

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

**APPLE INC.,
Petitioner,**

CERTIFIED COPY

v.

**FINTIV, INC.,
Patent Owner.**

**Case IPR2023-00399 (US Patent No. 9,208,488)
CM#52959.95R488**

VIDEOCONFERENCE DEPOSITION OF

MICHAEL I. SHAMOS, PH.D.

ON BEHALF OF

FINTIV, INC.

December 20, 2023

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7:00 a.m. - 9:25 a.m.

REPORTED BY:

Tamara L. Houston

CA CSR No. 7244, RPR, CCRR No. 140

Job Number 131165

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REMOTE VIDEOCONFERENCE DEPOSITION OF MICHAEL I.
SHAMOS, PH.D., taken on behalf of the Petitioner,
commencing from 7:00 a.m. to 9:25 a.m., Wednesday,
December 20, 2023, before Tamara L. Houston, CSR No.
7244, CCRR, RPR.

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1 Wednesday, December 20, 2023, 7:00 a.m.
2 --o0o--
3 Whereupon, MICHAEL I. SHAMOS, PH.D.
4 having been called as a witness was
5 duly sworn to tell the truth, the
6 whole truth, and nothing but the truth
7 testified as follows:
8 --o0o--
9 EXAMINATION BY MR. BOWSER:
10 Q. Good morning, Dr. Shamos.
11 A. Good morning.
12 Q. My name is -- sorry. Go ahead.
13 A. I was going to ask if both counsel have
14 introduced themselves.
15 Q. Well, my name is John Bowser, and I'm
16 counsel for Petitioner. I will be taking your
17 deposition today. With me are Eugene Goryunov and
18 Jordan Maucotel.
19 I will be asking you questions today about
20 your declaration, which is Exhibit 2003 in IPR
21 2023-0039.
22 Can you please state your full name for the
23 record?
24 A. Michael Ian, I-A-N, Shamos, S-H-A-M-O-S.
25 Q. Is there any reason why you would not be

1 able to answer my questions today fully, accurately,
2 and honestly?

3 A. No.

4 Q. Okay. Before we get started, let's get
5 some preliminary things out of the way, and I'll make
6 this quick because I know you've been deposed many
7 times. But just for the record, if I ask you a
8 question and you answer my question, is it fair to
9 assume that you understood my question?

10 A. It's fair to assume that I believe I
11 understood the question.

12 Q. Okay. If you later realize that you gave
13 me an improper or incomplete answer or you
14 misunderstood my question, will you let me know?

15 A. Yes.

16 Q. Okay. Your counsel may object to questions
17 throughout this deposition. Unless your counsel
18 instructs you not to answer a specific question, you
19 are required to answer my questions.

20 Is that understood?

21 A. Yes. It would be nice if my counsel would
22 introduce himself for the record.

23 MR. THEISS: I can do that. Brandon Theiss
24 from Volpe Koenig. I will be defending Dr. Shamos in
25 his deposition today.

1 BY MR. BOWSER:

2 Q. So, Dr. Shamos, I want to just state for
3 the record that you were deposed yesterday on the
4 basis of your declaration in IPR 2023-00398
5 involving -- sorry, I forgot the patent number --
6 U.S. patent number 10-438196; is that right?

7 A. Yes.

8 Q. Okay. And in yesterday's deposition, you
9 had a copy of the exhibits that were referenced in
10 your declaration; is that right?

11 A. Yeah. I have all of the relevant filings
12 in the PTAB proceeding.

13 Q. Okay. And are those clean versions?

14 A. Yes. I obtained them from the PTAB
15 website.

16 Q. Okay. So just for logistics, for the court
17 reporter's benefit, I am going to upload a few
18 documents into the chat, and I don't see an option
19 where I can upload here.

20 (Discussion held off the record.)

21 MR. BOWSER: Eugene, would you -- or,
22 Jordan, can you please email Exhibit 2001, which is
23 the 488 patent and email Exhibit 1005, which is the
24 Dill reference and Exhibit 2003, which is
25 Dr. Shamos's declaration.

1 MR. MAUCOTEL: Doing that right now.
2 MR. BOWSER: Okay.
3 BY MR. BOWSER:
4 Q. So Dr. Shamos, just for the record, what I
5 mentioned was Exhibit 1001, which is U.S. Patent
6 Number 92008488.
7 Do you have a copy of that document?
8 A. Yes, I do. I'm just quibbling with your
9 recitation of the number. It's 9208488. Not 2000 --
10 Q. Sorry. I misspoke. Thank you.
11 If I refer to that as the '488 patent, will
12 you understand that I am referring to Exhibit 1001?
13 A. Sure. You could just refer to it as "the
14 patent."
15 Q. And Exhibit 1005 is U.S. patent publication
16 number 2009/0265272 to Dill.
17 Do you have that document?
18 A. Yes, it's on my screen.
19 Q. And if I refer to "Dill," you'll understand
20 that I'm referring to Exhibit 1005?
21 A. Yes.
22 Q. And do you have a copy of your declaration,
23 which is Exhibit 2003?
24 A. It's on my screen.
25 Q. Okay. Will you please turn to page --

1 well, sorry, strike that.

2 Your declaration, which is Exhibit 2003,
3 addresses U.S. Patent Number 9208488, correct?

4 A. Yes.

5 Q. Okay. Can you please turn to page 34 of
6 your declaration.

7 A. I'm there.

8 Q. Okay. Sorry. Give me a second. I'm
9 getting there myself.

10 And is that your signature?

11 A. Yes.

12 Q. And did you sign the declaration on
13 October 13, 2023?

14 A. Yes.

15 Q. Okay. So we mentioned earlier about how
16 yesterday you were deposed in IPR 2022-00398 in
17 connection with the '196 patent, correct?

18 A. Yes.

19 Q. Okay. Are you aware that the '196 patent
20 is a continuation of the '488 patent that we're going
21 to be talking about today?

22 A. Yes.

23 Q. So I want to just let you know that
24 although there are similar issues, these are
25 different proceedings, so I apologize that there may

1 be similar questions, but I just wanted to let you
2 know that in advance.

3 Okay. Can you please turn to paragraph 1
4 of your declaration, please?

5 A. I'm there.

6 Q. And in paragraph 1, you mention that you
7 previously submitted a declaration in this matter
8 entitled "Declaration of Michael I. Shamos, Ph.D.,"
9 dated April 11, 2023, which you have summarized -- or
10 you have abbreviated as Shamos 1; is that correct?

11 A. Yes.

12 Q. Okay. So your declaration, I'll represent
13 to you -- your prior declaration is Exhibit 2001.
14 We're going to be talking today about Exhibit 2003.

15 In paragraph 3 your -- okay, can you please
16 look at paragraph 3 of your declaration?

17 A. I'm there.

18 Q. Okay. And in paragraph 3, you're relying
19 on your previous statement of your background,
20 qualifications, and compensation from your prior
21 declaration; is that right?

22 A. Yes, because they didn't change from one
23 proceeding to the other.

24 Q. Okay. Can you turn to paragraph 12,
25 please?

1 A. I'm there.

2 Q. Okay. And in paragraph 12 you are

3 explaining your opinion on the level of ordinary

4 skill in the art; is that right?

5 A. Yes.

6 Q. Okay.

7 A. I'm actually stating. The explanation for

8 it is in paragraphs 33 to 35 of Shamos 1.

9 Q. And you're referring to your earlier

10 declaration, right?

11 A. Yes. I think we just established that

12 Shamos 1 is the earlier declaration.

13 Q. Can you turn to paragraph 13 of your

14 declaration, please?

15 A. I'm there.

16 Q. Okay. In paragraph 13 you mention the

17 institution decision, correct?

18 A. Yes.

19 Q. Okay. Did you review the institution

20 decision when preparing your declaration?

21 A. Yes.

22 Q. Do you recall if you discussed the

23 institution decision in any other paragraph besides

24 paragraph 13 in your declaration?

25 A. I don't recall. I can search.

1 Q. Please do.

2 A. Unfortunately, the word "institution"
3 appears a lot, so I have to -- but not in connection
4 necessarily with the institution decision.

5 It appears the phrase "institution
6 decision" is only used in paragraph 13.

7 Q. Okay. Let's go back to paragraph 12,
8 please.

9 A. But one second.

10 Q. Okay.

11 A. The phrase only occurs that one time,
12 however.

13 Q. And that one time is paragraph 13, right?

14 A. Yeah. Hang on one second. I'm just trying
15 to find whether there may be an oblique reference to
16 the institution decision that doesn't actually use
17 the phrase "institution" in it.

18 There -- there is such a reference in
19 paragraph 24. I talk about the board's adoption of a
20 particular construction. That adoption occurred in
21 the institution decision even though I don't use the
22 phrase "institution decision" in paragraph 24. That,
23 I think, is the only other reference.

24 Q. So just to summarize, it's paragraphs 13
25 and 24 where you refer to the institution decision,

1 right?

2 A. Yes.

3 Q. Okay. Let's go back to paragraph 12 again.

4 Let me know when you're there.

5 A. I'm there.

6 Q. Okay. And three lines up from the bottom,

7 it says, quote, "A working knowledge of mobile

8 payment systems and techniques."

9 Do you see that?

10 A. Yes.

11 Q. Okay. Let's go to paragraph 16, please.

12 A. I'm there.

13 Q. And you say in paragraph 16, quote, "I

14 think it's necessary to clarify what a working

15 knowledge of mobile payment systems and techniques

16 entails."

17 Do you see that?

18 A. Yes.

19 Q. Okay. And in paragraph 16 you indicate

20 that mobile payments are payments made from mobile

21 wallets, and the claims of the '488 patent

22 specifically recite mobile wallets and mobile wallet

23 applications.

24 Do you see that?

25 A. Yes.

1 Q. In your opinion, what is a mobile wallet?

2 A. So I think that we have a -- hang on.

3 So what I'm doing in -- in this paragraph
4 is I'm drawing a distinction between a -- a mobile
5 payment and a payment that may happen to be made from
6 a mobile device.

7 So a mobile payment is one that takes
8 advantage of the unique characteristics of mobile
9 devices in that they have secure memory for holding
10 payment credentials.

11 So from a cell phone, for example, I can
12 access the Internet, I can run a web browser, so I
13 can fundamentally do anything on my cell phone that I
14 could do on my laptop, the difference being that I
15 can't make mobile payments from my laptop even if
16 it's a mobile device because it doesn't have the
17 necessary security.

18 So a mobile payment is -- is -- sorry, a
19 mobile -- when you ask for what a mobile wallet is, a
20 mobile wallet is a structure that holds payment
21 credentials accessible through the unique
22 characteristics of a mobile device.

23 Q. What do you mean by "payment credentials"?

24 A. Well, any time I need to make a payment,
25 unless it's in cash, or possibly Bitcoin, I need to

1 provide credentials to the party that's -- that's
2 transferring the funds. So I have to prove that I'm
3 authorized to access the account that's pointed to by
4 the wallet.

5 So, for example, in a physical wallet, I
6 will have many types of credentials in there. I have
7 credit cards. I have ID cards. I also have cash,
8 which itself is not a credential. And when I have to
9 pay for something, I can choose to use the cash, or I
10 can present the credential; credit card, for example.

11 I can do all of those same things from a
12 computer other than use cash. So I can present
13 identification credentials. I can present a payment
14 credential. For example, a credit card number plus
15 other information associated with the credit card,
16 such as the CVV, the expiration date, ZIP code,
17 et cetera, in order to be able to make a payment
18 using that card.

19 Q. So as an example, a credit card is a
20 credential, right?

21 A. A payment credential, yeah.

22 Q. Okay. And is it just the credit card, or
23 does it include other information?

24 A. Does what include other information? The
25 credit card only has on it what it has on it. That's

1 the credential. In order to use the credential, I
2 may have to provide additional information.

3 So, for example, when I buy meals using
4 Grubhub, I have my credit card pre-entered into
5 Grubhub, but Grubhub does not know my CVV so --
6 because merchant regulations prohibit it from storing
7 that information. So every time I use that credit
8 card to buy a meal for delivery, I have to enter my
9 CVV. That's an example of additional information
10 that one might need to enter in order to use the
11 credential.

12 Q. So the credential is the credit card plus
13 any necessary information that you might need to be
14 able to use that credit card?

15 A. No, I don't think so. The credential is
16 the credential. Other things -- whatever the
17 credential contains, the credential contains. If I
18 have to provide other information in order to use the
19 credential, that's a different thing. That's not
20 part of the credential. An example --

21 Q. So let's -- I'm sorry. Go ahead.

22 A. I'll give an example, if I can, to clarify
23 it. So in the older days, it used to be very
24 important for you to sign a receipt when you bought
25 something with a credit card. In fact, in the really

1 old days, they would bring a separate credit card
2 form that had carbons in it, multiple copies.

3 And you would write in the tip if you were
4 in the restaurant. You would add up the total, and
5 then you had to actually sign -- you had to sign the
6 sheet. If you didn't sign the sheet, then they
7 didn't know, when they looked at your credit card,
8 whether you were really the person that was entitled
9 to use that credit card because the credit card has a
10 signature on it; but how do they know that you didn't
11 pick the card up in the street or something or steal
12 it from someone? So you had to actually sign
13 something in order to make use of the credential.

14 Q. Okay. Thank you. Where is the actual
15 value that's in your mobile wallet? Where is the
16 actual value stored?

17 A. So it -- that can vary. So you can have
18 the mobile -- the -- the actual representation of
19 money, if there is any representation of money, or
20 the representation of the credit card, the
21 credential, could be stored somewhere else. It could
22 be stored in the cloud. It could be in your mobile
23 network operator or it could be actually on your
24 device.

25 Q. So what you're saying is there is one

1 implementation where it can be stored on your mobile
2 device, and there is another implementation that it
3 could be stored on a cloud or external server; is
4 that right?

5 A. Well, when you're talking about "it," we're
6 talking about outside the context of this patent.
7 We're talking generally about how a payment system
8 works, and you've asked me where various things can
9 reside. I'm now referring specifically to the '488
10 patent.

11 Q. Right. I'm just trying to talk more
12 generally about where the value of a mobile wallet is
13 stored.

14 A. That's fine. I just want to make sure on
15 the record it's clear that we're talking generally
16 and not -- and not specifically.

17 It's -- a lot depends on what the mobile
18 wallet is holding. If the mobile wallet is holding a
19 cash balance, or let's say a monetary balance, then
20 it's stored on the card. If it is instead storing
21 credit card information, it may be that that
22 information is actually on the card or it may be
23 somewhere else.

24 Furthermore, the representation of cash
25 could also be stored somewhere else. So, for

1 example, a gift card -- a gift card basically
2 contains a point or two, an account, that's held in
3 the cloud server.

4 When I present the gift card to buy
5 something, the merchant applies that number. A
6 real-time inquiry is made to see whether or not there
7 is sufficient balance associated with that gift card
8 in order to cover the purchase. And if so, they will
9 process the purchase, give me the goods; and the
10 holder of the value -- that is this cloud server --
11 will deduct that amount from the balance on the card.

12 The card itself is not updated. The
13 information about how much is on the card is not
14 actually on the card. It's somewhere else.

15 But there are other cards in which the
16 actual cash representation is on the card. So, for
17 example, transit cards typically operate that way.
18 When I use the Washington Metro -- I have a
19 Washington Metro card that I have to top up with
20 cash. And if I want to know how much cash is on the
21 card, I can just apply it to a machine. The machine
22 reads the card and displays for me how much is left
23 on the card.

24 And every time I use it to buy a trip on
25 the Metro, that -- that amount goes down. And when

1 it gets too low, I'm going to have to refill the card
2 with more. So the actual representation of the money
3 is on the card; but in a gift card, the
4 representation of the money is not on the card.

5 Q. Thank you. And, generally speaking, does
6 knowledge of mobile payment systems include knowledge
7 of a mobile wallet?

8 A. Yes.

9 Q. I want to talk -- earlier -- earlier you
10 mentioned about using the -- I believe it's Grubhub
11 and making a purchase online. So let's go back to
12 that example.

13 A. Okay.

14 Q. So if a credit card is saved in my browser
15 -- for example, in a browser tool bar, does that make
16 the browser have a mobile wallet?

17 A. It's not a mobile wallet. It -- for
18 example, I'm sitting at a desktop here. I could do
19 exactly the same thing on my desktop. My desktop is
20 not a mobile device. And so it doesn't make the
21 wallet a mobile wallet just because it happens to be
22 held on a mobile device.

23 Q. So let's talk about -- use a tablet as an
24 example. Let's say an iPad or some other equivalent
25 tablet.

1 A. Yeah.

2 Q. And in that tablet you can make a purchase
3 through a browser, right?

4 A. Yes.

5 Q. And would you consider a tablet to be a
6 mobile device?

7 A. Well, as a generic concept, it's a mobile
8 device. It's not necessarily a mobile device, as
9 that term is used in the -- in the patents, but it's
10 a mobile device.

11 But what I'm saying is if I can do the same
12 thing on my desktop that I can do on the tablet, then
13 it hasn't suddenly become mobile just because it's on
14 the tablet. There are things that I can do on phones
15 that I cannot do on my desktop. The reason is that
16 my desktop does not have a secure element. It can't
17 store credit card information securely.

18 Q. So if I have the browser tool bar that can
19 store credit cards securely in my tablet, would that
20 make my tablet have a mobile wallet?

21 A. Well, it depends on what we mean by
22 securely. "Securely" generally means stored on a
23 secured element for which cryptographic keys are
24 needed to access it. Clearly, if we're talking about
25 a mobile function, and I can perform it on a

1 nonmobile device, then it's not a mobile function.
2 There's no difference between the browser on the
3 tablet and the browser on my desktop.

4 Q. So you indicated earlier that it needs some
5 type of security, right, in order to be a mobile
6 wallet?

7 A. Yes.

8 Q. So let's take the scenario where I use a
9 tablet, and there is a tool bar that has my credit
10 card stored in it, and when it makes -- when I make a
11 transaction, for example, on Amazon.com, and it's a
12 secure transaction, does that make it a mobile
13 wallet?

14 A. No. So when you say it's a secure
15 transaction, I think what you mean is that the HTTPS
16 protocol is being used to exchange the data between
17 you and Amazon. I can do exactly the same thing from
18 my desktop. If I can do the same thing on my
19 desktop, it's clearly not a mobile function. My
20 desktop is not mobile. It weighs over 50 pounds. I
21 had a hell of a time carrying it up the stairs to get
22 it into my office here. Very, very unmobile.

23 Q. So are you saying that it can't be a mobile
24 wallet if you can do it on your desktop?

25 A. Obviously. How can it be a mobile wallet

1 if I can do it on my desktop? My desktop is not
2 mobile.

3 Q. But a tablet is mobile.

4 A. Yes, it is. Is PowerPoint -- wait, wait.
5 Is PowerPoint a mobile application just because you
6 can run it on a tablet? No, it's not a mobile
7 application because I can run it on a desktop also,
8 which is not mobile. Is Zoom a mobile application?
9 I think Brandon is running it on his mobile phone
10 right now. I'm running it on my desktop. Zoom is
11 not a mobile application.

12 Q. Are you familiar with Apple Pay?

13 A. Yes.

14 Q. And are you aware that I can use Apple Pay
15 to make -- or to conduct a transaction from my
16 computer?

17 A. Yes.

18 Q. And if I use Apple Pay from my computer,
19 does that not make it a mobile wallet?

20 A. No.

21 Q. Why not?

22 A. For the same -- for the same reason that
23 we've been talking about. When you make an Apple Pay
24 payment from your mobile phone, completely different
25 procedures are used in order to make that payment.

1 When you use Apple Pay from a desktop or a tablet,
2 that's a different story.

3 In Apple Pay -- Apple Pay stores certain
4 credentials of yours in the cloud for you so you can
5 use them from any device anywhere, including
6 nonmobile devices. When you use Apple Pay from an
7 iPhone, it's a completely different process because
8 the inherent security of the cell phone is a critical
9 part of the transaction.

10 Q. Does -- does an iPad not have that same
11 inherent security?

12 A. Does not.

13 Q. And why not?

14 A. Because it doesn't have a SIM card.

15 Doesn't have a secure element. It doesn't have the
16 cryptographic keys.

17 Q. So in order to have the security, you need
18 a SIM card; is that what you're saying?

19 A. I didn't say that, but a SIM card helps.

20 Q. Are you aware of laptops that have SIM
21 cards?

22 A. Well, there's a -- laptop that has a SIM
23 card? I'm actually not. I mean, I suppose you could
24 build a laptop in which you could install a SIM card.
25 I don't know of one, but it could exist.

1 Q. Can a mobile wallet be installed on a
2 device other than a mobile phone?

3 A. Sorry? Did you say: Can a mobile wallet
4 be installed --

5 Q. Yes. I'll repeat my question.
6 Can a mobile wallet be installed in a
7 device other than a mobile phone?

8 A. So I'm taking issue with the concept of
9 installing a mobile wallet. You can install a mobile
10 wallet application, but by the mobile wallet, what
11 we're talking about is this ethereal thing that holds
12 credentials, and the credentials could be held
13 somewhere other than the mobile device. We've
14 already talked about that. The credentials can be
15 held in the cloud and simply accessed from the mobile
16 device.

17 Q. Can you turn to paragraph 24? It's
18 actually the heading above paragraph 24. It's on
19 page 6 of your declaration.

20 A. Yes.

21 Q. And there -- there is a construction of
22 mobile device.

23 Do you see that?

24 A. Yes. That is the construction offered by
25 the patent owner and adopted by the board.

1 Q. Okay. And mobile device is, according to
2 Patent Owner's Construction, a "physical device that
3 is mobile, such as a phone or tablet."
4 Did I read that correctly?
5 A. Yes.
6 Q. So I want to understand from you if we have
7 a mobile device that could be a tablet and then a
8 mobile -- I'm sorry. Strike that.
9 I want to understand from you, given this
10 construction where a mobile device could be a tablet,
11 if a mobile wallet is installed on a tablet, does
12 that make the tablet have a mobile wallet
13 application?
14 A. So where -- that's the same problem in the
15 question, the concept of installing the mobile
16 wallet. So a mobile wallet typically contains
17 credentials and means of accessing the credentials.
18 You can have a mobile wallet application in which the
19 credentials are stored elsewhere, not on a mobile
20 device. That's possible. In fact --
21 Q. Let's look at it from a different angle.
22 A. You --
23 Q. So if -- sorry. Go ahead.
24 A. You mentioned it already when you said you
25 can use Apple Pay from a different device. The

1 reason you can do that is your Apple Pay credentials
2 are stored in Apple's cloud.

3 Q. So if a tablet has a mobile wallet
4 application and it executes the mobile wallet
5 application, would that make the tablet a mobile
6 device having a mobile wallet application?

7 A. Well, I guess we'd have to get into what a
8 mobile wallet application is. But if that -- if what
9 you are calling a mobile wallet application could
10 also be installed on my desktop, then it's not really
11 a mobile wallet application because it's not
12 making -- it's not making use of the security
13 associated with the mobile network.

14 Q. So if I have a tablet that communicates via
15 the Internet over a mobile network, does that tablet
16 not then have availability -- or the availability to
17 have the security of the mobile network?

18 A. Well, you need to tell me what you mean by
19 a mobile network then. If you're talking about a --
20 a cell network, that's a different story. Your
21 tablet, for example, if there is an Internet access
22 point, a Wi-Fi access point nearby, then your tablet
23 can access the Internet from that wirelessly. But
24 that wouldn't be referred to as a mobile network.

25 Q. Okay. So let's use the example where I

1 have a tablet and it has cellular capability and it
2 connects to a website to make a transaction via the
3 cellular network.

4 A. Oh, if it has cellular capability, then it
5 has a SIM card. And then it would be a mobile device
6 with a mobile wallet or at least with a mobile wallet
7 application. Because I can't take that and stick it
8 on my desktop. It relies on the unique
9 characteristics of the mobile device.

10 Q. Okay. Would it be fair then to say that
11 it's your understanding that you have to use it on a
12 mobile network in order to have a mobile wallet
13 application?

14 A. Yes.

15 Q. And that -- and to clarify, that mobile
16 network has to be a cellular network, right?

17 A. Well, I haven't thought about that. I --
18 it seems to me that it would be, but I haven't
19 thought about all of the implications of that
20 statement.

21 Q. Have you ever used, like, a payment
22 application like Apple Pay or Google Pay or what's --
23 it's called Samsung Pay. Have you ever used one of
24 those?

25 A. Yes. This is a Samsung device. I use

1 Samsung Pay.

2 Q. Okay. You use Samsung Pay.

3 Are you able to make a trans- -- sorry.

4 Strike that.

5 Are you able to conduct a transaction with
6 Samsung Pay when you're home on your Wi-Fi
7 connection?

8 A. I'm not sure. I don't think I've ever
9 tried that, but it may work in a way similar to Apple
10 Pay in that -- in that Samsung may have my payment
11 credentials in its cloud in addition to whatever is
12 on my -- my actual Samsung phone.

13 Q. Okay. So we talked earlier that you're
14 familiar with Apple Pay, and let's just use that as
15 an example, but I assume that's similar to Samsung
16 Pay.

17 Is that all right if we just make an
18 assumption that they are similar?

19 A. Sure.

20 Q. Okay. So let's say I'm on Amazon.com and I
21 want to make a purchase using Apple Pay with my
22 phone.

23 Is that --

24 A. Okay, so --

25 Q. -- an example -- I'm sorry. Go ahead.

1 A. No. Finish the question.

2 Q. Is that an example of me using a mobile

3 wallet application because I used Apple Pay?

4 A. So I think it matters how you access Apple

5 Pay. The -- so I don't actually know the details,

6 but if what you're doing on the cell phone is simply

7 using a browser, I can use the same browser or a

8 similar browser on my desktop. If I can accomplish

9 the same thing, then you haven't used a mobile wallet

10 application.

11 Q. Let's say I use an app with the Amazon app,

12 for example, and I select the option to pay with

13 Apple Pay.

14 Do you follow me?

15 A. Yes.

16 Q. Am I then using a mobile wallet

17 application?

18 A. I don't know. I don't know how it works.

19 Q. Have you ever used the Amazon app on your

20 phone?

21 A. I don't think so.

22 Q. Can you give me an example of a service

23 that you've used where you've downloaded the app and

24 make payments?

25 A. Oh, well, sure. In Samsung Pay on my

1 phone, I -- I installed several credit cards. So
2 there's a Samsung Pay app that runs on my phone. In
3 order to prime it to get ready to make payments, I
4 have to take photographs of my credit cards that I
5 want to -- that I want to install in the application.
6 And Samsung verifies that those are really my credit
7 cards. Then it downloads to my phone an applet which
8 is installed on the SIM card that enables me to make
9 payments as if I were actually physically holding the
10 card.

11 Q. So you've mentioned the concept of a SIM
12 card a couple times.

13 Let's turn to paragraph 27 of your
14 declaration, please.

15 A. I'm there.

16 Q. And do you see that this is a construction
17 of mobile wallet application?

18 A. Yes.

19 Q. And just to be clear, this is -- the column
20 is titled "Patent Owner's Construction."

21 Do you see that?

22 A. Yes.

23 Q. Is this your construction as well?

24 A. When you say is it mine, I endorse it. I
25 believe it's correct because it comes directly out of

1 the patent. The patent says, "As used herein, a
2 mobile wallet application is a mobile wallet
3 application installed on a SIM card or elsewhere on a
4 mobile device."

5 That sounds definitional to me.

6 Q. So let's focus on paragraph 27 then and
7 what you've referred to as Exhibit 1001, Column 7,
8 lines 1 to 3, right?

9 A. Yes.

10 Q. Okay. And it says, "Wallet application
11 installed on a SIM card or elsewhere on a mobile
12 device."

13 Do you see that?

14 A. Yes.

15 Q. So it uses the word "or."

16 A. Yes.

17 Q. And what does the word "or" mean here?

18 A. It means it could be installed on a SIM
19 card or it could be installed somewhere else on a
20 mobile device other than a SIM card.

21 Q. Where is this other place that it could be
22 installed?

23 A. Depends on the architecture of the mobile
24 device.

25 Q. So are you saying that it doesn't have to

1 be installed on a SIM card?

2 A. That's what the patent owner said.

3 Q. What do you say?

4 A. For purposes of this patent, we go with the
5 patent owner's definition.

6 Q. So let's go back above paragraph 18. I
7 just want to make sure of something here. So we go
8 to paragraph 18.

9 Do you see that?

10 A. Yes.

11 Q. Since we're on the subject of claim
12 construction, I want to just understand the structure
13 here of your declaration. You say in paragraph 18
14 that, "I will explain the plain and ordinary meaning
15 of certain claim terms as used in the '488 patent,"
16 correct?

17 A. Yes.

18 Q. Okay. And then you identify three terms,
19 and I'm just going to shorten them, but integration
20 tier in paragraph 19, web services in paragraph 20,
21 and different communication channels in paragraphs 21
22 to 22; is that right?

23 A. Yes.

24 Q. And in those -- in these sections that I've
25 just mentioned, you are explaining the plain and

1 ordinary meaning, in your opinion, of these terms,
2 right?

3 A. Yes.

4 Q. Okay. And then we get to paragraph 23
5 where you say, "I understand that patent owner
6 believes that three phrases, not including
7 Petitioner's phrase, actually require construction."
8 And then you identify three phrases in paragraphs 24
9 to 33; is that right?

10 A. Yes.

11 Q. So are you saying that the phrases that are
12 discussed in paragraphs 24 to 33 are not to be
13 construed according to their plain and ordinary
14 meaning?

15 A. Okay. Well, sorry, which paragraphs were
16 you listing?

17 Q. 24 to 33 -- I'm sorry, 27 to 33.

18 A. Okay. Yeah, in 27 to 33 their plain and
19 ordinary meaning in consideration of the patent
20 specification.

21 So, for example, if I went out on -- on the
22 street -- well, that's not a good place, but let me
23 go to my POSITA friends at Carnegie Mountain
24 University, and I ask them, "What is a mobile wallet
25 application?" I may get many different answers.

1 However, if I hand them the patent, the '488 patent,
2 and ask them to read it, and then I ask them the
3 question, what is a mobile wallet application, they
4 should give me the answer that's in paragraph 27.

5 But if they didn't have the benefit of the
6 patent, they probably would not give that answer.

7 Q. Let's go up to paragraph 23, please.

8 A. Okay.

9 Q. And you say, "I understand the patent owner
10 believes that three phrases," right? Do you see
11 that?

12 A. Yes.

13 Q. Okay. Are these your constructions?

14 A. When you say are they my constructions, I
15 don't actually have a memory of this, but I could
16 have participated in discussions with counsel on what
17 the -- what the constructions ought to be. Are they
18 the constructions that I believe are correct? Yes.

19 Q. So do you recall if you were consulted by a
20 patent owner when a patent owner came up with these
21 constructions?

22 A. I don't actually recall. They -- the terms
23 may have come up in other related patents. They may
24 have come up in patents that are being litigated. I
25 just don't actually recall the process by which these

1 constructions were devised except for mobile wallet
2 application is pretty clear. It's directly out of
3 the patent.

4 Q. So let's go to the mobile wallet
5 application instruction in paragraph 27 again,
6 please.

7 A. Yes.

8 Q. And the construction, just for the record
9 again, is "wallet application installed on a SIM card
10 or elsewhere on a mobile device," correct?

11 A. Yes. It's possible that the reason --
12 okay. If you go to the patent, the definition in the
13 patent that's quoted in paragraph 27 uses the phrase
14 "mobile wallet application" as part of the definition
15 of a mobile wallet application. And so it seems
16 circular.

17 And so in the construction the patent owner
18 offers, the word "mobile" is omitted at the beginning
19 of the construction. And so it's just wallet
20 application installed on a SIM card or elsewhere on a
21 mobile device.

22 Well, making it installed on a mobile
23 device I think qualifies mobile application to be --
24 because it's one on a mobile device, it's mobile
25 wallet application. But, yeah, it comes directly out

1 of the patent.

2 Q. Okay. Right. And we can see that that is
3 a quote from lines 1 to 3 of Column 7, right?

4 A. Yes.

5 Q. Okay. I want -- sorry, did you want to say
6 something?

7 A. I wanted to clear my throat.

8 Q. Oh, okay. I want to focus on the latter
9 part of the quote where it says, "or elsewhere on a
10 mobile device." Okay?

11 A. Yes.

12 Q. The first part of the phrase about the SIM
13 card, we've talked earlier about how you think that
14 it has to be a secure element, right?

15 A. That what has to be? A SIM card is a
16 secure element.

17 Q. Okay. The latter part of this phrase, "or
18 elsewhere on a mobile device," does that have to be a
19 secure component of the mobile phone?

20 A. I don't know. I think so, but I haven't
21 opined on that.

22 Q. Does that phrase "or elsewhere" on a mobile
23 device require it to be in a secure element?

24 A. I don't believe that the phrase "or
25 elsewhere" by itself implies that.

1 Q. Let's go back to paragraph 17, please.
2 Let me know when you're there.
3 A. I'm there.
4 Q. Okay. And I want to read the first two
5 sentences. It says, "Some payments can be made from
6 a mobile" -- "from a mobile device without the use of
7 a mobile wallet such as when perhaps the user uses a
8 mobile phone browser to buy an item from Amazon.com
9 with a credit card. These are not the type of mobile
10 payments to which the '488 patent is directed."
11 Do you see that?
12 A. Yes.
13 Q. Okay. So let's say a credit card is stored
14 on a tablet, and we've talked earlier about how a
15 mobile device could be a tablet, and that credit card
16 is used to conduct a transaction.
17 Are you following me?
18 A. Yes.
19 Q. In that scenario, if the credit card is
20 stored on a tablet and the tablet is used to conduct
21 a transaction, would that mean that the tablet has a
22 mobile wallet?
23 A. Not necessarily because I -- I could do --
24 if I can do the same thing from my desktop, then it's
25 not -- not from a mobile device. If I can't do it

1 from -- if I can only do it from a mobile device,
2 then I think it's -- it's pretty easy to say that
3 it's a mobile wallet application. But if I can -- if
4 I can do it from a nonmobile device, then no.

5 Q. All right. Let's assume an example where I
6 have a tablet, and it has a cellular connection.

7 A. Okay. If it has a cell --

8 Q. Do you follow?

9 A. Yes, I do. If it has a cellular
10 connection, it has a SIM card.

11 Q. Right. And let's go above paragraph 24
12 again.

13 A. Okay.

14 Q. I'm sorry. I apologize. Could you go up
15 to paragraph 27.

16 A. Okay.

17 Q. So let's use the example where you have a
18 tablet, a cellular connection. As you said, then
19 because of the cellular connection, it must have a
20 SIM card, right?

21 A. Yes.

22 Q. Now, let's assume, again, that we're
23 conducting a transaction with a credit card on a
24 tablet, but it's not -- sorry, but the credit card is
25 not stored on the SIM card.

1 Do you follow me?

2 A. Yes.

3 Q. Okay. And then we see this construction

4 that says, "The wallet application can be installed

5 elsewhere on a mobile device." Right?

6 A. Yes.

7 Q. So if I conduct a transaction with a credit

8 card that's stored, let's say, in my browser tool bar

9 which is elsewhere on a mobile device, is that not a

10 mobile wallet application?

11 A. Is -- the card itself is not a mobile

12 wallet application. The mobile wallet application

13 has to access the card or access the credentials. So

14 it's not just where the card is stored. It's where

15 is this -- what is this mobile wallet application

16 that you're talking about? A browser is not a mobile

17 wallet application.

18 Q. What if I have some type of browser tool

19 bar or extension and my credit cards and payment

20 instruments are stored in that tool bar?

21 A. We've been through this. I can do the same

22 thing on my desktop.

23 Q. So are you saying then that if you could do

24 it on your desktop, it can't be a mobile wallet

25 application?

1 A. If I can do it on my desktop without a cell
2 connection, then it isn't. It isn't a mobile wallet
3 application.

4 Q. What about if you use a tablet that has a
5 browser tool bar which stores your credit cards and
6 you conduct a transaction via a cell connection?

7 A. You keep asking the same question. The
8 credit card is not the mobile wallet application.
9 The credit card is a credential that is accessed by
10 the mobile wallet application.

11 Q. Okay. Let's go to paragraph 34, please.

12 A. There.

13 Q. All right. And in paragraph 34 you say
14 that "The mobile wallet application is installed on a
15 hardware SIM card."

16 Do you see that?

17 A. Well, I don't say that. The challenged
18 claims say that, and I'm quoting the challenged
19 claim.

20 Q. So I'm trying to reconcile that statement
21 that you have in paragraph 34, the first sentence,
22 along with what we talked about in paragraph 27 which
23 says that the wallet application can be installed on
24 a SIM card or elsewhere on a mobile device.

25 Which of the -- which of those statements

1 control, in your opinion?

2 A. I'm pulling up the claims. Okay. So
3 what's going on here is that there is a term "mobile
4 wallet application." And a construction is offered
5 for that term that allows the mobile wallet
6 application to be stored in someplace other an SIM
7 card. However, when we get to the Claim 1, Claim 1
8 has a specific limitation that says the mobile wallet
9 application is installed on a hardware SIM card.

10 So there may be embodiments disclosed in
11 the appl- -- in the patent that are not covered by
12 Claim 1. For example, if the mobile wallet
13 application is not stored on a hardware SIM card,
14 then it's not within the scope of Claim 1.

15 Q. So let's go back to paragraph 27, please.

16 A. 27, okay.

17 Q. Yes.

18 A. I'm there.

19 Q. And you specifically identify the claim
20 phrase, "mobile wallet application" in the table
21 above paragraph 27, right?

22 A. Yes.

23 Q. So I just want to understand. Is this
24 construction based on the claim term, or is it based
25 on how that term is used in the specification?

1 A. Oh, come on. It's based on an express
2 lexicographic explanation in the patent. It's a
3 definition. "As used herein, a mobile wallet
4 application is," and then there's a phrase that
5 defines what mobile wallet application is. "Mobile
6 wallet applications as disclosed by the patentee can
7 be either on a SIM card or not." In Claim 1 they can
8 only be on a SIM card.

9 Q. No, I understand that. I'm just wondering,
10 as you said, Claim 1 requires a certain embodiment
11 which is that the mobile wallet application has to be
12 installed on a SIM card. I'm curious then why
13 provide this construction?

14 A. Because it has to be on a mobile device.
15 And the prior art that has been adduced, Dill, for
16 example, there, the mobile wallet application is not
17 installed on a mobile device.

18 Q. Why don't we take a ten-minute break, and
19 then we can come back and --

20 MR. BOWSER: Does that work for you,
21 Brandon?

22 THE WITNESS: He's muted.

23 MR. BOWSER: Oh.

24 MR. THEISS: Yep, just trying to unmute
25 myself there. Sometimes Zoom -- ten minutes is

1 actually fine.

2 THE WITNESS: I'll have to get another Diet
3 Coke. Ten minutes.

4 MR. BOWSER: So 11:06 Eastern.

5 THE WITNESS: Fine.

6 (Recess: 10:56 a.m. to 11:07 a.m.)

7 BY MR. BOWSER:

8 Q. Welcome back, Dr. Shamos. Did you speak
9 with counsel about the substance of your testimony
10 during the break?

11 A. I didn't speak with anybody during the
12 break.

13 Q. So before we broke, you started to talk
14 about Dill and the mobile wallet, and I wanted to
15 talk to you about that.

16 Okay. So if you could go, please, to
17 paragraph 65 of your declaration. Make sure it's the
18 right paragraph.

19 A. Yes.

20 Q. Okay. And it says in paragraph 65, "A
21 POSITA would understand that mobile wallet
22 application/service 121 in Dill's mobile network
23 operator 120 is not installed on a mobile device as
24 required by all challenged claims of the '196
25 patent." Do you see that?

1 A. Yeah. Probably should say '488 patent.

2 Q. Okay. Thank you for clarifying. And then
3 in paragraph 66, you say in the first sentence,
4 "There is no disclosure in Dill that the mobile
5 wallet application, when running on the mobile
6 device, performs anything other than the pull
7 transaction described in paragraph 0094 and claimed
8 in Claim 13."

9 Do you see that?

10 A. Yes.

11 Q. So are you saying that -- here that the
12 mobile wallet application Dill runs on the mobile
13 device?

14 A. So there is a disclosure in Dill that
15 something he calls a mobile wallet application can
16 run on a mobile device. It says that. And so the
17 question is, where in Dill is it -- is that
18 embodiment used or described other than the single
19 sentence that it can -- that a mobile wallet
20 application can run on a -- on a mobile device.

21 So I look around in Dill, and I see that
22 there's a pull transaction described in paragraph 94,
23 and we can go look at paragraph 94, if you like, and
24 talk about it.

25 Q. Yes, please. Let's start with paragraph

1 94.

2 A. Okay.

3 Q. And if we can, I want to read out the
4 second sentence in paragraph 94. It says, "For
5 example, the recipient can enter 812, the pin, and
6 transaction identifier via keypad or other input
7 device of the cell phone or other mobile device
8 executing the mobile wallet application 121."

9 Do you see that?

10 A. Yes.

11 Q. And does that sentence not say that the
12 mobile device executes the mobile wallet application
13 121?

14 A. Okay. So we have to understand what's
15 meant by the mobile wallet application.

16 So there's a mobile wallet application
17 service that's shown in the figures of Dill, and
18 that's all running on the mobile network operator's
19 computers.

20 Then there is something called the mobile
21 application 145 -- I'm referring to Figure 9 of Dill
22 -- mobile application 145 that is run by the money
23 transfer facilitator. And a mobile device can access
24 the money transfer facilitator, presumably over the
25 web interface that's shown as web 137.

1 So when I do that and I interact with the
2 mobile application on the money transfer facilitator,
3 that is not the mobile wallet application 121 that's
4 shown in the mobile wallet application service at the
5 mobile network operator.

6 Now, Dill does use -- I think in paragraph
7 94, Dill uses -- yes. Okay. He makes reference to
8 the mobile wallet application 121. And then he says
9 that the -- in the sentence you read, that the mobile
10 device is executing the mobile wallet application
11 121. But it clearly cannot be. It's use erroneous
12 because the mobile wallet application 121 is running
13 on the -- on the mobile network operator's platform.

14 So the mobile wallet application that's
15 referred to that's running on the mobile device is
16 something that is talking to other software.

17 So if you look at the first sentence of
18 paragraph 94, "The recipient 110 can then enter 812,
19 the received transaction identifier and perhaps a
20 personal identification number, pin, for the
21 recipient's mobile wallet 130 into a mobile wallet
22 application 121."

23 That makes sense that he can enter into the
24 mobile wallet application that's running on the
25 mobile network operator's platform, and the way he

1 enters it is he keys in these digits of the
2 transaction identifier and the pin, and that gets
3 sent to the mobile network operator. That makes --
4 that makes perfect sense.

5 What does not make sense is for the mobile
6 wallet application 121 to be running on the mobile
7 device. So I take that as an error because it's
8 completely inconsistent with all of the other
9 disclosures in Dill.

10 And the mobile wallet application he's
11 talking about is essentially a browser-like
12 application in which all you're doing is entering
13 data, which you could -- you could do over the web
14 interface from any device. You wouldn't even need to
15 have a mobile device to do it.

16 Q. Okay. Let's look at Figure 9 of Dill,
17 though, please.

18 A. Sure. I'm there.

19 Q. And mobile wallet application service 121
20 clearly shows that there's a recipient's mobile
21 wallet 130. Can you see that?

22 A. Yes.

23 Q. So doesn't that mean then that the
24 recipient's mobile wallet is executed on the
25 recipient's mobile device?

1 A. So the mobile wallet is not executed. The
2 mobile wallet is a store of credentials.

3 Q. Let me clarify -- I'm sorry. Were you
4 done? Go ahead.

5 A. I was going to you to reclarify -- to
6 clarify.

7 Q. Well, is the mobile wallet application
8 being executed on the recipient's mobile device?

9 A. No. The mobile wallet application is being
10 executed at the mobile network operator. Now the
11 recipient, of course, is going to have some software
12 that is going to enable him to access his mobile
13 wallet. That's for sure. Otherwise, the mobile
14 wallet will be useless.

15 And so there's an app that's going to run
16 on this phone that's going to talk to the mobile
17 network operator and say, "I would like to take some
18 money from my wallet and transfer it to this other
19 guy's wallet," but the wallets are sitting on the
20 mobile network operator's platform.

21 Q. Okay. Let's go to paragraph 68 of your
22 declaration, please.

23 A. Yes.

24 Q. And you said that the discussion in
25 paragraph 94 where it says the mobile device

1 executing the mobile wallet application 121 is a
2 typographical error.

3 Do you see that?

4 A. Yeah, I just said that earlier. And I see
5 it.

6 Q. So you're saying then, just to be clear,
7 that the phrase, quote, "mobile device executing the
8 mobile wallet application 121" in paragraph 94 is a
9 typographical error?

10 A. Yes, I think it should have said,
11 "executing a mobile wallet application" or something
12 like that instead of identifying it as mobile wallet
13 application 121, which has to run on a mobile network
14 operator's platform because it contains everybody's
15 mobile wallet.

16 Q. Okay. Let's go to paragraph 10 of Dill,
17 please.

18 A. Okay.

19 Q. And the second sentence I will read from
20 that. It says, "the mobile device can execute a
21 mobile wallet application."

22 Do you see that?

23 A. Yes. And the very next sentence tells what
24 the mobile wallet application does. It receives "a
25 personal identification number, pin, and a

1 transaction identifier for a previously initiated
2 money transfer transaction," et cetera, et cetera,
3 et cetera. It just sends some data via the mobile
4 communications network. That's not --

5 Q. You're saying that the mobile device
6 application, which is executed on the -- sorry,
7 sorry. So you're saying that the mobile wallet
8 application, which is executed on the mobile device,
9 is limited to this function of receiving a pin?

10 A. Well, I don't know whether it's limited or
11 not. Dill doesn't describe it as doing anything
12 channels, and it's certainly not mobile wallet
13 application 121.

14 Q. You see in column -- I'm sorry, paragraph
15 68 of your declaration where you reference Claim 13
16 of Dill?

17 A. Yes.

18 Q. Let's go to Claim 13 of Dill, please.

19 A. Okay.

20 Q. Let me know when you're there.

21 A. I'm there.

22 Q. Okay. Do you see the second claim element
23 starting with a mobile device?

24 A. Yes.

25 Q. All right. And I'm going to read the

1 portion of that claim element up until the comment
2 where it says, "A mobile device communicatively
3 coupled with the mobile communications network and
4 executing a mobile wallet application."

5 Do you see that?

6 A. Yes, I do.

7 Q. So is that a typographical error as well?

8 A. No. It's something that Dill calls a
9 mobile wallet application. That doesn't make it the
10 same thing that the '488 patent calls a mobile wallet
11 application. Dill calls it that.

12 Q. But Dill teaches the fact that a mobile
13 device can execute a mobile wallet application,
14 right?

15 A. Well, it can execute something that he
16 calls a mobile wallet execution. He could have
17 called it anything he wanted to. That does not make
18 it a mobile wallet application as used in the '488
19 patent.

20 Q. And let's go back to paragraph 27 of your
21 declaration, please.

22 A. Okay. I'm there.

23 Q. And you said it's a "wallet application
24 installed on a SIM card or elsewhere on a mobile
25 device." Right?

1 A. Yes.

2 Q. So that's how you understand the term

3 "mobile wallet application" as used in the '488

4 patent?

5 A. Yes.

6 Q. Let's go to paragraph 45, please.

7 A. Okay.

8 Q. And this section of your declaration -- and

9 I'm going to abbreviate -- is just talking about web

10 services, right?

11 A. Yes.

12 Q. Okay. So in paragraph 45 in the third

13 sentence, do you see where it says, "A 'web service'

14 is a term of art that refers to a service provided

15 through a programming interface such as an API."

16 A. Yes.

17 Q. And I believe API is an acronym for

18 application programming interface, right?

19 A. Yes.

20 Q. And then in paragraph 46 in the second

21 sentence you say, quote -- or sorry, not quote. "A

22 'web service' communication involves a

23 machine-to-machine interaction over the Internet

24 using web protocols."

25 Do you see that?

1 A. Yes.

2 Q. And in support of that understanding in

3 paragraph 46, you cite to Exhibits 2009, I believe,

4 to -- I'm sorry, Exhibits 2010 to 2015; is that

5 right?

6 A. 2009.

7 Q. Oh, is it 2009?

8 A. The first one.

9 Q. Yeah, you're right. Yep. Thank you.

10 So just to be clear, you cite two exhibits,

11 2009 to 2015, in exhibit -- sorry, in paragraph 46 of

12 your declaration?

13 A. Yes.

14 Q. Are any of those documents that you cite

15 to, Exhibits 2009 to 2015, cited in the '488 patent?

16 A. No.

17 Q. Okay. Let's go back to paragraph 20,

18 please.

19 A. I'm there.

20 Q. And in this paragraph, you provide what you

21 believe to be the plain and ordinary meaning of,

22 quote, "web services communication mechanisms for

23 interfacing with a mobile wallet application,"

24 correct?

25 A. Sort of. I'm not getting a construction of

1 the entire phrase. I'm talking about what it
2 implies. It says that it plainly and literally
3 require that the web services communication
4 mechanisms must interface with a mobile wallet
5 application because that's what it says in the
6 phrase.

7 But because the mobile wallet application
8 has to reside on a mobile device and not some other
9 platform that's not a mobile device, web services
10 communication mechanism must interface with a mobile
11 wallet application that does reside on the mobile
12 device.

13 Q. Okay. So let's -- if you could please keep
14 that -- that phrase "must interface with a mobile
15 wallet application" in mind, I would like to turn
16 back to paragraph 46.

17 A. More than that. It must interface with a
18 mobile wallet application that resides on a mobile
19 device.

20 Q. Okay. Yes. Please keep that in mind just
21 for context as we move to paragraph 46.

22 A. Okay. I'm there.

23 Q. And in the second sentence of paragraph 46,
24 again, it says, "A 'web service' communication" --
25 sorry, let me strike that.

1 In the second sentence of paragraph 46 it
2 says, "A 'web service' communication involves a
3 machine-to-machine interaction over the Internet
4 using web protocols." Right?

5 A. Yes.

6 Q. Okay. Does a machine-to-machine
7 interaction over the Internet using web protocols
8 correspond to your explanation of must interface in
9 paragraph 20?

10 A. Let me split my screen in Acrobat so I can
11 see both paragraph 20 and paragraph 46 at the same
12 time.

13 Okay. So repeat the question. Would
14 not -- you're referring to the second sentence of
15 paragraph 46. You don't have it to reread that, but
16 what was the question about that second sentence?

17 Q. Okay. So does a machine-to-machine
18 interaction over the Internet using web protocols
19 correspond to your explanation of, quote, "must
20 interface," end quote, in paragraph 20?

21 A. Yes.

22 Q. Okay. In this sentence -- in the second
23 sentence of paragraph 46, referring to this again,
24 what is the interface when you have, as you describe
25 in paragraph 46, a machine-to-machine interaction

1 over the Internet using web protocols?

2 A. Sorry. What was the first part of the
3 question?

4 Q. Referring again to paragraph 46, and,
5 again, we're also referring to what you've described
6 in paragraph 20, I want to -- my question is: What
7 is the interface, when you have, as you describe in
8 paragraph 46, a machine-to-machine interaction over
9 the Internet using web protocols?

10 A. Okay. So when you speak of the interface,
11 there is going to be more than one interface because
12 there has to be an interface at each end of the
13 communication.

14 So the phrase "web services communication
15 mechanisms for interfacing with a mobile wallet
16 application" means that the mobile wallet application
17 has to use -- has to make use of web services.
18 Typically what that means is that there's going to be
19 some server somewhere that exposes an API that allows
20 the mobile wallet application to communicate with the
21 server. It's not any old communication, it's a web
22 services communication.

23 Q. Will you turn to the '488 patent, which is
24 Exhibit 1001, and I'd like to talk to you about how
25 the patent uses the term "web services."

1 A. Okay.

2 Q. Okay. And feel free to do a search of the
3 patent to confirm for yourself. I will just tell you
4 that other than the claims, I found the term "web
5 services" mentioned twice in the patent in Column 9,
6 starting at line 45 to line 63.

7 A. I totally agree.

8 Q. Okay. So in -- well, the first instance
9 that I found this -- all right. Let me get the --
10 the lines. It says -- Column 9, line 48, it says,
11 "Integration tier 101 can also include communication
12 (e.g., web services) API, and/or other communication
13 mechanisms to accept messages from channels 111,"
14 right?

15 A. Yes.

16 Q. Okay. And the second time that web
17 services is mentioned in the specification of the
18 '488 patent is in Column 9, lines 62 to 63 which
19 reads, "Notification services 102 can be configured
20 through a web services API."

21 Do you see that?

22 A. Yes.

23 Q. Excuse me. Do those two portions of web
24 services in Column 9, lines 45 to 63 describe a web
25 service as involving a machine-to-machine interaction

1 over the Internet using web protocols?

2 A. You mean, are those literal words in those
3 paragraphs? No. But web services is a term of art.
4 That's what it means. Otherwise, how would
5 somebody -- how would a POSITA reading the patent
6 understand the phrase "web services" if it weren't a
7 term of art?

8 And the patentee is not obliged to explain
9 the meaning of well-known terms of art. It doesn't
10 have a special meaning. It has its plain and
11 ordinary meaning.

12 Q. And you determined the meaning from
13 Exhibits 2009 and 2015 in -- that are mentioned in
14 paragraph 46, right?

15 A. I wouldn't say that's how I determined the
16 meaning. I knew the meaning. And what I did was I
17 found an arbitrary number of references that confirm
18 what that meaning is.

19 Q. So is a web services API as used in the
20 '488 patent, is that a type of machine-to-machine
21 interaction over the Internet?

22 A. Yes.

23 Q. What are the web protocols that you've
24 referred to in paragraph 46 --

25 A. Typically --

1 Q. -- in your declaration?

2 A. Frequently HTTP.

3 Q. What is your understanding of an API?

4 A. So an API is a service that's offered by a

5 server to other computers that can make requests of

6 that server using this -- this interface that's

7 called the application programming interface. It's a

8 series -- it's a definition of a series of requests

9 and responses that one computer program can make of

10 another. And all you have to do is know how to ask

11 for the service. You don't have to know how the

12 service is actually being delivered.

13 And so the service is provided by possibly

14 secret code that sits on the server, but the way that

15 you access that secret code is through published

16 interface. Some APIs are incredibly simple. They

17 involve only one type of request. Other types of

18 APIs are very complicated. For example, the merchant

19 API for a merchant to submit a credit card

20 transaction through the web has -- my recollection is

21 has over 150 different messages that can be sent

22 through the API.

23 Q. So is an API an interface?

24 A. Well, okay. So the word "interface" has so

25 many different meanings. There are hardware

1 interfaces. There are software interfaces. An API
2 would be regarded as a software interface because
3 it's agnostic to the hardware that is used to make
4 the communication.

5 So yeah, it's a software interface. It's a
6 way for one program to gain access to the facilities
7 of another program. And the two programs can be
8 widely disparate. They can be thousands of miles
9 away because the communication is over the Internet.

10 Q. And I believe you mentioned earlier, as I
11 was looking at the transcript, that the server has an
12 API, right?

13 A. The server exposes an API. Exposing an API
14 means, hey, I've got these features available.
15 Here's how you access them. You have to send me a
16 message in this precise format in which you get
17 pieces of information to find places in the message;
18 and if I receive that message, I will respond to it
19 by sending you a message that has this precise
20 format. That's what an API is.

21 Q. Okay. So I just want to come back to this
22 just for the record because we've been -- we've been
23 going sideways a little bit here. I'm coming back to
24 paragraph 46, second sentence. I'll just read that
25 again. It says, "A 'web service' communication

1 involves a machine-to-machine interaction over the
2 Internet using web protocols."

3 So that's what I'm going to be talking
4 about next, okay?

5 A. Yes.

6 Q. All right. So is a mobile device -- sorry.
7 Strike that.

8 Is a mobile device a machine?

9 A. Yes.

10 Q. Is a server hosting a website a machine?

11 A. Yes.

12 Q. So if a mobile device accesses over the
13 Internet a server hosting a website, is that not a
14 type of machine-to-machine interaction using web
15 protocols?

16 A. Yes, but the sentence that you read is a
17 requirement. It's not a complete definition of what
18 a web service is. It says, "A 'web service'
19 communication involves a machine-to-machine
20 interaction over the Internet using web protocols."
21 Not all machine to machine interactions over the
22 Internet using web protocols are web services.

23 When I click on a hyperlink to ask for a
24 web page, sure, there's a request that goes from my
25 machine to the server. That's a machine-to-machine

1 interaction. That's not a web service.

2 Q. Okay. Thanks for that clarification.

3 I want to ask sort of a followup to that.
4 So using a similar example, but like if we have a
5 mobile device and it's executing a mobile application
6 that accesses a server hosting a website, for
7 example, to buy something, is that a type of
8 machine-to-machine interaction using a web protocol?

9 A. Yes. It's not a web service, but it is a
10 machine-to-machine interaction over the Internet
11 using web protocols.

12 Q. And why is it not a web service?

13 A. It's not a web service effectively because
14 it's not making use of an API. It's something that a
15 human has to do. The human essentially takes an
16 action that asks a piece of software to send a
17 message. The software will not send a message
18 without being asked to do that; whereas, in APIs, no
19 human needs to be involved. There's no -- there's no
20 API in the hypothetical you gave.

21 Q. Well, okay. Let me clarify that then. But
22 if I'm using a mobile device and I access an
23 application on my mobile device and that application
24 accesses a service, would it not then access the API
25 of the server?

1 A. Wait a second. Yeah, I think you -- you
2 intermixed the word "service" and "server." So can
3 you repeat --

4 Q. Sure. Yeah, I apologize.

5 So if I'm -- let's assume I'm using a
6 mobile device and there's an application on my mobile
7 device that accesses a server. Would my mobile
8 device not be interacting with the API of the server?

9 A. Maybe or maybe not. The server may not
10 even offer an API. For example, an ordinary old web
11 server that simply responds to an HTTP GET is not a
12 web service.

13 Q. Let's say I am using a mobile device with
14 an application that allows me to make a purchase; for
15 example, the Amazon app. Would that access an API of
16 Amazon server?

17 A. It might. If the Amazon server exposes an
18 API and the application makes use of the API, then
19 yes, that would be a web service.

20 Q. So in that instance, if I'm using a mobile
21 device using the Amazon app and I make a purchase
22 through Amazon server, would that involve a
23 machine-to-machine interaction over the Internet
24 using web protocols?

25 A. Yes. However, that is not the definition

1 of a web service. That is a requirement of a web
2 service but is not definition. Not all
3 machine-to-machine interactions over the Internet
4 using web protocols are web services. Some are; some
5 aren't.

6 Q. So let's go to paragraph 45 of your
7 declaration, please. And I'm looking at the third
8 sentence, and it says, "A 'web service' is a term of
9 art that refers to a service provided through a
10 program interface such as an API."

11 Do you see that?

12 A. Yes.

13 Q. So in that example we just talked about
14 where I'm using the Amazon app on my phone to make a
15 purchase and interacting with the Amazon server, why
16 is that not a web service?

17 A. It is if -- if you're interacting with an
18 API on the Amazon server. If you're not interacting
19 with their API, it's not a web service. It's a web
20 communication. That's all.

21 Q. So are you saying then that in order to be
22 a web service you have to access an API?

23 A. Access an API or equivalent. Yes.

24 Q. So let's go to paragraph 46 again, where we
25 read the second sentence. And I won't read it again,

1 but it says the words "web protocols."

2 Are you using that term "web protocols" to
3 mean the -- for example, an API?

4 A. No. So web protocols -- so there's a
5 difference between the Internet and the web. There
6 are all kinds of Internet communications that are not
7 web communications because they don't use web
8 protocols. The grandmother of all web protocols is
9 HTTP, a very high level protocol that's used to
10 communicate between machines.

11 So a web service has to use web protocols;
12 otherwise, it wouldn't be a web service. It would be
13 an Internet service. But not all services offered
14 over the been are web services. That's the problem.
15 Just because you see the word "service," doesn't mean
16 any old service is a web server.

17 Q. And that's because in paragraph 45 you're
18 indicating that web service has to involve a service
19 provided through a program in interface such as an
20 API, right?

21 A. Yes. So here's an example. When I go to
22 YouTube, it presents me with various images of videos
23 that I can watch on YouTube. When I click on one of
24 those -- on one of those icons, an HTTP GET is sent
25 to YouTube, and YouTube starts streaming the video to

1 me. There is no API there. It is coming through a
2 browser. My browser has no idea what an API looks
3 like. It just sends a URL. It's not a web service,
4 even though you could think of it abstractly as a
5 service. Yeah, I'm asking you for a video, and
6 you're giving me the video. That's a service, right.
7 It's over the web, right? So it's a web service.
8 No. Just because it's offered over the web and it's
9 a service does not make it a web service.

10 Q. Do any of the exhibits that you reference
11 in paragraph 46 say that a web service has to be
12 provided through a programming interface such as an
13 API?

14 A. I don't know. Those references contain
15 hundreds and hundreds of pages. I don't know if they
16 say exactly that anywhere.

17 Q. We've talked a little bit about
18 communications with a website. Can we just assume
19 that when we're communicating with a website, we're
20 going to be going through a server -- I'm sorry, an
21 API of the server hosting the website?

22 A. No. We can't assume that at all. When I
23 visit Amazon.com through my browser, there's no API.
24 My browser doesn't --

25 Q. What about if you use the Amazon app?

1 A. Possibly. I don't know. The Amazon may --
2 may make use of an API.

3 Q. Okay. Let's assume just for -- I
4 understand that you're saying that websites don't
5 always require an API.

6 Let's assume, just for the purposes of this
7 question and the next couple questions, that when I
8 interact with a website I'm going through an API of
9 the server hosting the website. Okay?

10 A. Okay.

11 Q. So if I have a mobile device and I
12 communicate with a website over the Internet -- and,
13 again, I'm communicating through an API of the server
14 hosting that website -- is there a communication
15 channel between the mobile device and the website's
16 API?

17 A. Sure. Otherwise, you could never interact
18 with it.

19 Q. Are there different communication channels
20 between the mobile device and the website in this
21 example depending on how the mobile device connects
22 to the website, for example, via cellular or Wi-Fi?

23 A. Repeat the first part of the question.

24 Q. Would there be different -- let me back up.
25 So I'm -- the same example where I'm connecting with

1 a mobile device to an API of a server hosting a
2 website, right?

3 A. Yes.

4 Q. And I'm going to do it one of two ways.
5 The first way is I -- with the mobile device I
6 connect to the website's API using a cellular
7 connection. And the second example is where I use
8 the mobile device, and I connect to the website's API
9 using Wi-Fi. Okay? Do you follow me?

10 A. Yes.

11 Q. Under those two examples, are there
12 different communication channels that the mobile
13 device would use to access the mobile devices -- I'm
14 sorry, the website's API?

15 A. Well, I mean, of course, there are
16 differences because in one case I'm not using Wi-Fi
17 and the other case I am using Wi-Fi, so they are
18 certainly different.

19 Q. Would a POSITA use a communication API to
20 communicate with an application installed on a mobile
21 device?

22 A. Now I have to understand what you mean by a
23 communication.

24 Q. So what I mean by that is we talked earlier
25 about how some websites potentially have an API for

1 other devices to interact with that website, right?

2 A. Yes.

3 Q. So would a POSITA want to use an API to
4 interact with an application installed on a mobile
5 device?

6 A. You know, so we're talking about completely
7 outside of the context of the '488 patent? Just
8 talking generically about the web?

9 Q. Yes.

10 A. Okay. With that clarification, repeat the
11 question.

12 Q. So with the clarification that we're
13 talking generally and not about the '488 patent, I'm
14 just trying to understand would a POSITA want to use
15 an API for a website to be able to communicate with
16 an application installed on a mobile device?

17 A. Sure. You mean now, today? Absolutely.

18 Q. So if a mobile device such as a mobile
19 phone or a tablet accesses a website, having an API,
20 does the mobile device access the API of the website?

21 A. It may. If that's the only way to make use
22 of the services afforded by the website, then it
23 would have to use the API.

24 Q. And in the examples we talked about
25 earlier, you said that the -- like, for example, if I

1 were to buy something in a browser from Amazon.com, I
2 may not be using an API, right?

3 A. I doubt that you'd be using an API. The
4 reason is the browser would have no way of knowing
5 what the requirements are for the messages to be
6 passed through the API. In fact, the browser might
7 have been installed on my machine long before the API
8 was developed. So it's probably not using the API.

9 Q. And we talked earlier -- or you gave me an
10 example about how if I accessed YouTube on the
11 Internet through a browser it may not use an API,
12 right?

13 A. It doesn't.

14 Q. What about if I used the YouTube app on my
15 phone?

16 A. It might. I don't know. It could.

17 Q. Okay. Can we turn to paragraph 50?

18 A. Okay.

19 Q. And paragraph 50 talks about a discrepancy,
20 and then there's an annotated diagram of Petitioner's
21 mappings beneath paragraph 50. Do you see that?

22 A. Yes, I do.

23 Q. And this is Dill's Figure 9, right?

24 A. Yes.

25 Q. Okay. Is this an annotation that you

1 copied from the petition?

2 A. I don't think so. This is an annotation
3 that is consistent with the allegations made in the
4 petition.

5 Q. Did you make this annotation?

6 A. Counsel made it, provided it to me.

7 Q. So this was created by patent owner's
8 counsel who provided it to you, right?

9 A. The annotations were. The black -- the
10 material in black is identically out of Dill. The
11 red boxes and arrows were provided by counsel.

12 Q. Okay. Let's go to paragraph 51, and
13 beneath paragraph 51 there's another annotation of
14 Dill's Figure 9.

15 Do you see that?

16 A. Yes.

17 Q. Okay. Same question, did you prepare this
18 annotation?

19 A. It was prepared by counsel. I agree -- we
20 talked about it. I agree with it, but they weren't
21 through the formality of creating.

22 Q. Okay. Let's go to paragraph 53, please.

23 A. I'm there.

24 Q. And there is an annotated drawing of Dill's
25 Figure 9 beneath paragraph 53, right?

1 A. Yes.

2 Q. Okay. And I believe, and you can confirm
3 for yourself, that this is the annotated drawing from
4 page 25 of the petition in the -- for the '488
5 patent, right?

6 A. Yeah. I believe it's from the petition
7 directly.

8 Q. Okay. So let's go back to this annotated
9 drawing, and the annotated drawing beneath paragraph
10 53 identifies in the annotation several communication
11 channels, right?

12 A. Yes.

13 Q. Okay. Can we turn to Dill -- I would like
14 you to focus on paragraph 101, please.

15 A. I'm there. It's a long paragraph, but I am
16 there.

17 Q. Yeah, it is a long paragraph. I'm going to
18 only focus on the first -- okay. Okay. It says
19 here, if I may read, "As illustrated here, the money
20 transfer facilitator system 140 can additionally or
21 alternatively comprise one or more interfaces 136-138
22 for conducting money transfer transactions and a
23 transfer options module 145 communicatively coupled
24 with the one or more interfaces 136 to 138."

25 Do you see that?

1 A. Yeah. That's what's shown in the annotated
2 figure.

3 Q. Okay. So Dill, if we refer to the
4 annotated drawing beneath paragraph 53 of your
5 declaration, those interfaces 136 to 138 are
6 interfaces, right?

7 A. Well, again, we're using this word
8 "interface" which has many, many different meanings.
9 They are identified by Petitioner as communication
10 channels.

11 Now, to have a communication channel, you
12 have to have an interface, a hardware interface at
13 each end; and typically you'll also have software
14 interfaces.

15 So if we can read all of that into these
16 double-headed arrows that are in the figure, then
17 they show a set of interfaces and communication
18 channels, ways of getting access to the transfer --
19 the transfer options module.

20 Q. So what is your understanding of the term
21 "interfaces" that's used in paragraph 101, the
22 portion that we just read where we refer to
23 components 136, 137, and 138?

24 A. It's loose language because the interfaces
25 are shown as blocks in the drawing. I think it just

1 means ways of communicating. I mean, it's real
2 simple. What it says -- you've got this money
3 transfer facilitator, and there are different ways of
4 interacting with it. The first one that's shown in
5 the drawing is IVR 136. That's interactive voice
6 response. That means I call up a phone number. I
7 don't even need a computer. I have a regular old
8 telephone. I call on the phone, and it says, "What's
9 your subscriber number" or, you know, "What's your
10 account number?" And I speak it in words.

11 And then it says, "To make a transfer, say
12 the number one; to make a withdrawal, say the number
13 two," or whatever. And that through interacting with
14 my voice, I can cause the money transfer facilitator
15 to move money from one account to another. That's
16 one way of doing it.

17 Another way of doing it is over the web.
18 So I -- it says -- that's web 137. So I can have a
19 browser, for example, and I can interact with the
20 transfer options module through a browser. And it
21 says, "What do you want to do?" It has a bunch of
22 menu options. "Oh, I want to transfer some money
23 from my account to the recipient's account."

24 Then the third one is other interfaces,
25 other interfaces 138. It's up to the imagination

1 what those interfaces might be, but an ATM machine
2 might be one of them. If an ATM machine interacts
3 with the facilitator and I can enter commands at the
4 ATM which would be like, "Please dispense some money
5 to me out of account number such and such."

6 And then the other arrow is to agent 135.
7 So the agent can communicate with the mobile -- the
8 money transfer facilitator also. That's all. Just
9 different ways of accessing the money transfer
10 facilitator.

11 Q. Would you consider those lines between the
12 interfaces 136, 137, 138, that are identified as
13 communication channels, as a software interface?

14 A. Well, the lines are communication channels.
15 They're the means of getting messages from one
16 computer to another.

17 Q. Can you turn to Figure 1 of the '488
18 patent, please.

19 A. I'm there.

20 Q. Okay. So we have -- in Figure 1 we have
21 the integration tier 101. All right?

22 Do you see that?

23 A. Yes.

24 Q. And then there's a bunch of lines; one goes
25 to iPhone, one goes to Android, one goes to

1 Blackberry, et cetera.

2 A. Yes.

3 Q. Are all those interfaces? Well, sorry.
4 Let me clarify. Are all those lines between
5 integration to your iPhone -- Android, Blackberry, et
6 cetera -- interfaces?

7 A. They involve interfaces, of course;
8 otherwise, the Android could not talk to the
9 integration tier unless there was some interface to
10 it. Typically those interfaces are going to be
11 hardware interfaces. They're always necessary.

12 Q. They're going to -- sorry. Did you say
13 hardware interfaces?

14 A. Yeah. All communication channels have
15 hardware. There are no exceptions to that so
16 interfaces are required.

17 Q. So Figure 1 of the '488 patent, it's in
18 black diagram form, right?

19 A. It's referred to as a functional
20 architecture, and the semantics of the lines in it
21 are possibly elusive. But it's clear that an Android
22 device can interact with the integration tier. I
23 think that's the significance of the vertical line
24 between the block that says Android and the block
25 that says integration tier 101.

1 The integration tier supports getting input
2 from all kinds of devices and channels, even IVR,
3 which was in Dill. IVR you can see is one of the
4 channels that's also in the '488 patent. It's in the
5 fourth column of channels. After web, point of sale,
6 and IVR.

7 Q. So when you look at Figure 1 of the '488
8 patent, you see these blocks, like integration tier,
9 notification services, service connectors 103,
10 et cetera, do you consider those to be software
11 implementations?

12 A. Well, the integration tier, of course,
13 involves software.

14 Q. What about business process services 104?

15 A. Yeah, it's software.

16 Q. And so integration tier 101 is software as
17 well?

18 A. Yeah. I think -- I'm looking at everything
19 at the integration tier level and below, and there's
20 other software running on hardware, software that
21 requires hardware. Processor 121 is hardware.
22 Database 108 is a physical thing, but it has software
23 for accessing, querying the database. So all of
24 these things are going to involve software somewhere,
25 sort of.

1 Q. Sorry. Go ahead.

2 A. Sort of. IVR doesn't. The IVR channel is
3 receiving voice. It's not software. There's no
4 software on the IVR end because if I pick up my
5 telephone, I actually have a landline. It's not
6 software. It's going to send -- it's going send
7 voice to something at the integration tier. Now,
8 what I think really is this Android is not the
9 Android -- I'm referring to Android under channels
10 111 in Figure 1. I don't think that's the actual
11 Android device. I think what that is meant to
12 represent is the material necessary to accept input
13 from an Android device.

14 Q. So that would only be a software interface
15 between integration tier and the software of an
16 Android, right?

17 A. Yes.

18 Q. Okay. Same thing with iPhone. It would be
19 -- you are interacting with IOS and integration tier
20 through a software channel?

21 A. Yes. And IVR is going to be interacting
22 with a voice phone, and it's going to have to
23 interpret this -- the key presses and feed those into
24 the integration tier.

25 Q. So if you look -- and I think you mentioned

1 earlier that processor 121 is hardware as processors
2 are in the bottom right-hand corner. You see that's
3 connected to payment handler 105, right?

4 A. Yes.

5 Q. Is there a direct connection between
6 processor 121 and integration tier 101?

7 A. So the processor -- this is an unfortunate
8 thing in financial patents that the word "processor"
9 has multiple meanings. One is it can be a computer
10 processor. In this case processor 121 is a payment
11 processor, not an actual piece of hardware. It's a
12 service, for example, that a merchant would use in
13 order to inject a credit card transaction into the
14 correct payment network.

15 So when I go to a store and they -- How do
16 you want to pay? I hand them a credit card.
17 Different things happen. If I hand them a Visa card
18 as opposed to if I hand them a Mastercard because the
19 Visa card data has to be injected into the Visa
20 network. The Mastercard information has to be
21 injected into the Mastercard network.

22 And so what the merchant does is he sends
23 the whole -- he sends -- whatever I put in, sends it
24 to what's referred to as a merchant processor. A
25 merchant processor takes a look at the credit card

1 number, figures out from there how to route the
2 transaction into the correct network. That's what's
3 meant by processor 121. Now, of course, it involves
4 computer processors, but that's not what the word
5 "processor" means in block 121.

6 Q. But earlier you said that processor 121
7 could be hardware, right?

8 A. Well, it always has to have hardware;
9 otherwise, it can't receive any data and execute
10 anything. But the processor that's referred to there
11 is a merchant processor, not just a chip.

12 Q. Okay. So let's use an example of Android
13 in channel 111, which we talked earlier. It could be
14 really a software interface and connects to
15 integration tier 101, right?

16 A. Yes.

17 Q. Okay. Is there a connection shown in
18 Figure 1 between Android integration tier and then
19 the payment processor 121?

20 A. Well, not directly. You have to go through
21 a number of intermediaries. You go to the
22 integration tier. The integration tier will then
23 talk to business process services. Business process
24 services may invoke the security services 106 to make
25 sure the transaction is authentic or that it's

1 encrypted correctly.

2 Then business process services will
3 communicate with service connectors 103. Service
4 connectors 103 will then send the transaction to the
5 payment handler, if necessary, if it can't be handled
6 all internally.

7 And then the payment handler will send the
8 data from the transaction to a payment processor and
9 then various things will happen; that is, money will
10 actually get transferred.

11 Q. Okay. I have just a few more questions, if
12 you bear with me. We can finish up relatively soon.

13 We can go to paragraph 21 of your
14 declaration.

15 A. Okay. Paragraph 21. Take me a second.
16 I'm there.

17 Q. So paragraph 21 specifically you explain
18 that different communication channels has to meet two
19 conditions.

20 Do you see that?

21 A. Yes.

22 Q. Okay. And the first condition is
23 identified as number 1, and the second condition is
24 identified as number 2. Right?

25 A. Yes.

1 Q. Okay. When you say, "outside of the
2 integration tier" -- I'm referring to the third line
3 from the bottom of paragraph 21 -- what do you mean
4 by "outside"?

5 A. Okay. So this comes from Figure 1. Figure
6 1 shows something called the integration tier. The
7 integration tier is going to be software running on
8 hardware. All software has to run on hardware.

9 Now the integration tier has access to
10 these things called channels 111. The channels 111
11 connect to various devices. The IVR is going to
12 communicate with the telephone. The Android is going
13 to communicate with an Android phone. Web is going
14 to communicate with devices running web browsers,
15 okay?

16 All of those devices are outside the
17 integration tier. If they were inside the
18 integration tier, you wouldn't need any channels to
19 connect to them.

20 And so what's not shown in the drawing is
21 from each of those channels 111 there should be an
22 arrow upward to the actual device that the channel is
23 intended to talk to. All those devices are outside
24 of the integration tier.

25 Q. And that's because this is a software

1 implementation, right?

2 A. No, it's because of what's shown. You
3 don't need -- you don't need a channel to talk to a
4 device that's inside you. So if I'm -- if I'm
5 running on a processor -- and one piece of the
6 processor wants to send data to another piece of the
7 processor. It doesn't need a communication channel
8 to do that. It just moves something from one place
9 in memory to another place in memory.

10 Q. Now, in practice, because this is a
11 software implementation, do you have dedicated
12 communication channels to the integration tier for
13 each different type of device?

14 A. Well, that depends on how you would
15 implement this. So if I'm -- if I'm a POSITA reading
16 this -- reading this patent, I say to myself, okay,
17 wow, there are a lot of channels that this
18 integration tier has to talk to. I would like to
19 develop some commonality among those channels. So
20 what I'm going to do is I'm going to expose an API.
21 And each one of those channels, which are pieces of
22 software -- we're not talking about the actual
23 communication mechanism. We're talking -- the
24 communication mechanism has to do with wireless
25 networks and telephone networks and things like that.

1 What we're talking about is when data is
2 received over the channel, what do I do with it? And
3 I have to do different things with it depending on
4 where it came from because what's coming from IVR is
5 voice, and what's coming from Android is something
6 completely different.

7 So I'll expose an API, and I'll tell the
8 guys who write the channel software, "Here's what you
9 need to do to talk to the integration team." That
10 would be a sensible implementation. There might be
11 other implementation.

12 Q. So in paragraph 21 in the last sentence, it
13 says, Plainly this also means that the different
14 communication channels cannot be completely contained
15 within the integration tier." Do you see that?

16 A. Yes.

17 Q. Okay. So we talked earlier about how the
18 integration tier is the software implementation,
19 right?

20 A. Yes.

21 Q. So if that's the case, how can something be
22 outside of software?

23 A. So the integration tier is a collection of
24 software components. Any -- anything that's not one
25 of those software components is outside the

1 integration tier. Business process services, for
2 example, 104, underneath the integration tier, are
3 not part of the integration tier. If they were, then
4 you wouldn't have separate boxes for them.

5 Q. So are you saying then that the physical
6 devices that could connect to the integration tier in
7 Figure 1, they are separate entities from the
8 integration tier?

9 A. Not necessarily. For example, I could have
10 a server that has integration tier software and it's
11 possible that business process services 104 could
12 also run on the same server. It's possible.

13 This -- this architecture is a logical
14 architecture that makes great sense because what you
15 try to do is you don't want to have one huge program
16 that attempts to do everything. All right? It's
17 impossible to design. It's impossible to maintain
18 software like that.

19 And so this is compartmentalization. Each
20 function is performed by a certain set of software
21 modules, and they're grouped logically into this
22 integration tier, business process services,
23 et cetera.

24 Service connectors, for example, the
25 intelligence of this architecture is that I can -- if

1 you look at the third-party systems 113 on the top
2 right of Figure 1 from the patent, it shows these
3 third-party systems are remittance and external
4 processor and bank, green dot, et cetera, et cetera.

5 Okay. Now, let's suppose some third-party
6 system shows up and says, "Hey, we would like to talk
7 to your system," the only thing that has to be
8 changed is service connectors 103. That's all. In
9 fact, all we have to do is add something that makes
10 use of the service connectors 103 API. We have to
11 make no change to anything else in the drawing.

12 So this --

13 Q. So taking integration tier 101 as an
14 example -- I know we are talking about service
15 connectors, but going back to integration tier 101
16 and we see lines to iPhone, Android, Blackberry,
17 et cetera, right?

18 A. Let's suppose that some new device shows up
19 that's not an Android; it's not a Blackberry,
20 et cetera. It is some type of new cell phone, and we
21 would like to accept input from that cell phone. We
22 would have to know how to talk to it.

23 And so what we would do is we would create
24 another channel in the channel 111, but you would not
25 change a single line of code in the integration tier

1 to do that. So this is a very flexible architecture
2 that allows --

3 Q. So when you say -- sorry. I apologize.

4 A. -- that allows for new devices to be added
5 easily without having to change much software.

6 Q. So when you say not changing the software,
7 you're talking about not having to change the
8 integration tier when a new device is added, right?

9 A. That's right, because the integration tier
10 has this important logic that tells it how to
11 communicate with the business process services. You
12 don't want to change that every time some new device
13 shows up.

14 And so all you have to do is write some
15 software that would be one of those channels 111 that
16 communicates with the integration tier API but also
17 knows how to talk to this new device that we're --
18 that we're adding.

19 So it's one new piece of software that has
20 to get added in the channels block, and nothing else
21 in the entire architecture has to be changed.

22 Q. So can you -- I'll have you look at Figure
23 1 again, please, but then also go back to paragraph
24 20 of your declaration.

25 A. Yes.

1 Q. Please.

2 A. Yes.

3 Q. So I want to talk again briefly about the

4 first sentence where it says, you know, you've

5 explained -- in your opinion, web services

6 communications mechanisms were interfacing with a

7 mobile application. It requires that the web

8 services communication mechanisms must interface with

9 a mobile wallet application, right?

10 A. Well, it's literally in the claim phrase.

11 Yes.

12 Q. Okay. Where in Figure 1 is the interface

13 with the mobile wallet application?

14 A. Oh, well, that's -- it loads it -- there's

15 certainly -- okay. Let's look in channels 111 or

16 what are mobile devices. iPhone, Android, and

17 Blackberry are mobile devices. And so they are going

18 to be web services communication mechanisms there if

19 you're talking to those devices because those are

20 mobile devices.

21 Q. Where is the mobile wallet application

22 there?

23 A. It has to run on the mobile device.

24 Q. And so then where are the web services

25 communication mechanisms?

1 A. They are going to be between those channels
2 111 and the mobile device. The devices also are not
3 shown in this drawing. What's shown are the software
4 for communicating with the external devices. So when
5 it says Android, that's not actually an Android.
6 That's a communication channel to talk to an Android.

7 Q. So just to be clear then, the web services
8 communications mechanisms that would be at the top of
9 Figure 1, which would connect to the block that's
10 labeled as Android, right?

11 A. Yes. Typically. And the reason I say
12 typically is that normally I wouldn't expect the
13 communications -- let's say over the Android channel
14 between that block that says Android and integration
15 tier 101, I wouldn't expect those to take place over
16 the web. They would probably take place within a
17 data center on which the channel and the integration
18 tier are running. So the web part of it is external
19 to this drawing.

20 Q. So the web services communication
21 mechanisms are external to the integration tier,
22 right?

23 A. Well, they are -- each of these channels
24 that talks to the mobile device is going to expose an
25 API to the mobile device. The mobile device is going

1 to use the API functions to access the web services
2 offered by the platform.

3 Q. But those would all be external to the
4 integration tier, right?

5 A. I -- I don't see a disclosure in the patent
6 that the channels are talking to the integration tier
7 over an API. I may have to look at that. I mean,
8 over a web API.

9 Q. Okay.

10 A. I'm just checking. Let's look at the claim
11 language, but just talking about the channels. So
12 the first occurrence is in Claim 1 where the
13 integration tier is configured to communicate with a
14 plurality of different device types over a plurality
15 of different communication channels. And that's
16 what's shown in Figure 1.

17 Then later on there is a limitation to send
18 short message peer to peer, SSMP messages; short
19 messaging service, SMS messages; and simple email
20 transfer protocol, SMTP messages, over to different
21 communication channels to different devices.

22 Well, to send an SSMP message, you have to
23 be on a cellular device; whereas, to send -- to
24 receive email, you don't have to be on a cellular
25 device. So there are different -- they are different

1 communication channels.

2 I don't think there's any different use of
3 communication channels in the remainder of the
4 claims.

5 MR. BOWSER: Okay. I have no further
6 questions.

7 MR. THEISS: Dr. Shamos, I'm going to have
8 like two or three more qualifying questions. Do you
9 want to take a break first or do you want to jump
10 right into that?

11 THE WITNESS: Depends totally on you. I'm
12 happy to go on, but if you need time to collect your
13 thoughts, it's up to you.

14 MR. THEISS: I'm okay. Counsel, are you
15 okay to proceed?

16 MR. BOWSER: Yes.

17 MR. THEISS: Great.

18 EXAMINATION BY MR. THEISS:

19 Q. So Dr. Shamos, Mr. Bowser asked you a lot
20 of questions regarding if accessing Amazon.com
21 through the browser on your computer or on your
22 mobile device, if that was a mobile application.
23 Just to clarify, web browser, is that a mobile wallet
24 application?

25 A. No.

1 Q. Can you explain why?

2 A. Yes, because I can run a web browser on my
3 desktop, which is not a mobile device. Doesn't make
4 use of any of the features of a mobile device. If it
5 did, I wouldn't be able to run it on my desktop.

6 Q. So does a web page inherently contain a web
7 service?

8 A. Well, when you speak of a web page, do you
9 mean the web page that's stored at a server that's
10 being served to somebody, no, it doesn't. Web pages
11 existed long before web services were invented.

12 Q. Does Dill teach a web page with a web
13 service?

14 A. Dill doesn't teach any web service. I have
15 to look to see whether it talks about a web page. It
16 may.

17 Q. Can you check that?

18 A. I'm checking. I'm sorry. Unfortunately,
19 the word "page" appears on every page, so I can't
20 just look for "page." I to have look for "web page."

21 Q. And it might be helpful to also look at
22 websites since they are synonyms.

23 A. So web page occurs twice in Dill. It
24 occurs in paragraph 33. I'll just read this
25 relatively short sentence that it's in.

1 "Similarly, a sender may stage a
2 transaction by paying for it in advance in a checkout
3 lane and then later providing the money transfer
4 facilitator with transaction information; e.g., by
5 providing the transaction information via IVR, live
6 operator, and/or web page."

7 So again, that's what we talked about
8 earlier which is you've got the data. You just have
9 to enter some numbers into -- into a web form. And
10 this says you can also submit a IVR so clearly it has
11 nothing to do with a mobile application.

12 Q. And, Dr. Shamos, can I ask you a question
13 there? Would either of those require a web service,
14 either a submission via the web form or the IVR?

15 A. Or the live operator? The live operator
16 certainly doesn't require a web service.

17 Q. Thank you. And you said there was another
18 citation where web page was mentioned?

19 A. Yes, it's in paragraph 34. There's a
20 discussion -- I have to read this sentence before it;
21 otherwise, it makes no sense out of context.

22 This is beginning about nine lines up from
23 the bottom of paragraph 34.

24 "If the lookup indicates that the recipient
25 is a mobile subscriber for a mobile network operator

1 with whom the money transfer facilitator does not
2 have a relationship, the recipient can receive a
3 notification via SMS, or other format message,
4 indicating that funds are available for pickup in
5 cash at a cash retail outlet. Other formats for
6 messages can include, without limitation, electronic
7 email, instant messaging, live operator call,
8 pre-recorded or automated voice message, or web page
9 notification."

10 So what I can do -- it says -- this is a
11 way of notifying somebody of something, and it can be
12 done by email; or if you happen to be at a web page,
13 I can display a message to you on your web page.

14 Now, if your question is: Does this
15 involve any web services? Not necessarily. It
16 doesn't imply to any web services.

17 Q. Great. Can you also do the same exercise
18 with the word "website," just since we have agree
19 those are synonyms.

20 A. I didn't agree they were synonyms.

21 Q. Okay. Would you like to explain the
22 difference between web page and website then?

23 A. Sure. Website is something that can
24 provide web pages. But a web page itself is not a
25 website. For example --

1 Q. Okay.

2 A. When I go to the web and I ask for -- I go
3 to Amazon.com and it displays a web page on my -- on
4 my browser, my browser is not a website just because
5 it has a web page.

6 Q. Understood.

7 A. So you want me to do the search for
8 website? I've done it.

9 Q. Yes.

10 A. Website occurs three times. It occurs in
11 paragraph 71 in the middle. The paragraph, "For
12 example, the process also could begin with a sender
13 105 initiating a money transfer via a website,
14 telephone, kiosk, ATM, in lane at a retailer or
15 through any other channel and paying for the transfer
16 and applicable fees through any available funding
17 source."

18 I don't need to read the rest. It's clear
19 there are no APIs there because there is no API on
20 the telephone.

21 And then the next occurrence is in
22 paragraph 92. "Alternatively, the sender 105 can
23 initiate the money transfer transaction via a website
24 or interactive voice response, IVR, phone system of
25 the money transfer facilitator, bank, financial

1 institution, or other entity as described above or as
2 otherwise known in the art."

3 Well, there's no -- no web services there
4 because I can use interactive voice response.

5 And then the last one is in paragraph 104
6 near the end of the paragraph. It says, "Via one of
7 the interfaces 136 to 138; e.g., by logging on to a
8 website calling an IVR, visiting an agent location,
9 et cetera. Depending upon the notification and/or
10 instructions provided, the recipient can select a
11 delivery option and/or provide instructions for the
12 delivery."

13 Again, there is no web service implied
14 there either. Certainly not by visiting an agent
15 location. There is no web service there.

16 MR. THEISS: Thank you, Dr. Shamos. I
17 don't have any further questions.

18 MR. BOWSER: Nothing further for me.

19 THE WITNESS: Okay.

20 MR. BOWSER: Thank you very much, Dr.
21 Shamos.

22 THE WITNESS: You're welcome. Happy
23 holidays, everybody.

24 COURT REPORTER: If I may get copy requests
25 on the record from Mr. Theiss, please.

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THE WITNESS: Yeah, and I need to read and sign.

MR. THEISS: And regular transmission time is fine and the rough in normal course.

MR. BOWSER: Yeah, and I think we ordered this, but if we can get the transcript in a week.

(Whereupon the proceedings concluded at 9:25 a.m.)

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ERRATA SHEET
NAME OF CASE: APPLE INC. V. FINTIV, INC.
DATE OF DEPOSITION: DECEMBER 20, 2023
NAME OF WITNESS: MICHAEL I. SHAMOS, PH.D.

Reason Codes:

- 1: To clarify the record.
- 2: To conform to the facts.
- 3: To correct transcription error.

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DECLARATION UNDER PENALTY OF PERJURY

I, MICHAEL I. SHAMOS, PH.D., do hereby
certify under penalty of perjury that I have read the
foregoing transcript of my deposition taken on
December 20, 2023; that I have made such corrections
as appear noted on the Deposition Errata Page(s),
attached hereto, signed by me; that my testimony as
contained herein, as corrected, is true and correct.

This Declaration is executed this _____
day of _____, 20____, at
_____, California.

MICHAEL I. SHAMOS, PH.D.

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)
STATE OF CALIFORNIA) ss.
)

I, Tamara Houston, RPR, CCRR, CSR No. 7244,
a Certified Shorthand Reporter in the State of
California, duly empowered to administer oaths, do
hereby certify:

That, prior to being examined, the witness
named in the foregoing deposition was by me duly
sworn to testify to the truth, the whole truth, and
nothing but the truth;

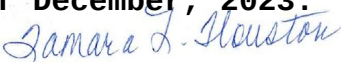
That said deposition was taken down by me in
shorthand at the time and place therein named, and
thereafter reduced to typewriting by computer-aided
transcription under my direction;

That the dismantling, unsealing, or unbinding of
the original transcript will render the reporter's
certification null and void.

I further certify that I am not interested in
the event of the action.

In witness whereof, I have hereunto subscribed
my name.

Dated: 28th of December, 2023.



TAMARA L. HOUSTON
CSR 7244, RPR, CCRR 140

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