC enabled hardware device.

Q. Okay. So, so, if you go up in the paragraph just a few lines and it says --

A. Sorry. Which paragraph?

Q. 26.

A. Okay.

Q. It says, "For example, the authentication chip may be configured to

recognize the user's payment token physical card when the card is in the vicinity of the authentication chip."

Correct?

A. I'm sorry. I'm sure you are right, but I would like to find where it is. Where were you reading from, Paragraph 26?

Q. Yes. It is just below the middle of Paragraph 26.

A. What are the first words of the sentence?

Q. For example.

A. Oh, yeah. That is what I read -- actually I read the sentence after that.

Q. Right.

A. Well look, we all know what we are talking about here.

You've got a credit card. The credit card has an RFID chip in it.

You bring it near -- this happens to have that, the card that I'm holding up.

You bring it near a reader at the

merchant and an NFC communication takes place in which your payment credential is communicated from the card to the merchant's reader.

That is how you make a payment.

Q. Now you are characterizing that as a NFC communication.

That is an RFID communication, correct?

A. RFID was an early version of NFC. RFID was used for a long time. And then folks in the industry thought that NFC was more descript.

So, it is very often you will see RFID/NFC. In fact, Oborne contains that in Paragraph 49.

Q. Okay. So, in your opinion RFID and NFC are the same thing?

A. No. RFID is a member of the set of NFCs. NFC is broader than RFID.

Q. Okay. So, everything that would be RFID would be an NFC communication in your opinion?

A. Yes.

Q. Okay. Okay. Let's look at Paragraph 53 of Oborne.

A. I am there.

Q. Okay. So the first sentence there says, "In various implementations the token server may be part of the merchant system (e.g., a merchant process), or part of the payment network (e.g., a pay network server), or an independent server operating in conjunction with the merchant, issuer, acquirer, and payment network."

Did I read that correctly?

A. Yes.

Q. So, the next line says -- or the next sentence says, sorry, "In general, it is to be understood that any entity and/or component included in the PPT may serve as a token arbitrator."

Did I read that correctly?

A. Yes.

Q. Okay. When Oborne says token arbitrator, it means the same thing as token

server, correct?

A. I haven't considered that. So, let's take a look at what Oborne actually says.

Q. Well, if it makes you more comfortable, you can look at your '531 declaration, Paragraph 232.

A. All right. We will see if it makes me more comfortable. 232?

Q. Yes.

A. I am there. But, I am looking around for the phrase "token arbitrator."

Q. Four lines down in Paragraph 232. "The system includes a token server also referred to as a token arbitrator."

Do you see that?

A. Oh. I now see the problem. I am looking at the wrong declaration. I was looking at --

Q. Oh, okay.

A. I was looking at the '854 declaration. Okay. 232?

Q. Yes. In the '531 declaration.

A. Okay. Yes. So, I am citing there to Paragraph 53 of Oborne.

Q. Right. But the first part of your fourth line down in Paragraph 232 says, "The system includes a token server also referred to as a token arbitrator."

Do you see that?

A. Yes, and I am assuming that in Paragraph 53, there is language that justifies that. I mean Paragraph 53 of Oborne.

Q. Yes. That is not my question. But, feel free to confirm that if you, if you would like.

A. Well, Paragraph 53 is talking about the token server essentially performing the token arbitration steps.

And so something that performs token arbitration steps would be the token arbitrator.

And that seems to be something -- I mean it seems to be, have the same meaning as token server in Paragraph 53.

Q. Right. Okay. So, in Paragraph 53,

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you would agree that the token arbitrator is the token server, correct?

A. Yes. The token server may do more things than that, but it performs the token arbitration function.

Q. Okay. Now, and you would agree that Paragraph 53 is talking about Oborne's Figure 6, correct?

A. Well, I think so. I can verify that. Yes, because the content begins in Paragraph 49 which begins with the words, "Figure 6A-E show," dot, dot, dot.

Q. Okay.

A. And there is no new figure introduced between Paragraph 49 and Paragraph 53. So, yes.

Q. Okay. And since we have Fig 6A up here on the screen already, Figure 6A you would agree is showing the PPT, correct?

A. Yes.

Q. Okay. So, every component in Figure 6A is part of the PPT, correct?

A. Well, I would think so. But let me verify that.

See, the reason I pause is that user 601 is shown as a human being. And, you know, it is, it is difficult to consider the human being as part of a system.

Q. Okay. So, excluding the user 601, every component shown in Figure 6A is part of the PPT, correct?

A. I think so. I don't know.

Q. Okay. So, just let's clarify for a second.

So, the token server, the merchant server, the token database, the merchant database, the client device are all components of the PPT, correct?

A. Well, so when you say the PPT, the slight problem is that in Paragraph 22, Oborne defines the phrase -- defines what PPT means.

And it means payment privacy tokenization apparatuses, methods and systems. All of that is PPT.

Then, there is this phrase, PPT components, which are going to be performing various steps of the PPT methods.

Q. Okay.

A. So, we have already excluded the human as not being part of the PPT. I would have to look over everything else in there to decide whether there is -- there might be something that isn't part of the PPT.

Q. Okay. Let's go back to Paragraph 53 for a second. And let me ask you, when it says, "any entity and/or component included in the PPT may so serve as a token arbitrator," what PPT is it referring to?

A. So, in general what is going to happen is that there is going to be an implementation. So, that is what is referred to in the first sentence of Paragraph 53. It says, "in various implementations."

Then the components of the implementation that are performing the methods of, the PPT methods that are described in the

specification, you could refer to that as the PPT, although that is not exactly what Oborne does.

Oborne is a little bit fuzzy about this, because it talks about the PPT, but it defines the PPT to include apparatuses, systems and methods.

So, the user, we have already agreed is not part of the PPT. And I just have to figure out from this what else might not be part of the PPT.

PPT is the implementation that has been built in order to effectuate the methods described in the patent.

Q. So, let me ask you this, looking at Figure 6A.

Do you think the client device can serve as the token arbitrator?

A. Do I think it could? So, the statement that you read from Paragraph 53, it says, "In general, it is to be understood that any entity and/or component included in the PPT

may serve as a token arbitrator."

So, following that instruction, a POSITA who is implementing the process might be able to figure out a way for the client device to be a token arbitrator. It normally isn't, but that doesn't mean it would be impossible.

And the client device, for example, could be connected to a token server in the back office of the merchant, for example. Now, if the client device is simply a keyboard and display, I don't see how that could be a token arbitrator.

On the other hand, if it is a full computer, it is a PC, it could. It would be unusual to do that, but Oborne teaches it.

Q. Okay. Now I want to take a look at -- I'm not sure how best to do this, but I want to look at Figures 4, 5, 6, and 7.

But, let's start with Oborne's Figure 4.

A. All right. To do this, let me get a different copy of Oborne, not the one that was sent to the PTAB but the one that I was working

from.

That way I'm going to have all of the drawings with the right orientation.

Okay. I have them. So, which one are we starting with?

Q. Figure 4.

A. Figure 4. Yes. Figure 4, similar to Figure 6, not identical.

Q. Okay. So, Figure 4, and if it helps you at all, I am literally just asking this question out of Paragraph 9 of Oborne.

So if you want to follow along, the words that I'm reading are right out of the paragraph. But, I just want to confirm, Oborne's Figure 4 is, "A data flow diagram illustrating an example procedure to enroll in a token-based purchase payment program in some embodiments of the PPT."

Correct?

A. Yes.

Q. Okay. Figure 5, and this is coming out of Paragraph 10, Oborne's Figure 5 is, "A

logic flow diagram illustrating example aspects of enrolling in a token-based purchase payment program in some embodiments of the PPT, for example a Token-Based Purchase Enrollment component 500."

Correct?

A. Substantially. You changed a few words. But you didn't change the meaning.

Q. Okay. So, now let's look at Figure 6A through E. This is coming from Paragraph 11.

"Oborne's Figure 6A through E shows data flow diagrams illustrating an example procedure to execute a token-based purchase transaction in some embodiments of the PPT."

Correct?

A. Yes.

Q. And, next paragraph, Paragraph 12. "Oborne's Figure 7A through F show logic flow diagrams illustrating example aspects of executing a token-based purchase transaction in some embodiments of the PPT, for example, a Token-Based Purchase Transaction Execution,

component 700." Correct?

A. Yes.

Q. Okay. So, Figures 4 and 5 relate to enrolling in a token-based purchase payment program, correct?

A. Yes.

Q. And Figure 6 and 7 relate to carrying out token-based purchase transactions, correct?

A. Yes.

Q. Okay. In your opinion, do Figures 4 and 5 represent the same embodiment in Oborne?

A. Well, the same embodiment of what? Because there is an enrollment phase, followed by an actual execution phase where you are actually buying something.

Q. Well, Figure 4 and 5 both relate to the enrollment phase, correct?

A. Yes.

Q. So, do Figures 4 and 5 both represent the same embodiment of the PPT in Oborne?

A. Oh, I'm sorry. 4, do you mean does 4 --

We are just looking at 4 and 5, not 6 and 7?

Q. Yes.

A. 4 and 5. Let's see.

Well, I think that Figure 5 is a flow chart that is showing the steps that are performed by the apparatus in Figure 4.

Q. Okay. So, in your opinion, they are the same embodiment?

A. Well, when you say the same embodiment, they are -- they may be the same overall embodiment. But there may be options to change the way certain steps occur.

Q. Do they represent the same algorithm?

A. Well, as I said, I think the flow chart in Figure 5 is explaining the steps that are performed by the apparatus that is disclosed in Figure 4.

Q. Okay. In your opinion, do Figures 6

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and 7 represent the same embodiment of the PPT in Oborne?

MR. ARGENTI: Objection, form.

THE WITNESS: So, when you say the same embodiment -- so, there are various options.

For example, we already talked about this, the purchase input. The purchase input can be through various devices.

The steps that are performed in -- and I am going back to Figures 4 and 5 -- well, let's stay with 6 and 7. It is okay.

Okay. So, in Figure 6A, the input can be -- in one implementation, the input can be by a card swipe.

In another implementation, it can be by keyboard entry. Now, are those different embodiments or are they variations on the same embodiment?

If they are variations on the same embodiment, then yes, then I think Figure 7 is the same embodiment as figures -- 7A is

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the same embodiment as 6A.

However, I can change the purchase input device without changing anything in Figure 7A.

And so, I'm not sure what you mean by the same embodiment, exactly.

BY MR. WILSON:

Q. Well, Figure 6A just says purchase input 611, correct?

It doesn't specify which methodology is used for the purchase of input 611, correct?

A. Yes, but Figure 6A is a template. And substitutions can be made for various of these devices. And if you are thinking of those as all of the same embodiment, then yes, Figure 7 is the same embodiment as Figure 6.

But, if they are not the same embodiment, then Figure 7 can cover more than one embodiment.

Q. Okay. So, in your opinion, do Figures 6 and 7 represent a continuation of the same embodiment reflected in Figures 4 and 5?

MR. ARGENTI: Objection, form.

THE WITNESS: When you talk about the same embodiment, I'm just not exactly sure what you mean.

So, the reason for this is there are two phases: There is the enrollment phase and the purchase phase.

I can imagine using one embodiment for the enrollment phase that would get us to the point where the user is carrying around a token.

And then a different embodiment for the actual reading and processing of the token.

So, these drawings are not identified as embodiments. They are described as, in some implementations you can do this.

And, I guess, we haven't nailed down what the difference is, if any, between embodiment and implementation.

BY MR. WILSON:

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Q. Okay. What do you think the difference is between embodiments and implementations, if any?

A. I don't know. I'm going to have to look at what Oborne says about it. In particular, I'm going to look for embodiment.

So, going back to the paragraphs that we read earlier, actually beginning at Paragraph 6 of Oborne.

That one says, "Figs 1A-B show block diagrams illustrating example aspects of payment tokenization in some embodiments of the PPT."

And so, it is not one embodiment. It is in some embodiments of the PPT.

And, likewise, Paragraph 9. "Figure 4 shows a data flow diagram illustrating an example procedure to enroll in a token-based purchase payment program in some embodiments of the PPT."

And then the next paragraph, Figure 10 it uses the phrase "some embodiments."

Then 11, describing Figure 6A

through E, it is "some embodiments."

And 7F -- 7A through F in Paragraph 12, "some embodiments."

And so these are overall diagrams intended to educate the POSITA as to what he needs to do to make implementations of the invention.

It is not saying that this is one embodiment and that is one embodiment. It is an overall description of some of a collection of embodiments.

Q. Okay. So, you would agree that each of Figures 4 through 7 represent multiple embodiments?

A. I think that is accurate, yes.

Q. Okay. Okay.

MR. WILSON: Dan, we can drop those figures now.

BY MR. WILSON:

Q. Dr. Shamos, you are familiar with Cortex's '531, '854, '859 and '973 patents, correct?

A. Yes.

Q. And you are familiar with the terms used in the claims, such as an OVER engine, an OVER file client storage device for the user and an OVER file third party client verifying device. Correct?

A. When you ask if I am familiar with those terms, I am certainly familiar with the terms.

If you are asking have I defined those terms, that would be a different question, but I'm certainly familiar with them.

Q. Okay. And it is your opinion that each of these limitations are disclosed by Oborne, correct?

A. Wait a second. You just asked me about terms. And then your immediately following question was about limitations.

So, what are you talking about?

Q. Okay. I am talking about --

A. The limitation is a component of a claim.

Q. Okay. So, you are familiar with the fact that OVER engine, for example, appears in a claim?

A. Yes.

Q. Okay. OVER engine is a limitation of the claims, correct?

A. It is an element of the claim.

Q. Okay. We can use your terminology.

The OVER file client storage device of the user is an element of a claim, correct?

A. Yes.

Q. And the OVER file third party client verifying device is an element of a claim, correct?

A. Yes.

Q. And it is your opinion that Oborne discloses each of these elements of the claims, correct?

A. Yes. Under Cortex's interpretation of the claims.

Q. Okay. So, I want to switch to your 488 declaration -- or sorry, your '854

Patent declaration.

MR. WILSON: And, Dan, that is 116.

THE WITNESS: Okay.

MR. WILSON: Oops, sorry -- my mistake, Dan. That is Tab 107.

BY MR. WILSON:

Q. Okay. So, this is your '854 Patent declaration in the 488 IPR.

And let's take a look at Paragraph 221.

Yes. Now, here you say that, "The PPT apparatus supports the use of tokens for transactions, corresponding to the recited OVER file."

Did I read that correctly?

A. Yes.

Q. Okay. When you say tokens for transactions, what do you mean?

A. Okay. Let's see. So, token is a term that appears in Oborne more than 300 times.

So, let's go look at all of the cases -- or at least the first few to see what

Oborne means by token.

Q. Well, it may help you and it may not, I don't know, to look at Paragraph 223, just a couple of paragraphs down in your declaration.

A. Okay. I will take your suggestion.

Q. Just that first sentence there.

A. Well, I'm mapping token to the OVER file. But, I don't see -- okay. So, I think the next page is more elucidating.

Q. Okay.

A. Where it says, "As depicted in Fig 1B below, the token is a virtual representation of a credential such as a credit card."

Q. Okay. So, again, so, I thought from that first sentence you say the data structure for a token, parentheses, OVER file.

So you are not saying that the data structure for a token is the OVER file, correct?

A. Well, I think the OVER file contains the data structure. But it talks about -- it says, "The token server uses these stored values

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to generate a data record and a data structure for a token."

Q. So, in that sentence, when you put the parentheses, OVER file, after token, are you saying the data structure for a token is the OVER file.

Or are you saying just the token is an OVER file?

A. Oh, the token is the OVER file.

Q. Okay. So, again, then, maybe we need to go back to Oborne.

But what do you mean by token?

A. Well, here what I mean by token is what Oborne means by token. This is the thing that is going to be processed by the token server. It is going to be issued to the, to the user during enrollment, et cetera.

Q. Okay. You are saying the high level concept of a token?

A. Well, the token is a high level concept, but there is specific implementations of tokens that are described in Oborne.

Q. Right. But yeah, I'm trying to figure out exactly what you mean by token.

You know, when you say here that the OVER file is a token, what specifically are you referring to in Oborne that constitutes an OVER file?

A. The token of Oborne is the OVER file.

Q. Okay. If we look at Figure 1B, which you've got there on Page 93 of your declaration, all that is shown there are tokens, like token 101B with the number.

A. Hang on a second. Yeah, I think the number that is below there is intended to represent the contents of the token.

Q. Okay. When you say the contents of the token, you are distinguishing token from the number that is there.

Are you saying the number that is there is the token, and thus the OVER file?

A. I'm not sure that in Figure 1B, the number is the entire contents of the token. It

may be. It may not be.

Q. So, okay. So, what you are saying, I think, is that the token that is the OVER file in Figure 1B is that number and may be other things but may be only that number?

A. Yes.

Q. Okay. Now, going back to the beginning of Paragraph 223, you say the "data structure for a token, (OVER file) as well as a token identifier representing the token." Correct?

A. Yes.

Q. So, you are distinguishing the token identifier from the token, correct?

A. So, the token identifier is typically a character string. The character string may be included in the token itself and also may be stored in a data record at the token server.

In fact, normally it would be, so that the token server can properly identify a token that it issued when that token is presented

to it.

So, a good example, I think, is on Page 9 of Oborne.

So, here is this XML data structure. This is a token data structure. And, there is a tag on the second line called token.

And then under that there is another tag that says unique ID. And there is a number that is the -- well, it is a -- it is a character string. It is a character string that is the unique ID of this token.

So, the token ID can be in the token and also can be stored elsewhere, for example in the token server.

Otherwise the token server would not have a way of recognizing that it issued this token.

Q. Okay. So, looking at Figure 1B there, what are the numbers that are shown under each token?

A. I don't know. It is some, it is some numerical string that is intended to

represent the token. I don't know. I would have to go look at Oborne to see its description of Figure 1B to see what explanation it gives.

Q. Okay. So, that is not a token identifier?

A. I don't know. Let's look. Let's see what Oborne says about it.

Well, there is a long explanation in Paragraph 25 about what is going on in Figure 1B.

Around the 10th or 11th line. "For example, the user may be able to pass a token, e.g., 101B, 102B, 103B, 104B, to a merchant instead of complete card information, cash, or account information."

And then there is a description of Figs 9A through 14B about what happens with that token.

I don't think that Figure 1B is intended to show the entire contents of the token. In fact, I mean Oborne doesn't say the entire contents of the token are shown in Figure 1B.

Q. Okay. But my question really was whether the number that is shown in Figure 1B under each token is a token identifier.

A. Well, I'm going to look to see if Oborne says that. I'm looking for token identifier.

So, the first occurrence token identifier is in Paragraph 47. About the middle of it, it says, "For example, the token server may generate a unique and resolvable token identifier irrespective of the token requesting channel," dot, dot, dot.

"Token server keeps track of all generated tokens via token identifiers. And as each is created, subsequent requests for creation of a token with the same token identifier will be denied."

Of course it has to be denied or the token identifier would not be unique.

So, I don't think there is a statement that the -- what is going on in Figure 1B are the token identifiers. It might be

rational to consider them that way.

My position is that I don't think Figure 1B is intended to show the entire contents of the token.

Q. Okay. Let's take a look at Oborne Paragraph 50.

A. Okay. Yes. I am there.

Q. Okay. And you look down at the bottom of the page -- or at the bottom of that column, you see, "Below is an example HTTPS get message including an XML formatted purchase order message for the merchant server."

Do you see that?

A. Yes.

Q. If you look down at the last line on that same page, do you see the reference to a token ID?

A. Yes.

Q. Okay. That token ID there looks just like the last one in Figure 1B. Right? Token 104A, correct?

A. Good call. You are right.

Q. Okay. So, you agree that the numbers in Figure 1B under each token are a token ID, correct?

A. Probably.

Q. Okay. Okay. So, let's go back to the question I started with which is, when we are talking about a token in Oborne and your opinion that the token constitutes an OVER file, your opinion is that the OVER file in Oborne is the token with all of its contents, whatever they might be, correct?

A. Yes.

Q. Okay. That includes at least the token identifier and maybe more. Correct?

A. Well, it certainly can include a identifier, a token identifier, and can include more.

What I'm wrestling with is whether it has to include the token identifier. It probably does. But I would have to look around at Oborne to see if that is an essential component of the token.

Q. Well, you just read in Paragraph 47 how Oborne uses the token identifier to distinguish tokens, correct?

A. Yes.

Q. So, doesn't it have to have a token identifier?

A. It certainly is logical that it would have a token identifier. I'm trying to figure out is whether it is absolutely required.

I can put it another way. I don't think there is a disclosure of Oborne of a token that doesn't have one.

I also don't think that there is -- I don't recall a positive statement that it has to.

There has to be a token identifier associated with it, that is true. And that is going to get stored in the token server.

It would makes sense to also have it in the token, but I'm looking around for a statement that that is required.

MR. WILSON: Okay. So, we have been

going I guess a little over an hour. I'm happy to stop and take a break here or we can keep going. It is up to you.

THE WITNESS: Five minutes would be plenty for me. I just have to get another Diet Coke.

MR. WILSON: Okay, sure. Let's go off the record.

THE VIDEOGRAPHER: All right. The time is 10:07 a.m. We are going off the record.

(Recess taken -- 10:07 a.m.)

(After recess -- 10:14 a.m.)

THE VIDEOGRAPHER: The time is 10:14 a.m. and we are back on the record.

BY MR. WILSON:

Q. Okay. Now, let's go back to your declaration.

A. Which one?

Q. The '854 declaration. Okay. And I want to look at Paragraph 218.

That is on page, PDF Page 92.

A. I am there.

Q. Okay. And that first line there you say, "Oborne teaches an OVER engine, in the form of a payment privacy tokenization apparatus or PPT apparatus."

Correct?

A. Yes.

Q. Okay. And so, in the next sentence you say, "The system includes a token server, also referred to as a token arbitrator, that may be any entity involved in the PPT such as part of the payment network (e.g., a pay network server)."

Did I read that correctly?

A. Yes. That is from Oborne.

Q. Okay. And when you say the system in that sentence, you mean the PPT apparatus, correct?

A. Yes.

Q. Okay. And Oborne's PPT apparatus includes a token server and a number of other entities, such as a payment network, correct?

A. Well, yes. But it also says that the token server can be part of the payment network.

Q. Right. Okay. So, just to clarify here, you are not saying that Oborne's token server is by itself an OVER engine, are you?

A. So, I guess there is a difference between what I said or didn't say and what I actually believe.

So, I don't think I have a statement that says that the token server is the OVER engine.

Q. Right. I, I think what you are saying, and correct me if I'm wrong, is that Oborne's token server is part of Oborne's PPT apparatus, the PPT apparatus being the OVER engine.

A. Yes, so, the PPT apparatus does a lot of stuff, not all of which are functions of the OVER engine.

So, the OVER engine is a subset of the PPT apparatus.

Q. Okay. And the OVER engine includes the token server but is not exclusively the token server?

A. I don't see a statement in Oborne that says it is exclusively confined to the token server.

Q. Okay. Now, in Paragraph 219, you have Figure 4 depicted there, right?

A. Yes.

Q. And you said, "Oborne depicts the general arrangement of customers, parties and the pay network server (which can include the PPT apparatus)."

Correct?

A. Yes.

Q. Okay. Are you saying that the pay network server can include the PPT apparatus?

A. I am actually looking in Figure 4 for the pay network server, and I am not instantaneously seeing it in Figure 4.

So, let's take a look at some other figures.

Yes. So, Figure 4 does say pay network server. It is under token server. Right?

It says, "e.g., merchant processor, pay network server, independent arbitration server, et cetera."

So, it is identifying that the token server can be part of the pay network server, can be the pay network server.

Q. Okay. So, again my question is, in Paragraph 219, are you saying that the pay network server can include the PPT apparatus?

A. No, I think it is the general arrangement can include the PPT apparatus.

Q. Okay. The general arrangement is part of the PPT apparatus, correct?

A. Well, sort of. As we have discussed, the human user is not part of it.

Q. Okay. Yeah. Sorry, let me correct that.

So, excluding the user 401, what is depicted in Figure 4 is the PPT apparatus,

correct?

A. Probably. I mean, I said I would have to look over every element of it to see if there is anything that needs to be excluded from it.

I'm not seeing anything instantaneously.

Q. Okay. Now, earlier we talked about Oborne -- your opinion that Oborne's token server is a part of the OVER engine but maybe not the whole of the OVER engine.

So, what else in the PPT apparatus would be included in Oborne's OVER engine in your opinion?

A. Oh, so, we have to look at the claims to see what steps are performed by the OVER engine.

Because -- so, the OVER engine does many things. One of the thing is it generates token and another thing it verifies token.

And so we have to go look at the functions recited for the OVER engine. And then

I can point to which components of the PPT apparatus perform that.

Q. Okay. And well, if it needs to generate tokens and then verify the tokens, which components would be included?

A. Well the components in Figure 4 are part of the generation. And then the components in Figure 6 are part of the verification.

And there may be more things that the OVER engine has to do. We can look at them individually, claim by claim.

Q. Okay. So, when you say then the components in Figure 6 are part of the verification --

A. They are used during the verification process.

Q. Okay. Are you saying all of the components in Figure 6 are then part of the OVER engine?

A. You mean did I say that in my declaration or am I saying that now?

Q. Yes. Are you saying that now? I

don't think you said that in your declaration. Maybe I'm wrong.

But, I'm just trying to figure out what constitutes the OVER engine.

A. Yeah, and so we have another problem which is that down on the right-hand side of Figure 6A, there is a little flag that says 6C.

So, 6C is included in Figure 6A.

Q. Yeah, I mean, I think you will find cross-references all of the way from Figure 6A through 6E.

So, yeah, when I say Figure 6, I mean 6A through 6E.

A. Yes, all of it.

So, looking at it sitting here, I'm not seeing anything other than the user that is not part of the PPT apparatus.

Q. Okay. In Figure 6, you are saying?

A. Figure 6 and I think also Figure 4.

Q. Okay. So, my question though is a little different. And that is what in Figure 6 constitutes the OVER engine, if the OVER engine

has to both generate and verify token?

A. Well, I can't tell because it depends on the implementation.

So, what it says is, for example, that the token server could be the client device. It could be the merchant server.

So, this is a general overall diagram that varies by implementation.

And so in a particular implementation, we would have to find those components that are performing the steps required of the OVER engine. And that is what would constitute the OVER engine.

Q. Okay. So it may vary by claim, then?

A. Not just by claim. It may vary by implementation.

Q. Okay.

A. I don't think it varies by claim. I think, I think what we looked at is the totality of what the OVER engine has to do from all of the claims, that is the thing that is the OVER

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engine.

But it certainly can vary by implementation. It might vary by claim, actually.

Q. Okay. And, that is generally true across your '854, '859, and '973 and '531 declarations?

MR. ARGENTI: Objection, form.

THE WITNESS: Yes, when you say that, you mean the statement that I just made that it varies by implementation?

BY MR. WILSON:

Q. Yes.

A. Yes.

Q. Your opinion as to what constitutes the OVER engine doesn't change from, from one patent declaration to the next. Correct?

A. Well, it may. I mean, it depends on what claims are in the patent that that declaration applies to.

Q. But I thought you just said it wouldn't change depending on the claim.

A. And then later I corrected that and said it may change based on the claim.

Q. Okay. All right. Fair enough. Okay.

So, some components may come and go from what constitutes the OVER engine, depending on what the claim requires to be carried out by the OVER engine, correct?

A. Right.

Q. Okay. All right.

Now, back to your '854 declaration. And back to Paragraph 219 there.

And looking at the bottom of the page you say, "This system includes the OVER file verifying device (e.g., merchant point-of-sale device in communication with merchant server)."

Do you see that?

A. Yes.

Q. Okay. Okay. Now, you are saying that the claimed OVER file verifying device is met by the combination of the merchant's point-of-sale device and the merchant's server,

correct?

A. Okay. Let's take a look at the '854 claims to see what the verifying device has to do.

Okay, so, in Claim 1, Step 1.1, recites, "Accessing by an officially verifiable electronic representation OVER file verifying device.

"A first OVER file stored on a first OVER file client device." Okay.

So, that accessing step is performed by the OVER file verifying device. That accessing occurs at the client device there.

And the client device is -- I still have this problem with the word "client" because normally the user would be the client, but in Figure 4, in Figure 6 the user is not the client. The client device is operated by the merchant.

And so, the point-of-sale device, for example, is the one that is going to communicate with the -- that is interesting. Hang on a second.

Yes. So, the client device captures the OVER file from the user.

It then sends it to the merchant server so that it can be verified. Let's look -- we should be looking at Figure 6 instead of Figure 4.

Let me get to Figure 6. Yes. So, the client device is capturing the OVER file from the user -- or from the user's, from the user's device.

And then it sends it to the merchant server so that the token can be verified.

So, the merchant server is -- in some implementations, the merchant server is a part of the first client verifying device -- sorry, the OVER file verifying device.

Now let's look at other functions that have to be performed by it. Okay.

So, Step 1.2, "Transmitting by the OVER file verifying device to the OVER engine a first verifying request."

That is performed by the merchant

server. The merchant server is communicating with the token server in Figure 6.

Then Step 1.3, "Receiving by the OVER file verifying device a first authentication message, comprising a first indication of whether a first scan associated with the first OVER file on the first OVER file client device of the user corresponds to the information."

And so, I still have to be looking at Figure 6. And it is Figure 4 that is on the screen. So, let me look at that.

Yes. So, that transmission is occurring from the token server to the client device. And so the token server is part of the, the OVER file verifying device.

Because that is what receives it. That is what receives the authentication message.

Q. Okay. But in Paragraph 219 of your declaration here you say that the over FILE verifying device is the merchant point-of-sale device in communication with the merchant server. Correct?

A. Yes.

Q. But now you are saying the token server is also part of the OVER file verifying device?

A. Yes, but everything depends on implementation. These devices can be combined. The token server can be part of the merchant server. It all depends on the implementation.

Q. Okay. So, for Claim 1 of the '854 patent, in your opinion, the token server is also part of the OVER file verifying device?

A. If the components are separate, as shown in Figure 6, then yes. They don't have to be separate.

And where I get this from is, if you look at, if you look at Figure 6, there is an arrow 8 from the merchant server to the token server, but there is no arrow back to the merchant server.

And so the token server, the authentication confirmation is shown as arrow 12, which is going from the token server to the

client device.

So, the token server is performing -- at least in this configuration, the token server is performing one of the steps required of the OVER file verifying device.

Q. Okay. But, in your scenario, in which Oborne satisfies these claims, the token server is run by the issuer, correct?

A. Yes.

Q. Okay. So, the token server is not part of the merchant server, correct?

A. That sounds correct, yes.

Q. Okay. So, you would agree, then, that some components of what is required by the OVER file verifying device in Claim 1 of the '854 patent are not satisfied by the merchant point-of-sale device in communication with the merchant server alone, correct?

A. Just give me the beginning part of that question?

Q. You would agree that in Claim 1 -- in your opinion regarding Claim 1 of the '854

patent being disclosed or rendered obvious in view of Oborne, at least some of the requirements of the OVER file verifying device are not performed by the merchant point-of-sale device in communication with the merchant server, correct?

MR. ARGENTI: Objection to form.

THE WITNESS: No, I'm not agreeing with that.

BY MR. WILSON:

Q. Okay.

A. So, I think we already talked about there being different possible implementations. And there are different configurations.

And the question is what does Oborne disclose.

And Oborne discloses that the token server and the merchant server can be the same, in which case the two of them are communicating with the client device.

And so in that implementation, Oborne discloses Claim 1.

Q. Okay. But, that is not the

implementation you relied on, correct?

A. Well, I'm not sure. Let's take a look.

Well, I am looking at my declaration, and I'm trying to see where I rely on something on some other configuration than that.

Q. Okay. Let's look at Paragraph 218. Let's pull the paragraph up.

A. Yes.

Q. About the middle of the paragraph there, starting on the right-hand side after the cite to Paragraph 53, it says, "Oborne states that the source of the token may be the issuer, a funding source for the user's account."

Correct?

A. Yes. And then I later say that, "Alternatively, token administrator may be different from funding source."

Let's put it this way, there is always a verifying device, otherwise you could not engage in a payment transaction.

Q. Okay. So, just to be clear, after Paragraph 218, are you relying on the source of the token being the issuer, or not?

A. Sorry. You mean after Paragraph 218 or in Paragraph 218?

Q. In Paragraph 218.

A. Well, Oborne is disclosing that it is possible for the source of the token to be the issuer. That it is also possible for it not to be the issuer.

It says alternate -- in the second to the last line of Page 88, "Alternatively, token administrator may be different from funding source."

So, Oborne is disclosing many possibilities.

Q. Agreed that there are many possibilities disclosed in Oborne.

I'm asking you which of the possibilities are you relying on.

A. For what?

Q. For the token server. Is it run by

the issuer, or not?

A. It can be run by the issuer.

Q. So, you were relying -- you were relying, you are saying, on it being run by the issuer or not being run by the issuer, or both?

A. We have to look at a different paragraph for the reliance.

218 is a statement of what Oborne teaches. We will have to look later to see what I rely on.

I'm looking down at the subsequent paragraphs.

So, in Paragraph 224, just talking about verified by the issuing agency. Oborne discloses that the issuing agency can also perform verification, because the issuing agency can also be -- provide the token server.

Q. Right. And the last sentence in Paragraph 224 you say, "By generating the token and providing it to the user to represent the credential it has issued, the issuer would be verifying it to be an official representation of

the credential." Correct?

A. That's right.

Q. So, you were relying on the issuer being the token server, or running the token server, correct?

A. Well, when you say relying. So, I have many arguments in these different paragraphs.

I am not taking there to be a pending question.

Q. Okay. Well, so, yes, let me just ask a clarifying question then.

In your opinion for Oborne to meet or disclose or render obvious the requirements of the claims of the '854 patent, does the issuer have to run the token server?

A. I don't think that I have offered that opinion. It is certainly -- if the issuer runs the token server, then the limitations of Claim 1 are met in '854.

Q. Okay. What about if the issuer doesn't run the token server?

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A. I'm not sure I have considered that. So, you want me to --

Q. So, the only scenario in which, in your opinion, Oborne renders obvious the claims of the '854 patent is the scenario in which the issuer runs the token server, correct?

MR. ARGENTI: Objection, form.

THE WITNESS: I don't think I have posited a different configuration.

BY MR. WILSON:

Q. Okay.

A. I'm not saying that this is the only way in which it would be rendered obvious.

I'm saying this is one way in which it would be rendered obvious.

Q. Okay. So now, back to Claim 2 -- or Paragraph 218 -- sorry, 219 -- actually strike that. Never mind.

Okay. Yeah, back to Paragraph 219. Bottom of the page there, you refer to, "the first OVER file client device (user device, such as a card or mobile device communicating with the

verifying device)."

Correct?

A. Yes. So, so I think there is a distinction between client device, as the way it is used in the figures, and OVER file clients device. So, let me verify that.

You know, it is not Oborne I should be looking at. It is the '854.

Very confusing, because there is a client device in Oborne and there is an OVER file client device in the patents which are different. Yes.

So, in '854, the truth is the term "OVER file client device" only appears in the claims.

But, I am looking at the figures. Yeah. The word "client" is used differently in Oborne than it is in the patents. In the patents the user who has the token, is the client.

In Oborne, the client is this device that is offered by the merchant that the user can communicate with.

And so the OVER file client device in the claims is something that is held by the user. Something that is, has the OVER file on it.

So, with that, what is the question?

Q. Okay. So, when you referred to in Paragraph 219 a user device as satisfying the first OVER file client device, you are specifically referring to Oborne's disclosure of an RFID/NFC enabled hardware device, correct?

A. Well, that is one example. There are many other examples.

Could be a device capable of communicating by Bluetooth or WiFi, et cetera.

Q. Okay. Okay. Now, let's turn to Paragraph 231 of your declaration.

Okay. Paragraph 231, three lines down you say, "This NFC interaction triggers a tokenized purchase with the merchant via the third party client verifying device" --

A. Wait. Which deck are you in?

Q. The same one, the '854.

A. Okay, right.

Q. Do you have Paragraph 231?

A. Yes, I am there. You have read it correctly.

Q. All right. So, well, you see the sentence begins three lines down, "This NFC interaction triggers a tokenized purchase with the merchant"?

A. Yes, it does.

Q. Okay. All right. So, in this paragraph you provide two different theories of what in Oborne corresponds to the third -- the OVER file verifying device, correct?

And to be more specific, you are saying it is either the merchant server alone or it is the merchant server in conjunction with the merchant's point-of-sale device interacting with the user's device via NFC.

A. Yeah. So, recalling that the OVER file verifying device has to do certain things.

And in this claim step, it has to receive a first authentication message.

Now, if we go back to the drawings of Oborne, what is receiving the authentication message is the client device, point-of-sale terminal, for example.

Q. Okay. So, are you saying no, you are only offering one theory that it has to include the merchant's point-of-sale device?

A. It has to receive -- getting back to Figure 6A, yes. It has to receive a first authentication message comprising a first indication of whether a first scan associated with the first OVER file dot, dot, dot, corresponds to the information.

And if we look around in Figure 6 for where the authentication message is received, the authentication message is received at the client device.

It is arrow 12, token authentication confirmation.

Q. Right. The client device 602 in Figure 6.

A. Yes. So, it has to include that,

because that is what is doing the receiving.

Q. Okay.

A. Well, let's take a look. There is always this tricky Figure 6C we have to look at.

Yeah, I think it is correct. Because it is the token server that knows what the contents of the token are and whether it issued the token.

Q. Okay. Let's take a look at your '531 declaration for a second.

MR. WILSON: And, Dan, that is going to be Tab 105. And let's look at Paragraph 244, which begins on PDF Page 107.

THE WITNESS: Uh-huh.

BY MR. WILSON:

Q. Okay. So, here you are referencing activating an RFID/NFC enabled hardware device which you contend is the OVER file client device -- OVER file storage client device of the user. Correct?

A. I'm sorry. Where are you reading from?

Q. I'm just looking at Paragraph 244, the second sentence.

A. Yes, it is a quotation from Oborne.

Q. Right. So, in this Paragraph 244, for Limitation 1.5, you are relying on the RFID/NFC enabled hardware device as the OVER file storage client device of the user, correct?

A. Yes.

Q. And you go on to say, "This NFC interaction triggers a tokenized purchase with the merchant via a third-party client verifying device (the merchant server, alone or in conjunction with the merchant's point-of-sale device interacting with the user's device via NFC)."

So, in this paragraph, are you again saying that the third-party client verifying device has to be the merchant server in conjunction with the merchant's point-of-sale device?

A. Well, again it is the same argument.

We have to look at what that

verifying device has to do. It performs various steps.

And we look at the elements that perform those steps, and that is the third party client verifying device.

Q. Okay. So, is it still optional that the third party client verifying device include the merchant's point-of-sale device?

Or does it need to be included? I mean Limitation 1.5 is right there.

A. Yes. So, I think what it says is, that the verifying request has to be received from an OVER file third-party client verifying device.

Now, I guess there is an issue whether "from" means from directly or whether through an intermediary.

But the original purchase request gets made through what Oborne calls the client device, and then it goes to the merchant server. And the merchant server is making a request for verification.

So it depends on the reading of "from." Ultimately, it is begun at the client device. It goes through the merchant server to the token server.

And so, depending on what the word "from" means, it is either the merchant server alone or the merchant server in conjunction with the client device.

But, we have to look at the other steps of the claim to see what else the third-party client verifying device has to do.

Q. Okay. Let's take a look -- let's go back to Oborne now, Exhibit 1011.

A. Uh-huh.

MR. WILSON: And that is Tab 119. And I want to look at paragraph -- well actually let's start with Figure 5.

So -- and Dan I think you are showing Figure 6A.

Can you go back to Figure 5? Yep. There you go.

BY MR. WILSON:

Q. Okay. So, if we look across the bottom. Do you see, do you see at the bottom of Figure 5 there, Step 517, "Provide token identifier to the client."

And then the "Client displays token identifier for the user," in Step 518?

Do you see that?

A. Yes.

Q. Okay. Now let's go to Paragraph 48. That is on PDF Page 55.

A. Uh-huh. Yes.

Q. Okay. So, about the precise middle of that paragraph, right after the Number 516, it says, "The token server may also provide a token identifier, e.g., 517, to the client."

Do you see that?

A. Yes.

Q. Okay. That is the step we just looked at, correct?

A. Yes.

Q. Okay. It goes on to say a "token may be provided as a data structure, via HTTP(S)

POST, as a file via file transport protocols, as an attachment (e.g., via e-mail), and/or otherwise provided to the client device for later use."

Did I read that correctly?

A. Yes.

Q. Okay. Now, in that sentence, it says the token may be provided as a data structure, et cetera.

What do you understand token to mean there?

A. It is what Oborne says token means.

Q. Okay. Is it the token identifier?

A. No. Token identifier is typically just a character string. The data structure is a lot more than that.

Q. Okay. Does it include the token identifier?

A. It may. It is -- we talked about this earlier. It is disclosed at Page 9.

We talked about this, that the -- after the token tag in that XML file, the next

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tag is unique ID, which I take to be the token ID.

Q. Okay. So, in your opinion, what is referenced in Paragraph 48, when it says the token may be provided as a data structure.

Is the data structure shown on Page 9 of, and following over to Page 10 of Oborne, correct?

A. Yes.

Q. Okay. Now go back to Paragraph 48.

A. Uh-huh.

Q. Okay. The last sentence says, "The client may store the token identifier and/or display the token identifier for the user, e.g., 518."

Correct?

A. Yes.

Q. Okay. And that is the step we just looked at in Figure 5, correct?

A. Well, we looked at 517. But, yes.

Q. And we looked at 518, correct?

A. I'm going back and looking at 518.

Well, what is shown in Figure 5 is partially -- is a part of what is disclosed in Paragraph 48, because it doesn't describe storing in Figure 5.

Q. Okay. But it does describe the client displays token identifier for user, correct?

A. Yes.

Q. And in Paragraph 48, it says the client may store the token identifier and/or display the token identifier for the user 518, correct?

A. Yes.

Q. Okay. So, now back to Paragraph 48.

What happens then to the rest of that data structure if only the token identifier is stored?

A. Well, it doesn't say that only the token identifier is stored. It says the client may store the token identifier.

So, this, for example, would cover the case in which the token itself does not have

an identifier inside it, but the token identifier is supplied separately.

Q. Okay. So, in your opinion, this reference to storing the token identifier means that the token identifier was sent separately from the data structure?

A. It doesn't have to be. But if it is, then it may be stored.

Q. Okay. But the data structure you just pointed to on Page 9 has a token identifier in it, correct?

A. Yes, but I don't know that it has to. So, the data structure in Page 9 is exemplary of a token.

I don't think, I don't think every field in the, in that XML file is required in the token.

Q. Okay. So, the data structure may look like the data structure on Page 9 or it may not.

A. That's right.

Q. Okay. Is there anything in Oborne

that tells you what must be included in the data structure referred to here in Paragraph 48?

A. Well, so I'm looking at the bottom of Paragraph 47, which is right before the exemplary XML file.

It says, "For example, the token server may generate a token data structure similar to the example XML encoded data structure below."

And so I'm looking around in Oborne, it would take me a while, to figure out if there is anything that he says that must be in the token. If there is any specific field that has to be there.

It has to be able to serve as a surrogate for a payment instrument, for example. So, there has to be some, there has to be some information in there. But I'm not sure what Oborne requires. It just teaches doing this.

You may do something similar to that, as it says. I mean it would depend on the purpose for which the token is being used.

Q. Okay. It is possible that the data structure referenced in Paragraph 48 has a token identifier in it. Correct?

A. Oh, sure. That is disclosed.

Q. Okay. And so, if it does, then the last sentence of Paragraph 48 refers to, essentially taking the token identifier out and storing it. Correct?

A. Well, I don't think it says taking it out. It says storing it. If it is in there, and it stores the whole token, it may pluck out the token identifier and store it separately for later use. As opposed to --

So, here is the example. Normally when you want to -- when you want to verify a token, you can use the token ID for that purpose. You don't have to send the entire token.

And so, for convenience, you might pluck the token identifier out of the token and store it separately as being associated with this transaction.

Or, if the token ID were not in the

token itself, you might store the token ID for exactly the same purpose.

Q. Okay. So, let's look back for a second at the Page 9, which is the token data structure.

A. Yes.

Q. Okay. Why would the server send back to a user device the accounts that are listed here, Accounts 1, 2, and 3?

A. Because the user may want it -- in making a particular transaction, the user may want to make a choice of which account he wanted to use to make the payment.

Q. Right. But that choice is already made in the token, correct? I mean it literally shows you here that the cost share is 65 percent for the bank account, it is 10 percent for this pre-funded account, and then it is 25 percent for this Bank C account. Correct?

A. Yeah, but I don't understand why the user couldn't use his Bank A account or his Bank C account.

Q. Well, this token that is shown on Page 9 already has a default percentage from each of these three accounts selected, correct?

A. Yes. So, as it turns out the account number in Bank A and the account number in Bank C are the same. It just seems a little bit strange.

Q. So, do you think that means those are the same account?

A. Probably not, because they are in different banks. I think the string 123456789 was just exemplary of an account number.

I don't think there is an intention that you have to have the same account number in every bank in which it has issued you a credit card.

MR. WILSON: Okay. Now let's look at Exhibit 1013, which is Tab 121.

THE WITNESS: Okay. Hang on, let me get there.

MR. ARGENTI: If we are switching to another exhibit, does it make sense to take a

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break?

MR. WILSON: Oh, sure. Yes, we can take a break.

MR. ARGENTI: It has been about an hour.

THE VIDEOGRAPHER: Okay. The time is 11:06 a.m., we are going off the record.

(Recess taken -- 11:06 a.m.)

(After recess -- 11:18 a.m.)

THE VIDEOGRAPHER: The time is 11:18 a.m. and we are back on the record.

(Whereupon, previously marked Exhibit 1013, Tab 121, first referral.)

BY MR. WILSON:

Q. Okay. Now, we were talking about Purves, Exhibit 1013.

And looking at the first page there of Purves, Purves teaches Methods and Systems For a Wallet Service Enrollment Platform, correct?

A. Yes.

Q. Okay. Now, let's look at Figure 22B

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of Purves.

A. I am there.

Q. Okay. This figure shows the different parties and components of the wallet account enrollment process, correct?

A. Generally, yes.

Q. Okay. There is a user 2212, with a client device 2225, correct?

A. Yes. Different from the client device of Oborne.

Q. Right. And, Purves also has a wallet server 2217 and an issuer server 2215. Correct?

A. Yes.

Q. Okay. Now let's go to Figure 23A. Okay.

Figures 23A and B show a logic flow diagram for Purves' wallet account enrollment process, correct?

A. Yes.

Q. Okay. On, Figure 23A, the user's client device connects to the wallet server and

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either logs into an existing virtual wallet or sets up a new virtual wallet, correct?

A. Yes.

Q. And after logging in or setting up a wallet, the wallet serves as a display of the add card button of the user's client device, correct?

A. So, what figure are we in?

Q. 23A.

A. Yes. Step 3314.

Q. All right. In Figure 23B, we start with the user clicking the add card button, correct?

A. Yes.

Q. Okay. Next, Purves' user either provides the wallet server with the information for the account being enrolled or authorizes the wallet server to retrieve the information from the issuer.

Correct?

A. Yes. So, there is a decision block 2317 where it sees whether consent has been retrieved or consent to retrieve card info from

the user has been given.

Q. Okay. So, after that decision block 2317, the wallet server requests a card image for the account being enrolled from a card image server. Correct?

A. I am just looking for card image server.

You mean from 2329?

Q. Yes. Do you see on the top right?

A. Over on the right, yes.

Q. Yes.

A. Uh-huh.

Q. Okay. So, my question is, is it correct that Purves' wallet server requests a card image for the account being enrolled from a card image server?

A. Yes.

Q. Okay. And do you know if the card image server is part of the issuer or is that a separate entity?

A. I am looking. So, when you say separate entity, do you mean a separate

organization or a separate device?

Q. Separate organization.

A. I doubt that it is a separate organization.

Q. Okay.

A. And the reason that I doubt that is that in order for it to generate a card image, it would have to be given all of the card information to generate an image of the card.

Q. Okay. So --

A. So, that would be a security problem. So, normally you wouldn't do it. Unless, I mean I suppose one could set up a trusted service that various banks would subscribe to.

But the way I understand this is there is certain information about your credit card that doesn't change, for example, the account number. The expiration date won't change until the card expires.

However, the card imagery, the logo of the bank, its color scheme, et cetera, that

may change.

And so you could have a separate card server that would give an up-to-date image of the card.

Even though there isn't a physical card, it would look as if it were a physical card.

Q. Okay. So, it is probably the same entity but may be a different server that is the, that is the card image server versus the issuer server; is that correct?

A. Yes, when I say that it may be a third party, I'm kind of dreaming that up. I'm looking at the disclosure of Purves, and saying, okay, who is going to run this card image server.

It certainly has to be somebody who is in privity with the bank or that the bank trusts. I mean, that seems certain.

The most secure way of doing it would be for the bank to operate that device. It is probably a separate device, because it is named separately. There is wallet server 2319

and there is card image server 2329.

So, they are probably physically separate devices.

Q. Okay. After the wallet server receives the card image, it displays the card image along with the account data on the user's client device.

Correct?

A. Yes.

Q. After that, the user clicks save on the client device and the wallet server registers the account in the user's virtual wallet, correct?

A. Yes.

Q. Okay. At this point, the wallet server has set up a virtual wallet for the user on the wallet server and received the account information and a card image, correct?

A. Yes.

Q. And the wallet server stores this account details and card image, correct?

A. Yes. I think it had better.

Q. Okay. So, the wallet server shows the account details and card image to the user's device at the end, step 2325. Correct?

A. Well, when you say at the end, it is not the end. But it does disclose the card image, display the card image to the user.

Q. Okay. But the wallet server does not store this information on the user's device. Correct?

A. So, as a general matter, the wallet server can't store something on somebody else's device. There can be an app or there can be an action taken by the user on his own device to store it.

Q. Okay. But nothing is disclosed here about storing the account details and card image on the user's device, correct?

MR. ARGENTI: Objection, form.

THE WITNESS: I am, when you say here, yes. It is not in figure -- it is not in Figure 23B.

BY MR. WILSON:

Q. Right.

A. But I am looking at the rest of Purves. There are 80 occurrences of store, so it will take a bit.

So, Paragraph 51 of Purves says, "Some embodiments of the WSEP may provide consumers facilities for easily and conveniently personalizing new prepaid accounts with their issuer using previously verified personal information stored in an online wallet, and expediting provisioning a prepaid account to a digital wallet.

"Once a prepaid card is connected with the wallet, the WSEP provides the consumer an easy to remember authentication tool to sign on to view and manage their prepaid account."

So, I think what you are asking is whether the information is permanently stored on the user device or whether the user simply can access it through the wallet server.

Is that the question?

Q. That is the question, yes.

A. Okay. Well, that is not disclosed in Paragraph 51. So, I'm going on. I am getting there.

Q. Okay. Take your time.

A. I'm not seeing a disclosure in Purves in which the material that is sent in 2025 is stored locally on the user's device.

Q. And by the material sent in 2025, you mean the account information and card image displayed in step 2325?

A. Right.

MR. WILSON: Okay. All right. We don't have any further questions.

MR. ARGENTI: In that case, why don't we take a short break and then maybe can we take ten minutes?

MR. WILSON: Sure.

THE VIDEOGRAPHER: Okay. The time is 11:31 a.m. We are going off the record.

(Recess taken -- 11:31 a.m.)

(After recess -- 11:42 a.m.)

THE VIDEOGRAPHER: The time

is 11:42 a.m. and we are back on the record.

MR. ARGENTI: No questions from me, Dr. Shamos. Thank you.

THE WITNESS: I would like to read and sign.

THE VIDEOGRAPHER: Okay. If there are no further statements for the record, we will be going off.

The time is 11:42 a.m. on September 25, 2024. We are going off the record completing today's video recorded session.

(Whereupon, signature not having been waived, the deposition suspended at 11:42 a.m.)

* * *

CERTIFICATE OF NOTARY

I, LORI J. GOODIN, RPR, CRR, CA CSR # 13959 the Notary for this deposition, do hereby certify that the witness whose testimony appears in the foregoing deposition was sworn by me; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and, further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, or financially or otherwise interested in the outcome of this action.

Lori J. Goodin

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My Commission expires: February 22, 2025

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My Commission expires: April 5, 2025

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Michael Ian Shamos, Ph.D., J.D., c/o
WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, California 94304

Case: Visa Inc. v. Cortex MCP, Inc.
Date of deposition: September 25, 2024
Deponent: Michael Ian Shamos, Ph.D., J.D.

Please be advised that the transcript in the above referenced matter is now complete and ready for signature. The deponent may come to this office to sign the transcript, a copy may be purchased for the witness to review and sign, or the deponent and/or counsel may waive the option of signing. Please advise us of the option selected. Please forward the errata sheet and the original signed signature page to counsel noticing the deposition, noting the applicable time period allowed for such by the governing Rules of Procedure. If you have any questions, please do not hesitate to call our office at (202)-232-0646.

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Witness Name: Michael Ian Shamos, Ph.D., J.D.
Deposition Date: September 25, 2024

I do hereby acknowledge that I have read and examined the foregoing pages of the transcript of my deposition and that:

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ERRATA SHEET

Case: Visa Inc. v. Cortex MCP, Inc.
Witness Name: Dr. Michael Ian Shamos, Ph.D., J.D.
Deposition Date: September 25, 2024

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Signature Date

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