IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VISA INC.,

Petitioner,

v.

CORTEX MCP, INC.,

Patent Owner.

IPR2024-00486

IPR2024-00488

IPR2024-00489

IPR2024-00490

Deposition of MICHAEL IAN SHAMOS, PH.D.

Conducted Remotely

Wednesday, March 12, 2025

9:01 a.m.

Reported by: Matthew Goldstein, RMR, CRR

DIGITAL EVIDENCE GROUP

1730 M Street, NW, Suite 812

Washington, D.C. 20036

(202) 232-0646

1 Deposition of MICHAEL IAN SHAMOS, PH.D.,
2 conducted remotely:
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9 Pursuant to Notice, before Matthew Goldstein,
10 RMR, CRR, Notary Public in and for the State of
11 Maryland.
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Visa v. Cortex, IPR2024-00489
Page 2

1 A P P E A R A N C E S

2 ON BEHALF OF THE PETITIONER, VISA INC.:

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12 ON BEHALF OF THE PATENT OWNER, CORTEX MCP,

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20

21 ALSO PRESENT:

22 DEANDRAE SHIVERS - VIDEOGRAPHER

1 C O N T E N T S

2 EXAMINATION OF MICHAEL IAN SHAMOS, PH.D. PAGE

3

4 By MR. WILSON 6

5

6 E X H I B I T S

7 DEPOSITION EXHIBIT PAGE

8

9 Exhibit 1005 Declaration of Michael Ian 18

10 Shamos, Ph.D., J.D., Previously

11 Marked

12 Exhibit 1012 United States Patent 30

13 Application Publication

14 2009/0271321 A1, Previously

15 Marked

16 Exhibit 1048 Declaration of Michael Ian 7

17 Shamos, Ph.D., J.D., Previously

18 Marked

19

20

21

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CORTEX EX2027
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1 THE VIDEOGRAPHER: This is the beginning
2 of the videotaped deposition of Dr. Michael Ian
3 Shamos, in the matter of Visa versus Cortex.
4 Today's date is March 12th, 2025.
5 And the time is 9:01 a.m. Eastern.
6 Counsel, please introduce yourselves,
7 after which our court reporter will swear in the
8 witness.
9 MR. WILSON: Douglas Wilson of Armond
10 Wilson LLP for patent owner, Cortex. With me is
11 Amy Han and possibly Juan Rizo.
12 MR. ARGENTI: And this is Matt Argenti
13 of Wilson Sonsini on behalf of petitioner, Visa.
14 With me is Wes Derryberry.
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22

1 P R O C E E D I N G S

2 Whereupon,

3 MICHAEL IAN SHAMOS, PH.D.,

4 being first duly sworn or affirmed to testify to

5 the truth, the whole truth, and nothing but the

6 truth, was examined and testified as follows:

7 EXAMINATION BY COUNSEL FOR THE PATENT OWNER

8 BY MR. WILSON:

9 Q. Thank you, Dr. Shamos.

10 Can you please state your full name?

11 A. Michael Ian, I-A-N, Shamos, S-H-A-M-O-S.

12 Q. Okay. Is there any reason, medical or

13 otherwise, why you cannot testify fully,

14 truthfully, and accurately as you sit here this

15 morning?

16 A. No.

17 Q. Okay. You understand you're under oath;

18 correct?

19 A. Yes.

20 Q. Now, we are covering four IPRs in this

21 deposition this morning. You're aware of that?

22 A. Yes.

1 Q. Okay. And they are IPR2024-00486, 488,
2 489, and 490.
3 Does that sound right?
4 A. It is right.
5 Q. Okay. And you submitted, for all four
6 of those IPRs, a single declaration; correct?
7 A. Well, two declarations, but -- there was
8 an initial one and a reply declaration.
9 Q. Yeah, sorry, let me clarify that.
10 So for all four IPRs, you submitted a
11 single reply declaration; correct?
12 A. Correct.
13 Q. And that is Exhibit 1048; correct?
14 A. Yes.
15 Q. Now, do you have a copy of Exhibit 1048?
16 A. Yes, I have a copy of all the filings in
17 the IPRs.
18 Q. Okay. So do the copies you have have
19 any comments or notes on them?
20 A. No, I pulled them from the PTAB website.
21 (Exhibit 1048, Previously Marked.)
22

1 BY MR. WILSON:
2 Q. Okay. All right.
3 So if you have a copy of Exhibit 1048,
4 can you turn to the last page?
5 A. I'm there.
6 I did respond that I'm there.
7 Q. Oh, sorry, I missed it.
8 That's your signature on the last page?
9 A. Yes.
10 Q. And it was signed on February 3rd, 2025;
11 correct?
12 A. Yes.
13 Q. Now, did you review Exhibit 1048 in
14 preparation for your deposition this morning?
15 A. Yes.
16 Q. Did you find anything you wanted to
17 correct?
18 A. No.
19 Q. Okay. So let's take a look at
20 paragraph 14 of your declaration, Exhibit 1048.
21 A. Yes.
22 Q. Now, in the last sentence there, you

1 referred to the "user's private key."
2 Do you see that?
3 A. I'm sorry, which paragraph?
4 Q. Paragraph 14.
5 A. Oh, yes, right. Yeah, there are two
6 sentences. Okay, I'm there.
7 Q. Okay. And you see the reference to the
8 "user's private key"; right?
9 A. Yes.
10 Q. And this is from Stafford; correct?
11 A. Yes.
12 Q. Now, in Stafford, the user is assigned a
13 private key as part of its use of Stafford's
14 system; correct?
15 A. Yes.
16 Q. And the user's private key is persistent
17 regardless of how many credentials the user
18 uploads or how many releases of credential
19 information the user purchases; correct?
20 A. I think that's generally true. I can
21 imagine circumstances in which a different private
22 key would be used.

1 Q. Okay. Let's take a look at
2 paragraph 15.
3 A. I'm there.
4 Q. Okay. Here you refer to the OTP, which
5 stands for one-time pad; correct?
6 A. Yes.
7 Q. Now, you also refer to -- sorry, let's
8 just look at the last sentence, the last sentence
9 of paragraph 15.
10 A. Before we do that, I do discover an
11 error here.
12 Q. Okay.
13 A. I think it's trivial, but I should
14 mention it. It's in -- the middle of the
15 paragraph, there's a line that begins "that they
16 are."
17 Q. "That they are."
18 A. Yeah. It's -- one, two, three, four --
19 the sixth line.
20 Q. The sixth line. One, two, three, four,
21 five, six.
22 A. It begins "that they are."

1 Q. I don't see it.
2 Are you in paragraph 15?
3 A. Yes.
4 Q. Oh, the line begins -- okay. Oh, I see,
5 yes.
6 A. Yeah, the word "are" is replicated, and
7 so the first occurrence of "are" should be
8 deleted.
9 Q. Okay.
10 A. Because the way it reads now, it's not
11 grammatical.
12 Q. Okay. Fair enough.
13 So I'm looking about three lines below
14 that.
15 A. Yes.
16 Q. Do you see the sentence that begins,
17 "The OTP, IdPad, and IdSecPad"?
18 A. Yes.
19 Q. Okay. That sentence reads, "The OTP,
20 IdPad, and IdSecPad are tied to this particular
21 credential information-e.g., the credential
22 information is encrypted using the OTP, and the

1 OTP/IdPad/IdSecPad are associated with the
2 credential information in the system's
3 datastores)-and are therefore information
4 'associated' with the credential."
5 Did I read that correctly?
6 A. Yes.
7 Q. Okay. The OTP, IdPad, and IdSecPad --
8 that's I-D-S-E-C-P-A-D -- in Stafford are prepared
9 for a single release of information; correct?
10 A. Well, they can be used for multiple
11 releases of information, but they might only be
12 used once.
13 Q. When you say they can be used for
14 multiple releases, what do you mean by that?
15 A. Well, you don't need -- a one-time pad
16 has multiple keys, you use one key per release of
17 information.
18 Q. So each time you select information for
19 release, you use a one-time pad; correct?
20 A. Yes.
21 Q. Okay. And that's a different one-time
22 pad with each release of the information; correct?

1 A. I don't think that's true.
2 Q. You think the one-time pad is persistent
3 in Stafford?
4 A. I think the one-time pad is -- so I have
5 a credential, and I want to release information
6 from the credential. So a one-time pad is
7 created. The one-time pad can contain many keys,
8 and the idea is the keys are used in order. I use
9 the first one and I don't use it again, but I use
10 the second one the next time I want to release
11 that information.
12 Q. When you say "many keys," what do you
13 mean by "keys"?
14 A. So the one-time pad is used for
15 encryption. Encryption is based on a key. And
16 the whole idea of one-time pad is that there's no
17 apparent mathematical relationship among the
18 different keys. And so if I somehow learn the key
19 that you used in a first release, it does not help
20 me in decrypting a second release because a
21 totally different key is used. That's what a
22 one-time pad is.

1 Q. Okay. So even though you're using the
2 same one-time pad?
3 A. Yes, I don't use the same key. I mean,
4 it's literally like a pad. I have a pad of paper
5 here. If I write down a whole sequence of keys,
6 that becomes my one-time pad. Otherwise, it would
7 just be a one-time key. The idea of a pad is that
8 you can store many keys on it.
9 Q. Okay. So what you're saying is a
10 one-time pad consists of many keys?
11 A. That's right.
12 Q. And each key is only used once?
13 A. That's right.
14 Q. Okay. And then what about IdPad and
15 IdSecPad, are they prepared only for a single
16 release of information?
17 A. Well, okay, so if you read the previous
18 sentence, it says, "IdSig1 is a hash computed from
19 IdPad (an encrypted version of the one-time pad
20 'OTP' used to encrypt the credential
21 information)."
22 So once you have the one-time pad, you

1 then get from that the IdPad, and from that you
2 can get IdSig1.
3 And it says, "IdSig2 is a hash computed
4 from IdSecPad, which is an encrypted version of
5 IdPad." So everything seems to derive from the
6 one-time pad.
7 Q. Okay. But in this case, what you're
8 actually using from the one-time pad is a single
9 key from the one-time pad; correct?
10 A. That's right.
11 Q. And so IdPad is formed. It's an
12 encrypted version of the key from the one-time
13 pad; correct?
14 A. Yes.
15 Q. Okay. So IdPad and IdSecPad are also
16 both single-use items for a single release of
17 information; correct?
18 A. I have to go check Stafford on that.
19 So if you look at -- yeah, paragraph 97
20 of Stafford, it says, "Next, in step 232 a hash
21 value of IdPad is created, called IdSig1. IdSig1
22 represents a first key signature component that is

1 required by a recipient to collect/obtain the
2 released information."
3 So the fact that IdSig1 is a first key
4 signature component suggests that there can be
5 more.
6 Q. Well, in fact, there is more; right?
7 There's an IdSig2; correct?
8 A. Yes, I'm not sure that that's what's
9 referred to with a first key signature component.
10 So my understanding is that the releases can be
11 essentially chained; that is, I have this
12 information which I may have to give out to
13 multiple recipients, but I don't want information
14 from one to be usable to decrypt a second that I
15 use. And so that's the purpose of the one-time
16 pad. Otherwise, it would be called a one-time
17 key.
18 Q. So are you saying you don't know whether
19 IdPad is for a single release of information or
20 for multiple releases of information?
21 A. My understanding has always been that it
22 can be used for multiple releases.

1 Q. Okay. And your understanding is the
2 same for IdSecPad; correct?
3 A. Correct.
4 Q. Okay. Now, a single release of the
5 information can contain any number of credentials,
6 correct?
7 A. I think it can contain any number of
8 pieces of credential information.
9 Q. Is there some difference that you're
10 drawing between credentials and pieces of
11 credential information?
12 A. Yes. So my understanding is that
13 credential information is some subset of what's in
14 the credential or information related to the
15 credential, for one credential.
16 What I'm looking at in Stafford is
17 whether or not it's possible to combine
18 credentials. So there's -- it's suggested in
19 paragraph 80 of Stafford, it says, "There may
20 be -- These may be considered characteristics that
21 should be readily available to the public. For
22 this method of release, the credentials, plural,

1 or information being released or advertised by the
2 IdMember are limited to the immediate service..."
3 So credentials can be released.
4 Q. Okay. So a single release of
5 information can contain any number of credentials;
6 correct?
7 A. It could.
8 Q. Okay. Do you have a copy of your --
9 well, you said you had a copy of all the exhibits.
10 Do you have a copy of Exhibit 1005, your original
11 declaration?
12 A. I do.
13 Q. In the 486 IPR?
14 A. Yes, I do.
15 (Exhibit 1005, Previously Marked.)
16 BY MR. WILSON:
17 Q. So if you could turn in Exhibit 1005 to
18 paragraph 112. And if it helps, that's on PDF
19 page 43.
20 A. I'm there.
21 Q. Okay.
22 A. The paragraph numbers are most useful.

1 Q. Okay.
2 A. Because multiple of them appear on the
3 same page, whereas the page number only appears
4 once.
5 Q. Yeah. Okay.
6 So if you take a look at paragraph 112,
7 three lines down, do you see the sentence that
8 begins "During prosecution"?
9 A. Yes.
10 Q. There you said, "During prosecution, the
11 Applicant argued that this phrase requires that
12 the issuing agency verify that the virtual
13 representation is an official representation of
14 the credential."
15 Did I read that correctly?
16 A. Yes.
17 Q. And here you're offering your opinion on
18 the correct construction of "verified by an
19 issuing agency"; correct?
20 A. Yes.
21 Q. Now, you asserted this same claim
22 construction position in each of the IPRs;

1 correct?
2 A. Yes.
3 Q. So let's look down at paragraph 114.
4 Now, there you said, "In light of the
5 specification and the statements by the Applicant
6 during prosecution, a POSITA," that's P-O-S-I-T-A,
7 "would interpret a virtual representation of the
8 credential that has been verified by an issuing
9 agency to be an official" -- you said "of," but I
10 think that's a mistake.
11 A. It is.
12 Q. -- "representation of," I think is what
13 it should have said, "the credential to require
14 that an issuing agency have verified a virtual
15 representation in an OVER file as being an
16 official representation of a credential;" correct?
17 A. Yes, I think that comes from a natural
18 reading of the claim language.
19 Q. Okay. And, again, you asserted this
20 same claim construction position in each of the
21 IPRs; correct?
22 A. Yes.

1 Q. So your interpretation of "verified by
2 an issuing agency" in all challenge claims in your
3 opening declarations was that it required that an
4 issuing agency have verified a virtual
5 representation in an OVER file as being an
6 official representation of a credential; correct?
7 A. Well, I think so. I'm just -- you
8 didn't read the entire limitation. So I want to
9 make sure that every time "virtual representation"
10 appears, that it appears with that qualifying
11 language. So I can check that.
12 Q. Okay.
13 A. So things change a little bit in the
14 '859 patent. I'm looking at limitation 2.2 of
15 '859 -- no, the preamble. It says, "The virtual
16 representation is a first virtual representation.
17 The official representation is a first official
18 representation."
19 That seems to draw a distinction between
20 the virtual representation and the official
21 representation. That's the first time in the
22 patents that appears.

1 The same thing happens in Claim 10, the
2 preamble of Claim 10 of the '859 patent. It says,
3 again, "The virtual representation is a first
4 virtual representation. The official
5 representation is a first official
6 representation."
7 Again, in Claim 19, the same thing.
8 Claim 21, same thing.
9 And in the '973 patent, it occurs again.
10 The preamble of Claim 2, "The virtual
11 representation is a first virtually. The official
12 representation is a first official
13 representation."
14 Again, in Claim 9 of the '973 patent
15 preamble.
16 Claim 17, preamble.
17 That's all. Everywhere else it
18 essentially repeats the language of Claim 1 of the
19 '531 patent, which says, "generating, by a
20 processor of the OVER engine, an OVER file
21 comprising a virtual representation of the
22 credential that has been verified by an issuing

1 agency to be an official representation of the
2 credential."
3 So there it says that the virtual
4 representation is the official representation.
5 Later on in other patents and other claims, a
6 distinction is drawn between the virtual
7 representation and the official representation.
8 Q. Okay. You have a copy of your -- you
9 have a copy of your declarations, Exhibit 1005
10 from the 489 IPR?
11 A. Hang on a second. I'll find that.
12 Sorry, which IPR?
13 Q. The 489 IPR, the one involving the
14 '859 patent.
15 A. Yes, I do.
16 Q. Okay. Can you turn to paragraph 93 of
17 that declaration.
18 A. I'm there.
19 Q. Now, if you can, can you compare
20 paragraph 93 of Exhibit 1005 from the 489 IPR to
21 paragraph 114 from Exhibit 1005 from the
22 '531 patent IPR?

1 A. Okay. I'm comparing 93 of the 489 to
2 what of the --
3 Q. To --
4 A. -- paragraph 114?
5 Q. Yeah, to paragraph 114 of the 486 IPR.
6 A. Yes.
7 Q. 1005.
8 A. Yeah, they're the same.
9 Q. Okay. Now -- so you offered the same
10 opinion on the construction of that claim
11 limitation in the 489 IPR as you did in the
12 486 IPR; correct?
13 A. Yes. And the reason for that is that
14 the same language that I read -- that I just read
15 from Claim 1 of the '531 also appears in the 589.
16 It's in later claims that they try to appear to
17 draw a distinction.
18 Q. Okay. Now, take a look at Exhibit 1005
19 from the 490 IPR. That is the one involving the
20 '973 patent.
21 A. Yes.
22 Q. And --

1 A. Which paragraph?
2 Q. Paragraph 91.
3 A. Oh, okay. Yes.
4 Q. And that is also the same as
5 paragraph 114 in Exhibit 1005 from the 486 IPR;
6 correct?
7 A. Yes.
8 Q. So you offered the same opinion on the
9 construction of that limitation in the 490 IPR;
10 correct?
11 A. Yes, they share a common specification.
12 Q. Okay. Now, let's go back to
13 Exhibit 1048.
14 A. Okay.
15 Q. And we'll look at paragraph 20.
16 A. Okay, I'm there.
17 Q. Okay. If you take a look at what's
18 page 11, where, you know, the paragraph covers the
19 entire page?
20 A. Yes.
21 Q. And you look up seven lines from the
22 bottom, you see the sentence that begins "In other

1 words"?
2 A. Yes.
3 Q. Okay. That passage reads, "In other
4 words, in the identified example of issuer
5 verification, the specification does not state
6 that the issuing agency directly examines the OVER
7 file or the 'virtual representation of the
8 credential.' Instead, according to Patent Owner
9 and Dr. Malek, the virtual representation has been
10 verified by the issuing agency to be an official
11 representation of the credential because
12 credential information was successfully checked
13 against credential information in an issuing
14 agency's database."
15 Did I read that correctly?
16 A. Yes.
17 Q. And then in paragraph 21, the first
18 sentence, you say, "Stafford teaches this same
19 type of check"; correct?
20 A. Yes.
21 Q. And you go on to say, in the last
22 sentence, "In other words, as in the DMV example,

1 which Patent Owner and Dr. Malek identify as
2 corresponding to the 'verified by an issuing
3 agency' limitation, Stafford teaches communicating
4 with the issuing agency to verify that the
5 credential data supplied by the user is correct."
6 Did I read that correctly?
7 A. Yes.
8 Q. Now, "verifying that the credential data
9 supplied by the user" is correct does not meet
10 your construction of "verified by an issuing
11 agency" supplied in your opening declaration in
12 these IPRs; correct?
13 MR. ARGENTI: Objection; form.
14 THE WITNESS: Let me go back to that.
15 Well, I think the issue is that the
16 applicant is being inconsistent with itself.
17 BY MR. WILSON:
18 Q. Okay. So you agree then that "verifying
19 that the credential data supplied by the user" is
20 correct, it does not meet your construction of
21 "verified by an issuing agency" supplied in your
22 opening declaration in these IPRs; correct?

1 MR. ARGENTI: Objection; form.
2 THE WITNESS: I think that's right.
3 BY MR. WILSON:
4 Q. Okay. And that's because the virtual
5 credential is not being verified in your example
6 by Stafford; correct?
7 A. The virtual representation has not been
8 verified.
9 Q. Okay. Now, let's take a look at the
10 '531 patent.
11 A. I'm there.
12 Q. Okay. Take a look at Column 6.
13 A. I'm there.
14 Q. Okay. And take a look at Column 18 --
15 or sorry, line 18. Column 6, line 18.
16 Do you see the sentence that begins,
17 "The application gateway"?
18 A. Yes.
19 Q. Okay. That sentence says, "The
20 application gateway may request 126 generation of
21 an OVER File and verification of the generated
22 OVER File credential."

1 Did I read that correctly?
2 A. Yes.
3 Q. In that sentence what is being verified
4 is the OVER file credential; correct?
5 A. Yes.
6 Q. Okay.
7 A. That's consistent with the language of
8 the claims.
9 Q. Okay. Take a look down in Column 6,
10 starting at line 59.
11 Do you see where it says, "The issuing
12 agency may also provide a status indicator for the
13 generated OVER File credential"?
14 A. Yes.
15 Q. The status indicator indicates whether
16 the OVER file credential is valid; correct?
17 A. Yes, in general, I mean, there are
18 reasons that it may become invalid. It may
19 expire, for example, or the applicant may have
20 died, or the subject of the credential may have
21 died.
22 Q. Okay. Let's take a look at -- you have

1 Exhibit 1012?
2 A. Stafford.
3 Q. Stafford, yes.
4 A. Yes.
5 (Exhibit 1012, Previously Marked.)
6 BY MR. WILSON:
7 Q. Okay. So let's take a look at Figure 2
8 of Stafford.
9 A. Okay. I'm there.
10 Q. Now, Stafford's Figure 2 is a flowchart
11 illustrating a process for preparing information
12 for release to a third party in an embodiment of
13 the present invention of Stafford; correct?
14 A. Yes.
15 Q. Okay. There are 12 numbered steps in
16 the process of releasing information to a third
17 party in Stafford's Figure 2; correct?
18 A. Well, I count more, but which 12 do you
19 have in mind?
20 Q. Okay. So I'm thinking of the 12 that go
21 with the more sensitive release of information
22 rather than the passcode branch. And I guess if

1 you count "recipient paid," maybe that's 13.
2 A. Well, if you count "recipient paid," I
3 count 14, but, you know, does it matter?
4 Q. Okay. You're counting the step on the
5 left that's not numbered?
6 A. No. Then it's 15.
7 Q. Okay. Fifteen -- let's say there are 15
8 steps.
9 A. Oh, I'm sorry, that one is not numbered.
10 I didn't count it. And I did count another step
11 that isn't numbered. So let's see. One, two,
12 three -- ah, now -- well, there are 13 numbered
13 steps in the central spine of that chart.
14 Q. Okay. So let's say there are
15 13 numbered steps in the process of releasing
16 sensitive information in Stafford's Figure 2;
17 correct?
18 A. Yes.
19 Q. Okay. Step 224 requires a purchase
20 transaction to release sensitive information to a
21 third party; correct?
22 A. It provides for it, yes.

1 Q. Okay.
2 A. When I say that, I can imagine a
3 situation in which no payment is required. But if
4 a payment is required, then a purchase occurs
5 there.
6 Q. Okay. Let's take a look at your
7 declaration again, Exhibit 1048. And
8 paragraph 33.
9 A. I'm there.
10 Q. Okay. You quote portions of
11 paragraphs 74 and 118 in paragraph 33, and those
12 paragraphs being from Stafford; correct?
13 A. Yes.
14 Q. Okay. And in paragraph 118, the portion
15 you quote there says, "The IdMember's directory in
16 the Secure Key Zone 120 may include multiple
17 IdSecPad's corresponding to different parcels of
18 information authorized for release."
19 Did I read that correctly?
20 A. Yes, I think there's actually an error
21 in the original. In IdSecPads, I don't think
22 there should be an apostrophe.

1 Q. Okay.
2 A. I think the word is plural, not
3 possessive.
4 Q. Okay. So Stafford teaches there may be
5 multiple parcels of information authorized for
6 release; correct?
7 A. Yes.
8 Q. Okay. When multiple items are selected
9 for release, a single set of key signatures is
10 created for all the items; correct?
11 A. I don't think that's true. If you look
12 at the next sentence, it says, "The user receives
13 key signatures for each item that has been set up
14 for release."
15 Q. Right. Let's take a look at Stafford.
16 And let's take a look at paragraph 93. And I want
17 to look in particular at the bottom of page 5,
18 before it wraps over to page 6.
19 Do you see the sentence that begins, "If
20 the recipient pays"?
21 A. Yes.
22 Q. It says, "If the recipient pays in step

1 218 the process moves straight to the step 220 in
2 which the IdFiles are encrypted with a secure
3 one-time pad."
4 Did I read that correctly?
5 A. Yes.
6 Q. So the IdFiles, no matter how many there
7 are, are encrypted together with a secure one-time
8 pad; correct?
9 A. That's what that seems to say.
10 Q. Okay. So --
11 A. But the one-time pad has multiple keys
12 in it.
13 Q. Okay. So if we go through the series of
14 paragraphs, 94, 95, 96, 97, all the way down to 99
15 in Stafford, this is the process by which the
16 one-time pad is used to create IdSig1 and IdSig2;
17 correct?
18 A. Yes.
19 Q. And once that process is done, the
20 collection of files are accessed by a single
21 IdSig1 and IdSig2; correct?
22 A. Yes.

1 Q. All right. Let's take a look at
2 Exhibit 1048 and paragraph 44 of your declaration.
3 A. I'm there.
4 Q. Okay. On -- in paragraph 44, you refer
5 to the 486 patent owner response.
6 Do you see that?
7 A. Yes.
8 Q. Do you have a copy of that patent owner
9 response?
10 A. Yes, I do. I have to get it out of my
11 directory, though. It's not on my screen yet.
12 Q. Okay. So let me ask you the question,
13 and then you'll -- you can refer to the patent
14 owner response.
15 But in paragraph 44, you see at the
16 bottom of page 28, the sentence that begins
17 "Indeed"?
18 A. Yes.
19 Q. There you say, "Indeed, Patent Owner
20 implies that Stafford does teach sending an
21 unencrypted key signature as another option (id.)"
22 Do you see that?

1 A. Yes.
2 Q. And that "id." refers back to the 486
3 patent owner response at page 66; correct?
4 A. Yes.
5 Q. Can you point me to where that
6 implication is on page 66?
7 A. Okay. Let me look.
8 I think it's in the middle of the first
9 paragraph. So -- one, two, three -- line 7,
10 "A user sending an unencrypted QR code to the
11 recipient would provide direct access to the key
12 signatures, defeating Stafford's e-mail encryption
13 security protocol."
14 So what patent owner is talking about
15 here are two circumstances, one in which the QR
16 code is encrypted and one in which it's
17 unencrypted.
18 Q. Okay. Your sentence in paragraph 44 of
19 your declaration says, "Patent owner implies that
20 Stafford does teach sending an unencrypted key
21 signature as another option."
22 So where in that sentence does it say

1 Stafford teaches that?
2 A. So I think there's a citation to
3 paragraph 97 and 99 in the second sentence. So if
4 we go look at 97 in Stafford, it says -- I'm
5 reading the second sentence.
6 "IdMember can choose to either copy
7 IdSig1 from the display or have it sent to
8 him/herself in an email. If the email option is
9 used, the system will encrypt IdSig1 with
10 User_pub_key1 prior to sending."
11 So the implication of that is that if
12 you choose the first option, where you copy it
13 from the display, it's not encrypted. If you use
14 the e-mail option, it is encrypted.
15 Q. So in the paragraph on page 66 of the
16 patent owner response, you're talking about a user
17 sending an unencrypted QR code to the recipient,
18 right, not the system providing IdSig1 or IdSig2
19 to the user; correct?
20 A. Yes.
21 Q. So I don't understand why you'd think
22 this is teaching that Stafford is teaching an

1 option to send an unencrypted QR code to the
2 recipient?
3 MR. ARGENTI: Objection; form.
4 THE WITNESS: So if we go back again
5 to -- well, actually, almost -- the sentiment of
6 paragraph 97 of Stafford is actually expressed in
7 the POR here. The second sentence on page 66
8 talks about these two options.
9 "Stafford teaches that the user 'can
10 choose to either [1] copy IdSig1 [or IdSig2] from
11 the display or [2] have it sent to him/herself in
12 an email' where 'the system will encrypt IdSig1
13 with User_pub_key1 prior to sending."
14 So option 1 is -- it's unencrypted. And
15 option 2, it's encrypted. And then the POR goes
16 on to say that neither option would work with a QR
17 code. And that makes no sense to me, but that's
18 what it says.
19 BY MR. WILSON:
20 Q. Okay. Let's take a look at paragraph 48
21 in your declaration, Exhibit 1048.
22 A. I'm there.

1 Q. Are you there?
2 A. Yeah. I'm sorry, I quickly said I was
3 there.
4 Q. Oh, okay, I'm sorry.
5 A. I got there fast.
6 Q. If you take a look at last few sentences
7 of paragraph 48. And I'm not going to read them,
8 but you can read them quickly because that's what
9 I'm referencing.
10 A. I've read them.
11 Q. Okay. So in your opinion, if the user
12 were to provide encrypted key signatures to a
13 third party, there is no need to provide the
14 user's private key to that third party because
15 Stafford's system has the user's private key and
16 can decrypt the key signatures; correct?
17 A. Yes.
18 Q. Now, if Stafford's system will accept
19 the encrypted key signatures in the same manner as
20 the decrypted key signatures, you've defeated the
21 purpose of the encryption; correct?
22 A. I haven't done anything. That's the

1 disclosure in Stafford.
2 Q. Okay. But Stafford doesn't say that its
3 system will accept encrypted key signatures; does
4 it?
5 A. Well, that's the implication. If
6 they're encrypted with a user's public key, it
7 needs the private key in order to verify them.
8 Q. So Stafford says, it will provide IdSig1
9 and IdSig2, the key signatures to the user in an
10 encrypted form, but the user has the private key;
11 correct?
12 A. Yes.
13 Q. So the user can decrypt them; correct?
14 A. Yeah, I don't see any disclosure in
15 Stafford that the user does that.
16 Q. But if a third party can show up with
17 the encrypted key signatures and hand them to
18 Stafford's system in encrypted form, there's no
19 point in encrypting them; is there?
20 A. I'm not sure what you mean by that.
21 Q. Well, if the encrypted key signatures
22 are just as good to obtain the information as the

1 decrypted ones, then what's the point of
2 encryption?
3 MR. ARGENTI: Objection; form.
4 THE WITNESS: What's the point of
5 encryption ever? It's to prevent eavesdroppers,
6 for example, from being able to make use of a
7 message.
8 BY MR. WILSON:
9 Q. But if I can show up with the encrypted
10 key signatures, hand them to Stafford's system and
11 get the underlying files, what point was there in
12 encrypting them?
13 A. Yeah, but you can't do that. The reason
14 you can't do that is that they're encrypted again
15 when they're transmitted over a network using a
16 protocol like SSL, for example. So an
17 eavesdropper cannot obtain the payload, whether
18 it's encrypted or unencrypted.
19 Q. But that's a separate set of encryption
20 on top of the encryption we're talking about;
21 correct?
22 A. That's right, yes.

1 Q. Okay. So do you disagree that if I can
2 show up with encrypted key signatures and hand
3 them to Stafford's system and get the underlying
4 information, I've defeated the point of encrypting
5 the key signatures?
6 A. No.
7 MR. ARGENTI: Objection; form.
8 BY MR. WILSON:
9 Q. Okay. Let's take a look at Stafford,
10 paragraph 88.
11 A. I'm there.
12 Q. Okay. Stafford says, three lines down
13 in paragraph 88, "For sensitive files, a highly
14 secure symmetric or similar encryption process
15 e.g. a one time pad, is used, whilst for
16 non-sensitive files a pass code is used to secure
17 documents before transmission to their recipient."
18 Did I read that correctly?
19 A. Yes.
20 Q. Stafford's passcode was a conventional
21 security technique; correct?
22 A. Yes.

1 Q. Now, let's look at your declaration,
2 paragraph 56.
3 A. I'm there.
4 Q. Okay. Two lines from the bottom of
5 page 36, do you see the line that begins
6 "Conventional"?
7 A. Yes.
8 Q. Now, you said, "Conventional security
9 techniques were viewed as providing sufficient
10 protection, even for sensitive information such as
11 financial data, as I explained above."
12 Did I read that correctly?
13 A. Yes.
14 Q. So would a person of ordinary skill in
15 the art in 2012 have thought that using Stafford's
16 passcode was sufficient protection for sensitive
17 information?
18 A. I don't think I'm referring to the
19 passcode here.
20 Q. But the passcode is a conventional
21 security technique; correct?
22 A. That doesn't mean that all conventional

1 security techniques are sufficient.
2 Q. Okay. So I'm asking you, would a person
3 of ordinary skill in the art in 2012 have thought
4 that Stafford's passcode was a sufficient
5 protection for sensitive information?
6 A. No, because Stafford teaches the
7 opposite.
8 Q. Okay. Is there any other reason that a
9 person of ordinary skill in the art would have
10 thought in 2012 that passcode protection was
11 insufficient for highly sensitive information?
12 A. Yes.
13 Q. What else?
14 A. You mean what other reasons?
15 Q. Yes, what other reasons?
16 A. You know, because passcodes are easy --
17 much easier to hack than encrypted material.
18 Q. Is that it?
19 A. That's what I'm thinking about as I'm
20 sitting here.
21 Q. Okay.
22 MR. WILSON: I don't have any further

1 questions.
2 MR. ARGENTI: In that case, why don't we
3 take a short break, and then I can get back and
4 see if I have any redirect.
5 MR. WILSON: Okay. Sound goods.
6 THE VIDEOGRAPHER: All right. The time
7 is 9:52 a.m. We're off the record.
8 (Recess from the record.)
9 THE VIDEOGRAPHER: The time is
10 10:10 a.m. We're back on the record.
11 MR. ARGENTI: No questions from me.
12 Thanks.
13 THE WITNESS: Okay. Read and sign,
14 although it probably won't take me much time.
15 THE VIDEOGRAPHER: All right. The time
16 is 10:10 a.m. We're off the record.
17 (Off the record at 10:10 a.m.)
18
19
20
21
22

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