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Transcript of Patrick McDaniel, Ph.D.

Date: September 25, 2024

Case: Apple, Inc. -v- Carbyne Biometrics, LLC (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Carbyne Ex. 2052, p.1 of 25
Apple v. Carbyne
IPR2024-00334

Transcript of Patrick McDaniel, Ph.D.
Conducted on September 25, 2024

1 (1 to 4)

1	2	3
1	UNITED STATES PATENT AND TRADEMARK OFFICE	1 A P P E A R A N C E S:
2	-----	2
3	BEFORE THE PATENT TRIAL AND APPEAL BOARD	3 Attorneys for Patent Owner:
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5	APPLE INC.,	5 Daniel Iliasevitch, Esquire
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18	September 25, 2024	18 512.867.8440
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21	Reported by: Susan S. Klinger, RMR-CRR, CSR	21
22	Job No. 552498	22
1	2	4
1		1 I N D E X
2		2
3	September 25, 2024	3 WITNESS PAGE
4	9:59 a.m.	4 PATRICK McDANIEL, PH.D.
5		5 EXAMINATION BY MR. FISHBACK 5
6		6
7		7 (Exhibits not attached.)
8		8
9	Remote Deposition of PATRICK McDANIEL, PH.D.,	9 E X H I B I T S
10	held before Susan S. Klinger, a Registered Merit	10 No. Description Page
11	Reporter and Certified Realtime Reporter of the	11 Exhibit 1 U.S. Patent 10,929,512 10
12	States of Texas and California.	12 Exhibit 2 U.S. Patent 11,514,138 10
13		13 Exhibit 3 McDaniel '138 declaration 11
14		14 Exhibit 4 McDaniel '512 declaration 11
15		15 Exhibit 5 Handbook of Computer 28
16		16 Networks
17		17
18		18
19		19
20		20
21		21
22		22

5 1 PROCEEDINGS 2 PATRICK McDANIEL, Ph.D., 3 having been first duly sworn testified as follows: 4 EXAMINATION 5 BY MR. FISHBACK: 6 Q Good morning, Dr. McDaniel. 7 A Good morning. 8 Q How are you today? 9 A I'm doing well. 10 Q Probably as well as you can for a 11 deposition, right? 12 A Yeah, I suppose. 13 Q Could you please state your name for the 14 record? 15 A Yes, Patrick McDaniel. 16 Q And Dr. McDaniel, where are you located 17 today? 18 A I am in Verona, Wisconsin. 19 Q Are you by yourself today? 20 A I am. 21 Q And besides the computer that you have in 22 front of you right now, do you have any other	7 1 the IPR related to the '138 patent? 2 A That's correct. 3 Q Great. Okay. Dr. McDaniel, when were you 4 engaged in this matter? 5 A Geez, probably about a year ago is my 6 guess. I think the substance I can't remember the 7 exact filing date. I want to -- I want to say it 8 was in the fall of last year, but a lot of work 9 would have been in the last, you know, few months 10 before then. 11 Q Got you. 12 MR. FISHBACK: And just so everyone is 13 aware, Mr. Iliasevitch is joining. He's a 14 colleague of mine joining on the call. 15 Q How many hours do you think you have spent 16 on both of your IPRs declarations? 17 A I couldn't say. It is probably north of 18 100 I would expect. 19 Q And would you expect that to be evenly 20 divided between the '138 and the '512 21 declarations? 22 A Approximately, yeah.
6 1 devices with you? 2 A My cell phone is here on the desk, but I 3 will put it in a backpack here. 4 Q As long as you promise you are not going 5 to use it, you can leave it on. It is fine with 6 me. 7 A Okay. 8 Q Some basics going forward, you understand 9 that this deposition is going to be covering your 10 declarations in two IPR proceedings, correct? 11 A That's correct. 12 Q And those IPR proceedings are 13 IPR2024-00332 related to the U.S. Patent 14 10,929,512 and IPR2024-00334 related to U.S. 15 Patent 11,514,138; is that correct? 16 A That sounds right. 17 Q And if I refer to the '512 IPR, will you 18 understand that that is referring to the IPR 19 related to the '512 patent? 20 A Yes. 21 Q And same for the '138, if I refer to the 22 '138 IPR, you will understand that is relating to	8 1 Q Did you write your declarations for each 2 of the IPRs? 3 A I did. The opinions expressed in there 4 are mine and they are a report that I wrote. 5 Q Without discussing the content of any 6 attorney-client communications, what did you do to 7 prepare for today's deposition? 8 A About probably, I think it was about a 9 month ago we learned that the two had been 10 instituted. I had some brief email exchanges 11 followed by some additional reviewing of the 12 patents. And a week ago I received sort of the 13 official final version of all of the materials and 14 had been reviewing them since. I had a series of 15 meetings last Friday, Monday and Tuesday 16 with counsel. 17 (Audio interruption.) 18 MR. FISHBACK: Dan, can you mute both of 19 those? You're echoing. 20 MR. ILIASEVITCH: Okay. 21 Q Dr. McDaniel, are you aware of the 22 underlying district court litigation?

9 1 A I am vaguely aware of it, yes. 2 Q Have you reviewed any of the materials in 3 the underlying litigation? 4 A I'm not really sure what you mean by the 5 scope of underlying materials. 6 Q And have you reviewed any pleadings, 7 infringement contentions, anything related to the 8 district court litigation outside of the patents 9 themselves? 10 A Okay, okay. Yeah, so no, I don't believe 11 so. 12 Q And so is it fair to say you haven't 13 reviewed any of Apple's expert reports in the 14 underlying district court litigation? 15 A Yeah, I don't -- I don't believe I have, 16 no. 17 Q Prior to this engagement, were you 18 familiar with Dr. Jakobsson, the inventor of the 19 patents? 20 A Yes. 21 Q How were you familiar with him? 22 A Markus, I think his name is Markus	11 1 patent if you have in front of you. 2 A I do. 3 Q The only term in your declaration that you 4 put forward a construction for was the restricted 5 interface; is that correct? 6 A May I access my report? 7 (Exhibit 3 marked.) 8 (Exhibit 4 marked.) 9 Q Yeah, why not. I will put it in the chat 10 as well. I will put your declarations for both in 11 the chat for your -- to assist you out here. I 12 think that that is paragraph -- 13 A 53, yeah. 14 Q Correct. For the other terms applied the 15 plain and ordinary meaning; is that right? 16 A That's correct. 17 Q Can you flip to claim 1 of the '512 patent 18 for me? 19 A I am at the claims, yes. 20 Q Do you see where it says in the last 21 limitation the second to last limitation secure 22 backup?
10 1 Jakobsson. I think he -- about 20 years ago he 2 used to hang around in some of the security 3 conferences that I was attending as a graduate 4 student. And then thereafter at Bell Labs I 5 believe I met him although I haven't had any, you 6 know, specific contact with him beyond just sort 7 of an acquaintance meeting at a conference I 8 suspect. 9 Q All right. I'm going to put Exhibits 1 10 and 2 into the chat. And these should just be 11 both of the '512 and the '138 patent, so let me 12 know when you get these. 13 (Exhibit 1 marked.) 14 (Exhibit 2 marked.) 15 A Okay. I have -- I have files available to 16 me that are clean copies, so I can use my own. If 17 you would rather -- you would rather me use yours, 18 that is fine, however you want to do it. 19 Q As long as you confirm they are clean 20 copies, you are more than okay to use those. 21 A Okay, yes, so I have both of those. 22 Q Okay. So let's take a look at the '512	12 1 A We're talking claim 1? 2 Q Yes, correct. 3 A Okay. 4 Q Setting aside secure, what is your 5 understanding of the plain and ordinary meaning of 6 "backup"? 7 A In what context? 8 Q In the context of the '512 patent? 9 A So backup is to make a copy for later use 10 colloquially speaking. 11 Q Do you see the limitation that starts with 12 "in response"? 13 A Yes. 14 Q What is your understanding of the term 15 "facilitate"? And it is in the -- right after the 16 comment facilitate a login. What is your 17 understanding of facilitate? 18 A I'm sorry, we're in the same limitation 19 here? 20 Q Yeah. It is about column 11, line 17 on 21 to 18, facilitate a login of a user to the 22 external resource.

13 1 A I see. 2 Q Yeah. 3 A It was split across two lines. 4 Q Sorry, sorry about that. 5 A It is all good, it is all good. 6 It is to support the -- support and enable 7 login at least. 8 Q And then up a little bit on lines 9, 10, 9 11, access a record stored in secure storage. Do 10 you see that? 11 A Yes. 12 Q And then right below it on line 10, on 13 line 12 and then on line 22 it says "the record." 14 Do you see that? 15 A Yeah, on line 10, yes. 16 Q Is "a record" and "the record," is that a 17 single record? 18 A Well, the record can be -- I mean, that is 19 accessing a record, which is a collection of data. 20 Q So could there be more than one record 21 that is being discussed throughout this claim? 22 A In the context it is accessing a record.	15 1 Q Let's turn to the '138 patent? 2 A Okay, I have it open. 3 Q On column 11, line 51 there is the 4 limitation facilitate wiping. Do you see that? 5 A What column, please, 11, what line? 6 Q Column 11, line 51. It should be the 7 second to last limitation? 8 A Yes, yes, I'm there, 51, yes. What was 9 your question? 10 Q Well, what is your understanding of the 11 term "wiping"? 12 A In what context? 13 Q In the context of the '138 patent? 14 A So in this context what it is -- what it 15 is doing is wiping the data. If you go to my 16 declaration I sort of layout what at least 17 incorporates that which is to in this case zero 18 out the data. 19 Q And in claim 8 which is -- 20 MS. SHI: Sorry to interrupt, 21 Mr. Fishback. Your voice sometimes is a little 22 bit choppy. Can you speak closer to the
14 1 Q So I'm sorry, I guess maybe -- maybe we're 2 talking past each other. 3 So moving on beyond the access a record, 4 when it is talking about retrieve from the record 5 in line -- what is it, line 12 here, and then in 6 line 25 perform a secure backup of the record, is 7 that a single record or are there multiple records 8 that are being retrieved and backed up? 9 A It is -- it is a record. 10 Q As in one record? 11 A That is a record, yes. 12 Q On line 9, access a record stored in 13 secure storage, do you see that? 14 A Which line now, I'm sorry? 15 Q This would be column 11, line 9? 16 A Right. 17 Q I'm sorry, go ahead. 18 A No, go ahead, ask your question. 19 Q What is your understanding of secure 20 storage? 21 A You know, it at least means the storage in 22 a secure manner.	16 1 microphone? 2 Q Sorry about that, is that better? 3 A Yes. 4 Q My microphone was set to my laptop which 5 is closed and 5 feet away from me, so I'm amazed 6 you guys heard anything. That should be better. 7 I appreciate that, thank you. 8 In claim number 8 this is column 12, line 9 5, let me know when you are there? 10 A Okay. 11 Q I'm sorry, are you there? 12 A Yeah, I'm just reviewing my declaration. 13 Q Sorry, no rush. And take your time. I do 14 not think we're going to be here all day, so feel 15 free to take your time. We have ample time. 16 A Okay, I'm on claim 8. 17 Q What is your understanding of the word 18 "policy" in this claim? 19 A So if you go to my declaration, page 90, 20 particularly with respect to Brown it says, the 21 policy may include various predefined roles 22 relating to the wipe. So a policy is predefined

17 1 rules that – at least it means the predefined 2 rules that in this case with respect to claim 8 3 result in automatically wiping at least portions 4 of the – of a record. 5 Q Okay. Going back to claim 1, going down 6 to the limitation. 7 A What patent? 8 Q I'm sorry, of the '138 patent? 9 A Okay, I'm back there. 10 Q Going down to the limitation that starts 11 on line 24 it says, based at least in part. Do 12 you see that limitation? 13 A Yes. 14 Q Do you see where it says, access of at 15 least one record stored at least in part in 16 storage on the device? 17 A Yes. 18 Q Does "at least one record" indicate that 19 there can be more than one record? 20 A That is a reasonable interpretation of "at 21 least one," yes. 22 Q And is that a different claim scope than	19 1 you use in your grounds; is that correct? 2 A That is correct. 3 Q For items C, D and E, did you pick these 4 prior art references? 5 A Those – those prior art references were, 6 I think, presented to me as a part of the process 7 on which I was doing my analysis. And I reviewed 8 them in forming my opinions, which are stated here 9 which were not influenced by their selection. 10 Q Are you aware of any other prior art that 11 you could have relied on? 12 A There is a pretty large universe of prior 13 art that I could have relied on, because these are 14 fairly straightforward and well-known techniques 15 certainly by the priority date. 16 Q All right. Can we flip to page 26 of your 17 declaration? 18 A I'm there. 19 Q Footnote 7 is a reference to the Trusted 20 Computing Group do you see that? 21 A Yes. 22 Q What is the Trusted Computing Group?
18 1 the "a" or "the" record that is discussed in the 2 '512 patent? 3 MS. SHI: Objection, form. 4 A So these are – these are – these are 5 different patents. And you're asking me to 6 compare the scope of the two claims, which I 7 haven't done that is not an opinion I've rendered 8 here today. I'm not – I haven't done a 9 comparison. 10 Q Can you open up your '512 declaration? 11 A I am there. 12 Q Could you flip to paragraph 4 and, excuse 13 me, I don't know what page that is on, so you are 14 going to have to search. 15 A The introduction that is page 4. I have 16 reviewed and considered the following documents, 17 is that the paragraph you are talking about. 18 Q Correct, yeah. 19 You have listed five items here, Alpha A 20 through E; is that correct? And just for the 21 record, that is the patent-in-suit, the '512, the 22 file history and then the three references that	20 1 A It is a – it is a organization. I 2 believe it is supported by some of the standards 3 organizations as well as industry which sought to 4 standardize the use of the trusted platform 5 module, but more generally secure enclaves which 6 are hardware security zones that are typically put 7 in modern processors. 8 Q Are you a member of the Trusted Computing 9 Group? 10 A No. 11 Q Have you ever been? 12 A No. 13 Q In writing your declaration, did you 14 consult with any members of the Trusted Computing 15 Group? 16 A No, but I've certainly written multiple 17 papers using TPMs and written code for them. 18 Q While we're talking about it, what is a 19 TPM? 20 A You know, informally it is a trusted – it 21 is called the trusted platform module. It is a 22 subprocessor or a coprocessor, if you will, of

21 1 many modern general purpose architectures that 2 provide additional security. And it provides a 3 zone of security that is isolated from general 4 processors. 5 Q And does that protect against malware? 6 A Amongst many other things, yes. 7 Q What are some of the other things? 8 A Insider attacks, side channels, software 9 bugs, you know, the list -- think of any kind of 10 security problem isolation helps more or less. 11 Q What is an insider attack? 12 A Insider attack is where you have somebody 13 within an organization who has privileges to 14 access some data and seeks to manipulate it. 15 Sometimes they may not have access to the data 16 they're looking for, but they can use their 17 privileged access and something called privileged 18 escalation to access that data. 19 Q And how does a TPM defer or deter an 20 insider attack? 21 A Well, it provides the zone that regardless 22 of the credentials and the privilege escalation	23 1 information you can infer data. 2 Q And how does a TPM deter a side channel 3 attack like the one you just discussed? 4 A Because within the -- within the TPM in 5 this coprocessor it is -- it is actually hiding 6 its execution. You are not able to see the 7 execution, because it is running in specific 8 hardware mode for one example. 9 Q Okay. Let's flip to page 21 of your 10 report or declaration. And if I say report, I'm 11 sorry, I'm so used to dealing with reports, but 12 declaration? 13 A Understood, I'm there. 14 Q Actually I may have -- may have led you 15 astray here. I may not be talking about 21, hold 16 on a sec. I'm sorry, I meant 31? 17 A Okay, the beginning in ground one. 18 Q Correct. 19 A Okay, I'm there. 20 Q Do you see in paragraph 61 a reference to 21 Kesanupalli? 22 A Kesanupalli, yes, I see that reference.
22 1 you have within a general purpose operating system 2 it prevents somebody from accessing data without 3 the proper access to the APIs. 4 Q And then what is -- what is a side channel 5 attack? 6 A A side channel attack is an attack where 7 you use some byproduct of the environment such as 8 energy use or heat or process scheduling and in an 9 extreme case to learn something about data that is 10 somehow adjacent to a computation or is within 11 secondary or a primary processor. 12 Q Could you provide me with a layman's 13 example of a side channel attack? 14 A Sure. A side channel attack, one of the 15 most famous is you can send requests to a, for 16 example, a web server that is using specific kinds 17 of cryptographic keys. And if you know something 18 about the algorithm, the cryptographic algorithm 19 it is using, you can actually use timing 20 information on how fast that -- that website 21 responds to you to provide you information on 22 which you can break those keys. So using timing	24 1 Q Do you know who the inventors of the 2 Kesanupalli reference are? 3 A Apart from what I've read on the cover of 4 the -- of the patent. 5 Q So you're not familiar with Ramesh 6 Kesanupalli? 7 A Not that I'm aware of. 8 Q Can we flip to page 33 of your report? 9 A Yes, I'm there. 10 Q What is your understanding of what 11 processor is sending the credentials to the 12 external resource in the Kesanupalli reference? 13 MS. SHI: Objection, form. 14 A Is there something in my report you want 15 to point me to? 16 Q Yeah. At the end of paragraph 66 you say, 17 the release credentials are then communicated to 18 the external resource by application 214 of the 19 host PC. Do you see that? 20 A Yes. 21 Q Is that the -- is the processor of host PC 22 202 what is doing the communication?

25 1 A The system is doing the communication. 2 Q And the system being host PC 202? 3 A And the -- 4 MS. SHI: Objection, form. Sorry, Dr. 5 McDaniel, just if you could just pause a little 6 bit after the -- 7 A Yeah. 8 MS. SHI: -- after the question so I get a 9 chance to object if I have any, that will be 10 appreciated thank you. 11 Objection, form. 12 A So with respect to Kesanupalli, the system 13 itself is including the sensor and the secure 14 storage on the PC as I'm talking about in this 15 particular characterization. 16 Q Application 214 in the figure you have got 17 right above paragraph 66, do you see that? 18 A Yes. 19 Q That is not running on the processor on 20 sensor 204, correct? 21 A So just for the record you haven't given 22 me Kesanupalli, but I have a copy here that is	27 1 your understanding of -- now, they're not labeled 2 in the figure, but they -- the dark arrow is 3 connecting the components. What is your 4 understanding of those arrows? 5 A They're -- they're pathways through the 6 system by which data can pass. 7 Q So is it -- is it fair to say that 8 keyboard 22 is directly connected to processor 26 9 in the security portion of 14? 10 MS. SHI: Objection, form. 11 A In the case here, you know, they can be -- 12 in the Challenger reference -- well, let me -- let 13 me review the Challenger reference. That is 14 definitely one possibility. 15 Q Can you flip to page 37 of your report? 16 A I'm on page 37. 17 Q All right. In paragraph 69 you say 18 Challenger provides an implementation framework for 19 secure systems, which may be TPM based. Outside 20 of TPMs, what do you mean by "which may"? What 21 are -- what are other solutions? 22 A Well, there are other kinds of
26 1 clean and that I'm going to access. 2 Q Okay. 3 A The application 214 is running on the host 4 PC. 5 Q At the bottom of page 33 do you see the 6 reference to Challenger, I think that is what he 7 says? 8 A Challenger, yes, I do, I see that. 9 Q Are you familiar with David Challenger? 10 A I am not. 11 Q Are you familiar with any of the authors 12 of the Challenger reference? 13 A Not that I'm aware of. 14 Q Can you flip to page 36 of your report or 15 declaration again, I'm sorry? 16 A That is okay. I know what you mean when 17 you are saying that. 18 Okay, yes, I'm looking at it. 19 Q First off, do you know what this figure 20 is? 21 A Yes, this is from Challenger. 22 Q Correct. And I just have one -- what is	28 1 cryptographic coprocessors other than TPMs. 2 Q Sorry, I didn't mean to interrupt. 3 A There are -- there are external hardware 4 secure processors. There are key fobs. There is 5 the IBM, I want to say it is 3088, but I would 6 have -- I would have to go back, which is a little 7 bit older. But there are other solutions for 8 providing hardened coprocessors or external 9 attached devices that implement a security 10 portion. 11 Q All right. I am putting into the chat 12 Exhibit 5, which is Exhibit 1012 to your 13 declaration. It is an article you wrote. 14 A Yes. 15 (Exhibit 5 marked.) 16 A I actually have a copy, so -- 17 Q Perfect. You have it in front of you? 18 A I do. 19 Q What is the Handbook of Computer Networks? 20 A The Handbook of Computer Networks was 21 essentially an encyclopedia of computer science 22 that I contributed to in the middle 2000s.

29 1 Q On page -- can we flip to page 570? 2 A I'm there. 3 Q The second full paragraph in the 4 right-hand column, the most widely used 5 authentication credential is a password. Do you 6 see that? 7 A Yes. 8 Q Is that still true today? 9 A I think there is a combination of things. 10 I think passwords are usual for many kinds of 11 authentication systems. I think there are many 12 more uses of second -- two-party authentication 13 I'm sorry. Second factor authentication I think 14 people are using a wide array of different 15 authentication mechanisms today, but I think it is 16 one of the dominant technologies today. 17 Q Going down to the third paragraph you say, 18 passwords are subject to guessing attacks. Do you 19 see that? 20 A Yes. 21 Q What are guessing attacks? 22 A It is where somebody simply just guesses	31 1 attacks, do you see that? 2 A Yes. 3 Q What are phishing attacks? 4 A Phishing attacks are where someone sends 5 you some kind of communication, most often a kind 6 of email that poses as somebody else and uses what 7 we call social engineering to convince somebody to 8 enter their passwords in a, say, a fake website. 9 Q So that is about tricking the user? 10 A Yeah, I mean, yes, I think that is fair to 11 say. 12 Q And you just mentioned social engineering. 13 What are other forms of social engineering 14 attacks? 15 A There is something called pretexting, 16 where you setup a scenario where something seems 17 like it would be the normal thing to do, but it 18 would actually not be. For example, they will 19 call and say, you know, your brother or sister has 20 been in a traffic accident and they need a credit 21 card so they can treat them. It seems in the 22 moment they prey upon your -- your psychology.
30 1 your password. 2 Q And what is a little bit further down, 3 five sentences down or five lines down you say 4 dictionary attack. What is a dictionary attack? 5 A A dictionary attack is where the adversary 6 has a precomputed set of passwords for sort of 7 well-known or frequently used passwords, and then 8 just simply uses that dictionary to -- to identify 9 what a particular password is. 10 Q So that is pretty similar to a guessing 11 attack. They're just putting in a set of 12 passwords they think it may be? 13 A Yeah. It is kind of -- it is kind of an 14 off -- what is referred to as an offline guessing 15 attack. 16 Q If we could flip to page 571. 17 A Uh-huh. 18 Q And let's see, where is it here. In the 19 second full paragraph that begins with, 20 particularly in cases, do you see that? 21 A Yes. 22 Q About halfway down you discuss phishing	32 1 That is a general kind of attack, yeah. 2 Q And later on in this paragraph you discuss 3 a man in the middle attack. Is that -- is that a 4 type of social engineering? 5 A Man in the middle is a very general 6 attack. Sometimes it is -- it is social 7 engineering and sometimes it can be a technical 8 attack. 9 Q And generally, what is a man in the middle 10 attack? 11 A A man in the middle attack is where 12 somebody interposes themselves between you and 13 some trusted entity. And then they talk to you as 14 if they're that entity and then they talk to the 15 entity as if they're you. And if you give them 16 information that man in the middle that -- that 17 information as they pass onto the trusted entity 18 they can exploit that data later. 19 Q And how is a man in the middle attack done 20 in a social engineering context? 21 A Let me think of an example. So the 22 obvious one is if I put in a, say, what we call

33 1 this a trouble ticket into a computer system that 2 says, oh, there is something wrong with my -- my 3 password and that goes to an IT organization, some 4 evil person in the IT organization. And calls you 5 and says hey, I am your bank. I need your 6 password to access this so we can -- we can unlock 7 your account, for example. 8 You would give them that information and 9 then they would turnaround and give it to the bank 10 and unlock your account, legitimately unlock your 11 account, but at the same time they've captured 12 your credential. You might go on using your bank, 13 but now they have your credential and they can 14 exploit that later. 15 Q Can you flip to page 577? 16 A Yes. 17 Q The first full paragraph on the left 18 column that starts, "in essence," do you see that? 19 A 577? 20 Q Yes, right above the Kerberos? 21 A Okay. I thought you said second column. 22 Q By the way how do you say that? I see it	35 1 Q Why don't we take a 5 minute break here, I 2 don't have very much more. 3 A Okay. 4 Q And I just want to -- I want to put some 5 final thoughts together and we will probably be 6 done here before noon. 7 A Great. 8 (Recess, 10:43 to 10:50 a.m.) 9 Q Right before the break, Dr. McDaniel, you 10 were talking about a RSA SecurID. Do you remember 11 that? 12 A Yes. 13 Q You said it was a physical device with a 14 screen on it with a -- was it a two-factor 15 authentication code? 16 A Yes. 17 Q Do you know -- were you able to backup 18 that security code in any way? 19 A There were -- there were a couple of kinds 20 of data that you -- that were actually backed up 21 on to other systems. They could replicate those 22 IDs if they needed to. I know that RSA did. And
34 1 all time. 2 A Kerberos, you pronounced it right. It is 3 Kerberos. 4 Q I see it all the time and I never -- I 5 never follow through on that. 6 At the end of the paragraph that starts 7 with "in essence" it says, for example, RSAs 8 widely use SecurID, combines a physical token with 9 one time password protocols. Do you see that? 10 A Yes. 11 Q What is RSA's SecurID? 12 A It is a physical token that you would 13 receive at that time from the company called RSA 14 that would have -- that has a window on it, which 15 would display, I believe it was every 10 seconds a 16 different number. 17 And so when you logged in, you entered a 18 password into a system. You would have to enter 19 in that six digit value into the system. That is 20 called a second factor authentication. So you 21 would have to have both your password and be in 22 possession of that token in order to gain access.	36 1 I think you could clone them as well, so that 2 would require that they have to be backed up. 3 Q Just a couple of questions on your '138 4 declaration if we could move to that. 5 A Sure. 6 Q If we could go to page 30 and 31 of your 7 declaration. 8 A Yes, the claim construction discussion. 9 Q Yeah. And this is more of a logistics 10 question I guess. Why in this -- maybe there is 11 no difference and I'm just missing it. In your 12 '512 declaration, you just discussed the 13 restricted interface, but in the '138 you also 14 included discussion of the processor. 15 Did you apply the same definition of a 16 processor to the '512 declaration and it just 17 didn't make it in the claim construction part? 18 And feel free to reference your '512 declaration. 19 A Yeah, I mean it is -- it is the -- here 20 let me... 21 Q My question, I guess, more so is there a 22 reason a processor is in your '138 declaration and

37 1 not in your '512? And if there isn't, there 2 isn't, that is perfectly fine. I just want to 3 make sure I'm not missing something. 4 A I don't remember the answer. 5 Q Okay. Is the definition that you provide 6 in paragraph 56, would that equally apply to the 7 '512 patent? 8 A It is a plain and ordinary meaning as 9 assisted by the – the same specification, so I 10 don't see any reason why. 11 Q Okay. That was my understanding, but just 12 wanted to make sure I didn't miss anything there. 13 Just flipping through, I think we're done. 14 Let me just flip through real quick. 15 A Sure. 16 Q Do you remember when we discussed social 17 engineering attacks? 18 A Yes. 19 Q What is the best way for a user to defend 20 themselves against a social engineering attack? 21 MS. SHI: Objection, form. 22 A Yeah, I think I could – I could say that	39 1 thank you everyone. 2 MR. FISHBACK: Thank you. 3 (Deposition adjourned at 11:00 a.m.) 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
38 1 you know there is – the best is really a 2 subjective term. I can say that their education 3 is really important if you make people aware that 4 social engineering attacks are out there. That is 5 really critical. In fact, a lot of the campaigns 6 and a lot of the companies that work on 7 anti-phishing do that. But technical measures are 8 equally important to prevent someone who is being 9 fooled things like safe URLs and emails and things 10 like that, so it is a combination of things. 11 MR. FISHBACK: All right. That is -- that 12 is all I had. I appreciate your time, Dr. 13 McDaniel and thank you again. 14 MS. SHI: Can we take a quick break so 15 that I can review my notes as well? 16 MR. FISHBACK: Yes. 17 MS. SHI: How about a 5 minute break? 18 MR. FISHBACK: Yeah, that is fine. Come 19 back at 11:00? 20 MS. SHI: Yes. 21 (Recess, 10:55 to 11:00 a.m.) 22 MS. SHI: I don't have further questions,	40 1 CERTIFICATE OF SHORTHAND REPORTER 2 3 I, Susan S. Klinger, Certified Reporter and 4 Notary Public within and for the State of Texas 5 do hereby certify: 6 That PATRICK McDANIEL, PH.D., the 7 witness whose deposition is hereinbefore set forth, 8 was duly sworn by me before the commencement of such 9 deposition and that such deposition was taken before 10 me and is a true record of the testimony given by such 11 witness. 12 I further certify that the adverse party, 13 APPLE INC., was represented by counsel at the 14 deposition. 15 I further certify that the deposition of 16 PATRICK McDANIEL, PH.D., occurred at the virtually 17 via videoconference on September 25, 2024, 18 commencing at 9:59 a.m. to 11:00 a.m. 19 I further certify that I am not related to 20 any of the parties to this action by blood or 21 marriage, I am not employed by or an attorney to any 22 of the parties to this action, and that I am in no way

Transcript of Patrick McDaniel, Ph.D.
Conducted on September 25, 2024

11 (41 to 44)

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1 interested, financially or otherwise, in the outcome	
2 of this matter.	
3	
4 IN WITNESS WHEREOF, I have herunto set my	
5 hand on the 27th of September, 2024.	
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8 	
9 Susan S. Klinger, RMR-CRR, CSR	
10 Texas CSR 6531, Exp: 10/23/25	
11 California CSR 14487, Exp: 11/30/24	
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17	
18	
19	
20	
21	
22	

A			
able	adverse	40:21	assisted
23:6, 35:17	40:12	anything	37:9
about	after	9:7, 16:6,	astray
7:5, 8:8, 10:1,	12:15, 25:6,	37:12	23:15
12:20, 13:4,	25:8	apart	attached
14:4, 16:2,	again	24:3	4:7, 28:9
18:17, 20:18,	26:15, 38:13	apis	attack
22:9, 22:18,	against	22:3	21:11, 21:12,
23:15, 25:14,	21:5, 37:20	appeal	21:20, 22:5,
30:22, 31:9,	ago	1:3	22:6, 22:13,
35:10, 38:17	7:5, 8:9, 8:12,	apple	22:14, 23:3,
above	10:1	1:5, 40:13	30:4, 30:5,
25:17, 33:20	ahead	apple's	30:11, 30:15,
access	14:17, 14:18	9:13	32:1, 32:3,
11:6, 13:9,	algorithm	application	32:6, 32:8,
14:3, 14:12,	22:18	24:18, 25:16,	32:10, 32:11,
17:14, 21:14,	all	26:3	32:19, 37:20
21:15, 21:17,	8:13, 10:9,	applied	attacks
21:18, 22:3,	13:5, 16:14,	11:14	21:8, 29:18,
26:1, 33:6,	19:16, 27:17,	apply	29:21, 31:1,
34:22	28:11, 34:1,	36:15, 37:6	31:3, 31:4,
accessing	34:4, 38:11,	appreciate	31:14, 37:17,
13:19, 13:22,	38:12	16:7, 38:12	38:4
22:2	alpha	appreciated	attending
accident	18:19	25:10	10:3
31:20	also	approximately	attorney
account	36:13	7:22	40:21
33:7, 33:10,	although	architectures	attorney-client
33:11	10:5	21:1	8:6
acquaintance	amazed	around	attorneys
10:7	16:5	10:2	3:3, 3:11
across	amongst	array	audio
13:3	21:6	29:14	8:17
action	ample	arrow	austin
40:20, 40:22	16:15	27:2	3:8, 3:17
actually	analysis	arrows	authentication
22:19, 23:5,	19:7	27:4	29:5, 29:11,
23:14, 28:16,	answer	art	29:12, 29:13,
31:18, 35:20	37:4	19:4, 19:5,	29:15, 34:20,
additional	anti-phishing	19:10, 19:13	35:15
8:11, 21:2	38:7	article	authors
adjacent	any	28:13	26:11
22:10	5:22, 8:5, 9:2,	aside	automatically
adjourned	9:6, 9:13, 10:5,	12:4	17:3
39:3	19:10, 20:14,	asking	available
adversary	21:9, 25:9,	18:5	10:15
30:5	26:11, 35:18,	assist	aware
	37:10, 40:20,	11:11	7:13, 8:21,

9:1, 19:10, 24:7, 26:13, 38:3 away 16:5	bell 10:4 below 13:12 besides 5:21 best 37:19, 38:1 better 16:2, 16:6 between 7:20, 32:12 beyond 10:6, 14:3 biometrics 1:8 bit 13:8, 15:22, 25:6, 28:7, 30:2 blood 40:20 board 1:3 boone 3:14 both 7:16, 8:18, 10:11, 10:21, 11:10, 34:21 bottom 26:5 boulevard 3:15 break 22:22, 35:1, 35:9, 38:14, 38:17 brief 8:10 brother 31:19 brown 16:20 bugs 21:9 byproduct 22:7	call 7:14, 31:7, 31:19, 32:22 called 20:21, 21:17, 31:15, 34:13, 34:20 calls 33:4 campaigns 38:5 can't 7:6 captured 33:11 carbyne 1:8 card 31:21 case 1:11, 1:13, 15:17, 17:2, 22:9, 27:11 cases 30:20 cell 6:2 certainly 19:15, 20:16 certificate 40:1 certified 2:10, 40:3 certify 40:5, 40:12, 40:15, 40:19 challenger 26:6, 26:8, 26:9, 26:12, 26:21, 27:12, 27:13, 27:18 chance 25:9 channel 22:4, 22:6, 22:13, 22:14, 23:2 channels 21:8	characterization 25:15 chat 10:10, 11:9, 11:11, 28:11 choppy 15:22 claim 11:17, 12:1, 13:21, 15:19, 16:8, 16:16, 16:18, 17:2, 17:5, 17:22, 36:8, 36:17 claims 11:19, 18:6 clean 10:16, 10:19, 26:1 clone 36:1 closed 16:5 closer 15:22 code 20:17, 35:15, 35:18 colleague 7:14 collection 13:19 colloquially 12:10 colorado 3:7 column 12:20, 14:15, 15:3, 15:5, 15:6, 16:8, 29:4, 33:18, 33:21 combination 29:9, 38:10 combines 34:8 come 38:18
B			
back 17:5, 17:9, 28:6, 38:19 backed 14:8, 35:20, 36:2 backpack 6:3 backup 11:22, 12:6, 12:9, 14:6, 35:17 bank 33:5, 33:9, 33:12 based 17:11, 27:19 basics 6:8 because 19:13, 23:4, 23:7 been 5:3, 7:9, 8:9, 8:14, 20:11, 31:20 before 1:3, 2:9, 7:10, 35:6, 35:9, 40:8, 40:9 beginning 23:17 begins 30:19 being 13:21, 14:8, 25:2, 38:8 believe 9:10, 9:15, 10:5, 20:2, 34:15	C		
	california 2:11, 41:11		

commencement 40:8 commencing 40:18 comment 12:16 communicated 24:17 communication 24:22, 25:1, 31:5 communications 8:6 companies 38:6 company 34:13 compare 18:6 comparison 18:9 components 27:3 computation 22:10 computer 4:15, 5:21, 28:19, 28:20, 28:21, 33:1 computing 19:20, 19:22, 20:8, 20:14 conference 10:7 conferences 10:3 confirm 10:19 connected 27:8 connecting 27:3 considered 18:16 construction 11:4, 36:8, 36:17 consult 20:14	contact 10:6 content 8:5 contentions 9:7 context 12:7, 12:8, 13:22, 15:12, 15:13, 15:14, 32:20 contributed 28:22 convince 31:7 copies 10:16, 10:20 coprocessor 20:22, 23:5 coprocessors 28:1, 28:8 copy 12:9, 25:22, 28:16 correct 6:10, 6:11, 6:15, 7:2, 11:5, 11:14, 11:16, 12:2, 18:18, 18:20, 19:1, 19:2, 23:18, 25:20, 26:22 could 5:13, 13:20, 18:12, 19:11, 19:13, 22:12, 25:5, 30:16, 35:21, 36:1, 36:4, 36:6, 37:22 couldn't 7:17 counsel 8:16, 40:13 couple 35:19, 36:3 court 8:22, 9:8, 9:14	cover 24:3 covering 6:9 credential 29:5, 33:12, 33:13 credentials 21:22, 24:11, 24:17 credit 31:20 critical 38:5 cryptographic 22:17, 22:18, 28:1 csr 1:21, 41:9, 41:10, 41:11 D dan 8:18 daniel 3:5 dark 27:2 data 13:19, 15:15, 15:18, 21:14, 21:15, 21:18, 22:2, 22:9, 23:1, 27:6, 32:18, 35:20 date 7:7, 19:15 david 26:9 day 16:14 dealing 23:11 declaration 4:13, 4:14, 11:3, 15:16, 16:12, 16:19, 18:10, 19:17,	20:13, 23:10, 23:12, 26:15, 28:13, 36:4, 36:7, 36:12, 36:16, 36:18, 36:22 declarations 6:10, 7:16, 7:21, 8:1, 11:10 defend 37:19 defer 21:19 definitely 27:14 definition 36:15, 37:5 deposition 1:17, 2:8, 5:11, 6:9, 8:7, 39:3, 40:7, 40:9, 40:14, 40:15 description 4:10 desk 6:2 deter 21:19, 23:2 device 17:16, 35:13 devices 6:1, 28:9 dictionary 30:4, 30:5, 30:8 difference 36:11 different 17:22, 18:5, 29:14, 34:16 digit 34:19 directly 27:8 discuss 30:22, 32:2 discussed 13:21, 18:1,
---	--	--	---

23:3, 36:12, 37:16 discussing 8:5 discussion 36:8, 36:14 display 34:15 district 8:22, 9:8, 9:14 divided 7:20 documents 18:16 doing 5:9, 15:15, 19:7, 24:22, 25:1 dominant 29:16 done 18:7, 18:8, 32:19, 35:6, 37:13 down 17:5, 17:10, 29:17, 30:2, 30:3, 30:22 dr 5:6, 5:16, 7:3, 8:21, 9:18, 25:4, 35:9, 38:12 duly 5:3, 40:8 E e 18:20 each 8:1, 14:2 echoing 8:19 education 38:2 else 31:6 email 8:10, 31:6	emails 38:9 employed 40:21 enable 13:6 enclaves 20:5 encyclopedia 28:21 end 24:16, 34:6 energy 22:8 engaged 7:4 engagement 9:17 engineering 31:7, 31:12, 31:13, 32:4, 32:7, 32:20, 37:17, 37:20, 38:4 enter 31:8, 34:18 entered 34:17 entity 32:13, 32:14, 32:15, 32:17 environment 22:7 equally 37:6, 38:8 escalation 21:18, 21:22 esquire 3:4, 3:5, 3:12, 3:13 essence 33:18, 34:7 essentially 28:21 evenly 7:19 ever 20:11	every 34:15 everyone 7:12, 39:1 evil 33:4 exact 7:7 examination 4:5, 5:4 example 22:13, 22:16, 23:8, 31:18, 32:21, 33:7, 34:7 exchanges 8:10 excuse 18:12 execution 23:6, 23:7 exhibit 4:11, 4:12, 4:13, 4:14, 4:15, 10:13, 10:14, 11:7, 11:8, 28:12, 28:15 exhibits 4:7, 10:9 exp 41:10, 41:11 expect 7:18, 7:19 expert 9:13 exploit 32:18, 33:14 expressed 8:3 external 12:22, 24:12, 24:18, 28:3, 28:8 extreme 22:9 F facilitate 12:15, 12:16,	12:17, 12:21, 15:4 fact 38:5 factor 29:13, 34:20 fair 9:12, 27:7, 31:10 fairly 19:14 fake 31:8 fall 7:8 familiar 9:18, 9:21, 24:5, 26:9, 26:11 famous 22:15 fast 22:20 feel 16:14, 36:18 feet 16:5 few 7:9 figure 25:16, 26:19, 27:2 file 18:22 files 10:15 filing 7:7 final 8:13, 35:5 financially 41:1 fine 6:5, 10:18, 37:2, 38:18 first 5:3, 26:19, 33:17
--	---	---	--

fishback 3:4, 4:5, 5:5, 7:12, 8:18, 15:21, 38:11, 38:16, 38:18, 39:2 five 18:19, 30:3 flip 11:17, 18:12, 19:16, 23:9, 24:8, 26:14, 27:15, 29:1, 30:16, 33:15, 37:14 flipping 37:13 fobs 28:4 follow 34:5 followed 8:11 following 18:16 follows 5:3 fooled 38:9 footnote 19:19 form 18:3, 24:13, 25:4, 25:11, 27:10, 37:21 forming 19:8 forms 31:13 forth 40:7 forward 6:8, 11:4 framework 27:18 free 16:15, 36:18 frequently 30:7	friday 8:15 front 5:22, 11:1, 28:17 full 29:3, 30:19, 33:17 further 30:2, 38:22, 40:12, 40:15, 40:19 G gain 34:22 geez 7:5 general 21:1, 21:3, 22:1, 32:1, 32:5 generally 20:5, 32:9 george 3:4 give 32:15, 33:8, 33:9 given 25:21, 40:10 go 14:17, 14:18, 15:15, 16:19, 28:6, 33:12, 36:6 goes 33:3 going 6:4, 6:8, 6:9, 10:9, 16:14, 17:5, 17:10, 18:14, 26:1, 29:17 good 5:6, 5:7, 13:5 graduate 10:3 great 7:3, 35:7	ground 23:17 grounds 19:1 group 19:20, 19:22, 20:9, 20:15 guess 7:6, 14:1, 36:10, 36:21 guesses 29:22 guessing 29:18, 29:21, 30:10, 30:14 guys 16:6 H halfway 30:22 hand 41:5 handbook 4:15, 28:19, 28:20 hang 10:2 hardened 28:8 hardware 20:6, 23:8, 28:3 haynes 3:14 heard 16:6 heat 22:8 held 2:9 helps 21:10 here 6:2, 6:3, 11:11, 12:19, 14:5, 16:14, 18:8, 18:19, 19:8, 23:15, 25:22, 27:11, 30:18, 35:1, 35:6, 36:19 hereby 40:5 hereinbefore 40:7 herunto 41:4 hey 33:5 hiding 23:5 history 18:22 hold 23:15 hong 3:12 host 24:19, 24:21, 25:2, 26:3 hours 7:15 however 10:18 I ibm 28:5 identify 30:8 ids 35:22 iliasevitch 3:5, 7:13, 8:20 implement 28:9 implementation 27:18 important 38:3, 38:8 inc 1:5, 40:13 include 16:21 included 36:14
--	---	--

including 25:13 incorporates 15:17 indicate 17:18 industry 20:3 infer 23:1 influenced 19:9 informally 20:20 information 22:20, 22:21, 23:1, 32:16, 32:17, 33:8 infringement 9:7 insider 21:8, 21:11, 21:12, 21:20 instituted 8:10 interested 41:1 interface 11:5, 36:13 interposes 32:12 interpretation 17:20 interrupt 15:20, 28:2 interruption 8:17 introduction 18:15 inventor 9:18 inventors 24:1 ipr 1:11, 1:13, 6:10, 6:12, 6:13, 6:14, 6:17, 6:18,	6:22, 7:1 iprs 7:16, 8:2 isolated 21:3 isolation 21:10 items 18:19, 19:3 itself 25:13 J jacinto 3:15 jakobsson 9:18, 10:1 job 1:22 joining 7:13, 7:14 K kelly 3:13 kerberos 33:20, 34:2, 34:3 kesanupalli 23:21, 23:22, 24:2, 24:6, 24:12, 25:12, 25:22 key 28:4 keyboard 27:8 keys 22:17, 22:22 kind 21:9, 30:13, 31:5, 32:1 kinds 22:16, 27:22, 29:10, 35:19 klinger 1:21, 2:9, 40:3, 41:9	know 7:9, 10:6, 10:12, 14:21, 16:9, 18:13, 20:20, 21:9, 22:17, 24:1, 26:16, 26:19, 27:11, 31:19, 35:17, 35:22, 38:1 L labeled 27:1 labs 10:4 laptop 16:4 large 19:12 last 7:8, 7:9, 8:15, 11:20, 11:21, 15:7 later 12:9, 32:2, 32:18, 33:14 layman's 22:12 layout 15:16 learn 22:9 learned 8:9 least 13:7, 14:21, 15:16, 17:1, 17:3, 17:11, 17:15, 17:18, 17:21 leave 6:5 led 23:14 left 33:17 legitimately 33:10	less 21:10 let's 10:22, 15:1, 23:9, 30:18 limitation 11:21, 12:11, 12:18, 15:4, 15:7, 17:6, 17:10, 17:12 line 12:20, 13:12, 13:13, 13:15, 14:5, 14:6, 14:12, 14:14, 14:15, 15:3, 15:5, 15:6, 16:8, 17:11 lines 13:3, 13:8, 30:3 list 21:9 listed 18:19 litigation 8:22, 9:3, 9:8, 9:14 little 13:8, 15:21, 25:5, 28:6, 30:2 llc 1:8 located 5:16 logged 34:17 login 12:16, 12:21, 13:7 logistics 36:9 long 6:4, 10:19 look 10:22 looking 21:16, 26:18
--	---	--	--

lot 7:8, 38:5, 38:6 lyle 3:13 M make 12:9, 36:17, 37:3, 37:12, 38:3 malware 21:5 man 32:3, 32:5, 32:9, 32:11, 32:16, 32:19 manipulate 21:14 manner 14:22 many 7:15, 21:1, 21:6, 29:10, 29:11 marked 10:13, 10:14, 11:7, 11:8, 28:15 markus 9:22 marriage 40:21 materials 8:13, 9:2, 9:5 matter 7:4, 41:2 maybe 14:1, 36:10 mcdaniel 1:17, 2:8, 4:4, 4:13, 4:14, 5:2, 5:6, 5:15, 5:16, 7:3, 8:21, 25:5, 35:9, 38:13, 40:6, 40:16 mckool 3:6 mean 9:4, 13:18,	26:16, 27:20, 28:2, 31:10, 36:19 meaning 11:15, 12:5, 37:8 means 14:21, 17:1 meant 23:16 measures 38:7 mechanisms 29:15 meeting 10:7 meetings 8:15 member 20:8 members 20:14 mentioned 31:12 merit 2:9 met 10:5 microphone 16:1, 16:4 middle 28:22, 32:3, 32:5, 32:9, 32:11, 32:16, 32:19 might 33:12 mine 7:14, 8:4 minute 35:1, 38:17 miss 37:12 missing 36:11, 37:3 mode 23:8 modern 20:7, 21:1	module 20:5, 20:21 moment 31:22 monday 8:15 month 8:9 months 7:9 more 10:20, 13:20, 17:19, 20:5, 21:10, 29:12, 35:2, 36:9, 36:21 morning 5:6, 5:7 most 22:15, 29:4, 31:5 move 36:4 moving 14:3 much 35:2 multiple 14:7, 20:16 mute 8:18 N name 5:13, 9:22 need 31:20, 33:5 needed 35:22 networks 4:16, 28:19, 28:20 never 34:4, 34:5 noon 35:6 normal 31:17	north 7:17 notary 40:4 notes 38:15 number 16:8, 34:16 O object 25:9 objection 18:3, 24:13, 25:4, 25:11, 27:10, 37:21 obvious 32:22 occurred 40:16 office 1:1 official 8:13 offline 30:14 often 31:5 oh 33:2 okay 6:7, 7:3, 8:20, 9:10, 10:15, 10:20, 10:21, 10:22, 12:3, 15:2, 16:10, 16:16, 17:5, 17:9, 23:9, 23:17, 23:19, 26:2, 26:16, 26:18, 33:21, 35:3, 37:5, 37:11 older 28:7 one 13:20, 14:10, 17:15, 17:18,
--	---	--	---

17:19, 17:21, 22:14, 23:3, 23:8, 23:17, 26:22, 27:14, 29:16, 32:22, 34:9 only 11:3 open 15:2, 18:10 operating 22:1 opinion 18:7 opinions 8:3, 19:8 order 34:22 ordinary 11:15, 12:5, 37:8 organization 20:1, 21:13, 33:3, 33:4 organizations 20:3 other 5:22, 11:14, 14:2, 19:10, 21:6, 21:7, 27:21, 27:22, 28:1, 28:7, 31:13, 35:21 otherwise 41:1 out 11:11, 15:18, 38:4 outcome 41:1 outside 9:8, 27:19 own 10:16 owner 1:9, 3:3 P page 4:3, 4:10,	16:19, 18:13, 18:15, 19:16, 23:9, 24:8, 26:5, 26:14, 27:15, 27:16, 29:1, 30:16, 33:15, 36:6 papers 20:17 paragraph 11:12, 18:12, 18:17, 23:20, 24:16, 25:17, 27:17, 29:3, 29:17, 30:19, 32:2, 33:17, 34:6, 37:6 part 17:11, 17:15, 19:6, 36:17 particular 25:15, 30:9 particularly 16:20, 30:20 parties 40:20, 40:22 party 40:12 pass 27:6, 32:17 password 29:5, 30:1, 30:9, 33:3, 33:6, 34:9, 34:18, 34:21 passwords 29:10, 29:18, 30:6, 30:7, 30:12, 31:8 past 14:2 patent 1:1, 1:3, 1:9, 1:12, 1:14, 3:3, 4:11, 4:12, 6:13, 6:15, 6:19, 7:1, 10:11, 11:1,	11:17, 12:8, 15:1, 15:13, 17:7, 17:8, 18:2, 24:4, 37:7 patent-in-suit 18:21 patents 8:12, 9:8, 9:19, 18:5 pathways 27:5 patrick 1:17, 2:8, 4:4, 5:2, 5:15, 40:6, 40:16 pause 25:5 pc 24:19, 24:21, 25:2, 25:14, 26:4 people 29:14, 38:3 perfect 28:17 perfectly 37:2 perform 14:6 person 33:4 petitioner 1:6, 3:11 ph 1:17, 2:8, 4:4, 5:2, 40:6, 40:16 phishing 30:22, 31:3, 31:4 phone 6:2 physical 34:8, 34:12, 35:13 pick 19:3 plain 11:15, 12:5,	37:8 platform 20:4, 20:21 pleadings 9:6 please 5:13, 15:5 point 24:15 policy 16:18, 16:21, 16:22 portion 27:9, 28:10 portions 17:3 poses 31:6 possession 34:22 possibility 27:14 precomputed 30:6 predefined 16:21, 16:22, 17:1 prepare 8:7 presented 19:6 pretexting 31:15 pretty 19:12, 30:10 prevent 38:8 prevents 22:2 prey 31:22 primary 22:11 prior 9:17, 19:4, 19:5, 19:10, 19:12 priority 19:15
---	---	---	---

Transcript of Patrick McDaniel, Ph.D.
Conducted on September 25, 2024

20

privilege 21:22	11:4, 11:9, 11:10, 20:6, 32:22, 35:4	14:10, 14:11, 14:12, 17:4, 17:15, 17:18, 17:19, 18:1, 18:21, 25:21, 40:10	23:10, 24:8, 24:14, 26:14, 27:15
privileged 21:17	putting 28:11, 30:11	records 14:7	reported 1:21
privileges 21:13	Q	refer 6:17, 6:21	reporter 2:10, 40:1, 40:3
probably 5:10, 7:5, 7:17, 8:8, 35:5	question 14:18, 15:9, 25:8, 36:10, 36:21	reference 19:19, 23:20, 23:22, 24:2, 24:12, 26:6, 26:12, 27:12, 27:13, 36:18	reports 9:13, 23:11
problem 21:10	questions 36:3, 38:22	references 18:22, 19:4, 19:5	represented 40:13
proceedings 6:10, 6:12	quick 37:14, 38:14	referred 30:14	requests 22:15
process 19:6, 22:8	R	referring 6:18	require 36:2
processor 22:11, 24:11, 24:21, 25:19, 27:8, 36:14, 36:16, 36:22	ramesh 24:5	regardless 21:21	resource 12:22, 24:12, 24:18
processors 20:7, 21:4, 28:4	rather 10:17	registered 2:9	respect 16:20, 17:2, 25:12
promise 6:4	read 24:3	related 6:13, 6:14, 6:19, 7:1, 9:7, 40:19	responds 22:21
pronounced 34:2	real 37:14	relating 6:22, 16:22	response 12:12
proper 22:3	really 9:4, 38:1, 38:3, 38:5	release 24:17	restricted 11:4, 36:13
protect 21:5	realtime 2:10	relied 19:11, 19:13	result 17:3
protocols 34:9	reason 36:22, 37:10	remember 7:6, 35:10, 37:4, 37:16	retrieve 14:4
provide 21:2, 22:12, 22:21, 37:5	reasonable 17:20	remote 1:17, 2:8	retrieved 14:8
provides 21:2, 21:21, 27:18	receive 34:13	rendered 18:7	review 27:13, 38:15
providing 28:8	received 8:12	replicate 35:21	reviewed 9:2, 9:6, 9:13, 18:16, 19:7
psychology 31:22	recess 35:8, 38:21	report 8:4, 11:6,	reviewing 8:11, 8:14, 16:12
public 40:4	record 5:14, 13:9, 13:13, 13:16, 13:17, 13:18, 13:19, 13:20, 13:22, 14:3, 14:4, 14:6, 14:7, 14:9,		right 5:11, 5:22, 6:16, 10:9, 11:15, 12:15, 13:12, 14:16, 19:16, 25:17,
purpose 21:1, 22:1			
put 6:3, 10:9,			

27:17, 28:11, 33:20, 34:2, 35:9, 38:11 right-hand 29:4 rmr-crr 1:21, 41:9 roles 16:21 rsa 34:13, 35:10, 35:22 rsa's 34:11 rsas 34:7 rules 17:1, 17:2 running 23:7, 25:19, 26:3 rush 16:13 S s 3:1 safe 38:9 said 33:21, 35:13 same 6:21, 12:18, 33:11, 36:15, 37:9 san 3:15 say 7:7, 7:17, 9:12, 23:10, 24:16, 27:7, 27:17, 28:5, 29:17, 30:3, 31:8, 31:11, 31:19, 32:22, 33:22, 37:22, 38:2 saying 26:17	says 11:20, 13:13, 16:20, 17:11, 17:14, 26:7, 33:2, 33:5, 34:7 scenario 31:16 scheduling 22:8 science 28:21 scope 9:5, 17:22, 18:6 screen 35:14 search 18:14 sec 23:16 second 11:21, 15:7, 29:3, 29:12, 29:13, 30:19, 33:21, 34:20 secondary 22:11 seconds 34:15 secure 11:21, 12:4, 13:9, 14:6, 14:13, 14:19, 14:22, 20:5, 25:13, 27:19, 28:4 securid 34:8, 34:11, 35:10 security 10:2, 20:6, 21:2, 21:3, 21:10, 27:9, 28:9, 35:18 see 11:20, 12:11, 13:1, 13:10, 13:14, 14:13,	15:4, 17:12, 17:14, 19:20, 23:6, 23:20, 23:22, 24:19, 25:17, 26:5, 26:8, 29:6, 29:19, 30:18, 30:20, 31:1, 33:18, 33:22, 34:4, 34:9, 37:10 seeks 21:14 seems 31:16, 31:21 selection 19:9 send 22:15 sending 24:11 sends 31:4 sensor 25:13, 25:20 sentences 30:3 september 1:18, 2:3, 40:17, 41:5 series 8:14 server 22:16 set 16:4, 30:6, 30:11, 40:7, 41:4 setting 12:4 setup 31:16 shi 3:12, 15:20, 18:3, 24:13, 25:4, 25:8, 27:10, 37:21, 38:14, 38:17,	38:20, 38:22 shorthand 40:1 should 10:10, 15:6, 16:6 side 21:8, 22:4, 22:6, 22:13, 22:14, 23:2 signature-plkal 41:7 similar 30:10 simply 29:22, 30:8 since 8:14 single 13:17, 14:7 sister 31:19 six 34:19 smith 3:6 social 31:7, 31:12, 31:13, 32:4, 32:6, 32:20, 37:16, 37:20, 38:4 software 21:8 solutions 27:21, 28:7 some 6:8, 8:10, 8:11, 10:2, 20:2, 21:7, 21:14, 22:7, 31:5, 32:13, 33:3, 35:4 somebody 21:12, 22:2, 29:22, 31:6, 31:7, 32:12 somehow 22:10
---	--	---	---

someone 31:4, 38:8 something 21:17, 22:9, 22:17, 24:14, 31:15, 31:16, 33:2, 37:3 sometimes 15:21, 21:15, 32:6, 32:7 sorry 12:18, 13:4, 14:1, 14:14, 14:17, 15:20, 16:2, 16:11, 16:13, 17:8, 23:11, 23:16, 25:4, 26:15, 28:2, 29:13 sort 8:12, 10:6, 15:16, 30:6 sought 20:3 sounds 6:16 speak 15:22 speaking 12:10 specific 10:6, 22:16, 23:7 specification 37:9 spent 7:15 split 13:3 standardize 20:4 standards 20:2 starts 12:11, 17:10, 33:18, 34:6 state 5:13, 40:4	stated 19:8 states 1:1, 2:11 still 29:8 storage 13:9, 14:13, 14:20, 14:21, 17:16, 25:14 stored 13:9, 14:12, 17:15 straightforward 19:14 street 3:7 student 10:4 subject 29:18 subjective 38:2 subprocessor 20:22 substance 7:6 suite 3:7, 3:16 support 13:6 supported 20:2 suppose 5:12 sure 9:4, 22:14, 36:5, 37:3, 37:12, 37:15 susan 1:21, 2:9, 40:3, 41:9 suspect 10:8 sworn 5:3, 40:8 system 22:1, 25:1,	25:2, 25:12, 27:6, 33:1, 34:18, 34:19 systems 27:19, 29:11, 35:21 T take 10:22, 16:13, 16:15, 35:1, 38:14 taken 40:9 talk 32:13, 32:14 talking 12:1, 14:2, 14:4, 18:17, 20:18, 23:15, 25:14, 35:10 technical 32:7, 38:7 techniques 19:14 technologies 29:16 term 11:3, 12:14, 15:11, 38:2 terms 11:14 testified 5:3 testimony 40:10 texas 2:11, 3:8, 3:17, 40:4, 41:10 th 41:5 thank 16:7, 25:10, 38:13, 39:1, 39:2 themselves 9:9, 32:12,	37:20 thereafter 10:4 thing 31:17 things 21:6, 21:7, 29:9, 38:9, 38:10 think 7:6, 7:15, 8:8, 9:22, 10:1, 11:12, 16:14, 19:6, 21:9, 26:6, 29:9, 29:10, 29:11, 29:13, 29:15, 30:12, 31:10, 32:21, 36:1, 37:13, 37:22 third 29:17 thought 33:21 thoughts 35:5 three 18:22 through 18:20, 27:5, 34:5, 37:13, 37:14 throughout 13:21 ticket 33:1 time 16:13, 16:15, 33:11, 34:1, 34:4, 34:9, 34:13, 38:12 timing 22:19, 22:22 today 5:8, 5:17, 5:19, 18:8, 29:8, 29:15, 29:16
--	---	---	---

today's 8:7 together 35:5 token 34:8, 34:12, 34:22 tpm 20:19, 21:19, 23:2, 23:4, 27:19 tpms 20:17, 27:20, 28:1 trademark 1:1 traffic 31:20 treat 31:21 trial 1:3 tricking 31:9 trouble 33:1 true 29:8, 40:10 trusted 19:19, 19:22, 20:4, 20:8, 20:14, 20:20, 20:21, 32:13, 32:17 tuesday 8:15 turn 15:1 turnaround 33:9 two 6:10, 8:9, 13:3, 18:6 two-factor 35:14 two-party 29:12 type 32:4	typically 20:6 U uh-huh 30:17 underlying 8:22, 9:3, 9:5, 9:14 understand 6:8, 6:18, 6:22 understanding 12:5, 12:14, 12:17, 14:19, 15:10, 16:17, 24:10, 27:1, 27:4, 37:11 understood 23:13 united 1:1 universe 19:12 unlock 33:6, 33:10 urls 38:9 use 6:5, 10:16, 10:17, 10:20, 12:9, 19:1, 20:4, 21:16, 22:7, 22:8, 22:19, 34:8 user 12:21, 31:9, 37:19 uses 29:12, 30:8, 31:6 using 20:17, 22:16, 22:19, 22:22, 29:14, 33:12 usual 29:10 V vaguely 9:1	value 34:19 various 16:21 verona 5:18 version 8:13 via 40:17 videoconference 40:17 virtually 40:16 voice 15:21 W want 7:7, 10:18, 24:14, 28:5, 35:4, 37:2 wanted 37:12 way 33:22, 35:18, 37:19, 40:22 we're 12:1, 12:18, 14:1, 16:14, 20:18, 37:13 web 22:16 website 22:20, 31:8 week 8:12 well-known 19:14, 30:7 whereof 41:4 wide 29:14 widely 29:4, 34:8 window 34:14 wipe 16:22	wiping 15:4, 15:11, 15:15, 17:3 wisconsin 5:18 within 21:13, 22:1, 22:10, 23:4, 40:4 without 8:5, 22:2 witness 4:3, 40:7, 40:11, 41:4 word 16:17 work 7:8, 38:6 write 8:1 writing 20:13 written 20:16, 20:17 wrong 33:2 wrote 8:4, 28:13 Y yeah 5:12, 7:22, 9:10, 9:15, 11:9, 11:13, 12:20, 13:2, 13:15, 16:12, 18:18, 24:16, 25:7, 30:13, 31:10, 32:1, 36:9, 36:19, 37:22, 38:18 year 7:5, 7:8 years 10:1 yourself 5:19 Z zero 15:17
--	--	--	--

Transcript of Patrick McDaniel, Ph.D.
Conducted on September 25, 2024

24

zone 21:3, 21:21 zones 20:6 . .8440 3:18 .8756 3:9 0 00 38:19, 38:21, 39:3, 40:18 00332 1:11, 6:13 00334 1:13, 6:14 1 10 4:11, 4:12, 13:8, 13:12, 13:15, 34:15, 35:8, 38:21, 41:10 10,929,512 1:12, 4:11, 6:14 100 7:18 1012 28:12 11 4:13, 4:14, 12:20, 13:9, 14:15, 15:3, 15:5, 15:6, 38:19, 38:21, 39:3, 40:18, 41:11 11,514,138 1:14, 4:12, 6:15 12 13:13, 14:5, 16:8	138 4:13, 6:21, 6:22, 7:1, 7:20, 10:11, 15:1, 15:13, 17:8, 36:3, 36:13, 36:22 14 27:9 14487 41:11 1500 3:16 17 12:20 18 12:21 2 20 10:1 2000 28:22 202 24:22, 25:2 2024 1:11, 1:13, 1:18, 2:3, 6:13, 6:14, 40:17, 41:5 204 25:20 21 23:9, 23:15 2100 3:7 214 24:18, 25:16, 26:3 22 13:13, 27:8 23 41:10 24 17:11, 41:11 25 1:18, 2:3, 14:6, 40:17,	41:10 26 19:16, 27:8 27 41:5 28 4:15 3 30 36:6, 41:11 303 3:7 3088 28:5 31 23:16, 36:6 33 24:8, 26:5 36 26:14 37 27:15, 27:16 4 43 35:8 5 50 35:8 51 15:3, 15:6, 15:8 512 4:14, 6:17, 6:19, 7:20, 10:11, 10:22, 11:17, 12:8, 18:2, 18:10, 18:21, 36:12, 36:16, 36:18, 37:1, 37:7 512.692 3:9 512.867 3:18 53 11:13	55 38:21 552498 1:22 56 37:6 570 29:1 571 30:16 577 33:15, 33:19 59 2:4, 40:18 6 61 23:20 6531 41:10 66 24:16, 25:17 69 27:17 7 78701 3:8, 3:17 9 9 2:4, 40:18 90 16:19 98 3:15
---	---	---	---