UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WIZ, INC.,

Petitioner,

vs.

ORCA SECURITY LTD.,

Patent Owner.

Case IPR2024-01109 - Patent No. 11,726,809

Case IPR2024-01190 - Patent No. 11,740,926

Case IPR2024-01191 - Patent No. 11,775,326

Virtual Deposition of ANGELOS STAVROU, Ph.D.

Wednesday, April 2, 2025

8:59 a.m. CST

Job No.: 576199

Pages: 1 - 288

Reported Stenographically by:

Tiffany M. Pietrzyk, CSR RPR CRR

Orca Security Ltd.
Exhibit 2172
Wiz v. Orca
IPR2024-01109, -01190, -01191
Ex. 2172-001

Virtual deposition of ANGELOS STAVROU, Ph.D., pursuant to notice, before Tiffany M. Pietrzyk, a Certified Shorthand Reporter in the States of Illinois, Texas, and California, Registered Professional Reporter, Certified Realtime Reporter, and a Notary Public in and for the State of Illinois.

A P P E A R A N C E S

ON BEHALF OF THE PETITIONER:

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C O N T E N T S

EXAMINATION OF ANGELOS STAVROU, Ph.D. PAGE

By Mr. Davis 5

E X H I B I T S

(None marked.)

P R O C E E D I N G S

(Witness sworn.)

WHEREUPON:

ANGELOS STAVROU, Ph.D.,

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

EXAMINATION

BY MR. DAVIS:

Q. Good morning, Dr. Stavrou.

A. Good morning.

Q. I am counsel for patent owner Orca Security. It's nice to meet you.

Could you please state your name for the record?

A. My full name is Angelos Stavrou.

Q. And you were retained for -- by counsel for Wiz; is that right?

A. That's correct.

Q. And today, you understand that we are going to be discussing declarations that you submitted relating to U.S. patent numbers 11,726,809, 11,740,926, and 11,775,326?

A. I believe that's correct.
Q. And if I refer to those as the '809, the '926, and the '326 patents, you're going to understand what that means?
A. Yep. Yes, sir.
Q. And you also submitted declarations relating to Orca's '031, '032, and '685 patents?
A. I did.
Q. And your deposition regarding those patents was taken, I think it was last month; is that right?
A. Yes.
Q. Okay. Since that prior -- the deposition relating to the '031, '032, and '685 patents, have you submitted any additional declarations or testified in any other cases?
A. I don't believe so.
Q. And I suspect, you know, based on sort of the last deposition, that you understand a little bit about the basics of the deposition procedure, but I'm going to run through a couple of them just so that we're all on the same page, if that's okay.
A. Of course.

Q. You understand this is a formal proceeding. You understand that you're under oath to testify as truthfully as you can under penalty of perjury?

A. I do.

Q. If you don't understand a question, will you please ask me or please let me know so that I have a chance to rephrase the question that I asked?

A. Absolutely.

Q. If you don't ask me for clarification or to rephrase, fair to say that you understand my question? Is that okay?

A. I mean, within reason, yes, I guess.

Q. And you understand that your counsel may object from time to time, but you still need to answer my questions unless he instructs you not to answer; right?

A. I do.

Q. The court reporter is trying to keep track of everything that we say, so I'm gonna do my best not to interrupt you while you're answering, and I think we can both agree to just do our best not to speak over each other. Okay?

A. Sounds good.
Q. And we're taking this deposition remotely via Zoom; right?
A. That is correct.
Q. Do you have any applications open on your computer other than the Zoom window?
A. I have my file viewer open here, but other than that, there's nothing else, no.
(Discussion had off the record.)
BY MR. DAVIS:
Q. Okay. I'll ask my question again.
Do you have any applications open on your computer other than your Zoom window?
A. I have my file browser open only in case we need to jump into any exhibits that happen to be here on my computer.
Q. And the -- the file browser that you have open, is that directed at any particular file or folder?
A. No.
Q. I understand from counsel that you have electronic copies of the exhibits that have been

submitted in the '809, '926, and '326 patent IPRs; is that right?

A. I do have -- I mean, I believe I have everything, but, you know, I need to check. And I will let you know if I miss something.

Q. Okay. The electronic copies of the -- that you have on your computer, do they have any notes or comments or annotations in them?

A. No. They're just clean copies.

Q. Is there any reason that you can't give truthful testimony today?

A. I don't believe so.

Q. I'm gonna aim to take a break every hour or so. Of course, if you need to have a break sooner than that, please just let me know. What I'd ask is that if I have a question pending, that you answer the question, and I may ask to finish sort of a line of questions before we take the break; is that okay?

A. I think it's good.

Q. Okay. Did you prepare for your deposition today?

A. I did.

Q. And without getting into the substance of any communications with counsel, can you explain at a high level what you did to prepare?

A. I went through the patents, my declarations, and some of the exhibits to review them prior to our meeting today. I also met online with the counsel and went through some of the material. I think that's about it.

Q. About how long did you meet with counsel?

A. I mean, that would be an estimate because, you know, we had some scheduled meetings. I would say, like, few hours. We went like -- you know, I would say more than 10, less than 20, just to be in the ballpark.

Q. And when were your meetings?

A. It was all online.

Q. Right. Sorry. When were the meetings? Was it yesterday?

A. We met yesterday, but we also met previously in between my depositions.

Q. And who specifically did you meet with?

A. I believe I met -- I met with Matthew

Argenti, Wes Derryberry, and Joe Baillargeon.

Q. Other than counsel, did you speak with anyone else to prepare for your deposition, anyone who is not counsel?

A. No.

Q. In preparing for your deposition, did you review Dr. Kaeli's declarations that were submitted with the -- with Orca Security's patent owner preliminary responses?

A. No.

Q. Have you reviewed Dr. Kaeli's declarations in support of Orca's patent owner preliminary responses?

A. No.

Q. So fair to say that you're not prepared to discuss or address any of Dr. Kaeli's opinions that were offered in support of the patent owner preliminary responses?

A. That would be correct.

Q. In the -- your prior deposition relating to the '031, '032, and '685 patents, you discussed the Veselov prior art reference.

And just for the court reporter's sake, that's V-e-s-o-l-o-v -- V-e-s-e-l-o-v.

Is that right?

A. That's correct.

Q. And your testimony regarding the Veselov reference from the prior deposition, that would apply equally here for the '809, '926, and '326 patents where you also opine based on Veselov; right?

A. To an extent that they are talking about similar things that -- you know, that are involved with basis, I believe that would be correct.

Q. In preparing for your deposition, did you review the institution decisions for the '809, '926, and '326 patents?

A. I browsed through them. I mean, I didn't spend too much time, but I -- I did give a pass on them, yes.

Q. Anything in those institution decisions where you disagree with the board?

A. I -- I did not opine on this. I just reviewed them in passing. I was not asked to opine,

so I was not -- and I'm not prepared to answer any questions regarding those.

Q. And when you were reading through the institution decisions, there wasn't anything that came to mind that you said, you know, I just think they got this wrong?

A. I did not spend too much time thinking about them. I reviewed them for the sake of, you know, having a pass on them, but I did not opine or spend too much time to form an opinion.

Q. For the '809, '926, and '326 patents, you challenge -- or you contend that all of the claims in those patents are invalid as obvious; correct?

A. I have to go through my deposition -- sorry -- my declarations, but, I mean, barring anything I believe, based on memory, that is correct.

Q. You don't offer any opinions based on anticipation; right?

A. Can you repeat the question? I didn't hear you.

Q. Yeah. You don't offer any opinions in any

of the '809, the '926, or the '326 patents that are based on anticipation; right?

A. I don't believe so.

Q. And do you have your declarations for the '809, '926, and '326 patents available?

A. I do believe I have them. I need to -- give me one quick second to open my computer and check, double-check, that it's correct.

I do have them, yes.

Q. And I just want to make sure that I know what references you're relying on for each of the different grounds. I'll start with the '809 patent.

A. Okay. Let me open the '809 patent. Just give me a second.

I have the '809 open.

Q. So for the '809 patent, you rely on Veselov in combination with Mohanty for Claims 1 through 10 and Claims 12 through 23; right?

A. I believe that's correct.

Q. And specifically, you contend that Claims 1 through 10 and 12 through 23 would be obvious over Veselov and Mohanty; right?

A. That's correct.

Q. And then for the '809 patent, you also have an alternative obviousness theory that's based on Veselov, Mohanty, and Czarny; is that right?

MR. ARGENTI: Objection to form.

A. That's right. I mean, I have -- I don't have an alternative. I have -- I believe that my declaration shows that, you know, Claims 1 over 10, 12 to 23 were obvious over Veselov, Mohanty, and Czarny.

Q. And then you also have a Grounds 3-4 where you contend -- for Grounds 3 dash -- 3 to 4, you're opining just as to Claim 11 of the '809 patent; is that right?

A. I believe so, yes.

Q. And is it correct that there are two alternatives? You have either a combination of Veselov, Mohanty, Hutchins -- one combination based on Veselov, Mohanty, and Hutchins; is that right?

MR. ARGENTI: Objection to form.

(Unreportable crosstalk.)

A. (Inaudible) -- yes.

Q. And would that be a reference to the sort of Ground 3 of Ground 3-4?

A. I believe so, yes.

Q. And then Ground 4 would be a combination of four references, which is Veselov, Mohanty, Czarny, and Hutchins; is that right?

A. That seems to be correct, yes, based on what I see in front of me, yes.

Q. And other than the -- what we just went through, you're not relying on any other prior art references for purposes of a prior art combination other than -- for the '809 patent other than Veselov, Mohanty, Czarny, and Hutchins; right?

A. There is a --

MR. ARGENTI: Objection to form.

A. There's a lot of background and other exhibits that I cite for -- specific for the combinations and the grounds that you just mentioned. These are, I believe, the primary references, but there are a lot of other exhibits that I cite throughout my declarations that basically are very relevant because they saw the

state of the art and what a person of ordinary state of the art would have known at that time.

Q. What's your understanding of the difference between a primary reference and a background prior art reference?

A. I -- I don't understand the question. I mean, one is used to establish, I believe -- I mean, can you be more explicit what you mean about primary and versus nonprimary?

Q. Yeah. In your prior answer, you referred to the fact there's a lot of background and exhibits that you cite for specific combinations, but you thought that the Veselov, Mohanty, Czarny, and Hutchins are the primary references.

A. Yeah, I misspoke. I believe I meant all of them are references, and we rely on each one of them for different reasons. So I apologize if I mischaracterize. All of them are exhibits.

Q. And is it your opinion that Veselov would be combined and modified in view of every reference that you disclose in your declaration?

A. I would not opine about every reference.

I'm happy to give you an opinion if you point me to exactly what the context that you mean. My declaration is many, many pages, and there are many, many different combinations among potential modifications, and I want to be precise when I respond to you.

So if you can point me exactly what you mean, I will be able to answer.

Q. If you can pull up the -- the table of contents of your '809 declaration, section VII(A) -- hold on a second.

Section VII(A) [sic] is a section titled Reasons to Combine Veselov and Mohanty; is that right?

A. Give me a second. I will go there.

Q. Oh, I'm sorry. Is it XII? XII(A). It's early for me.

A. Just give me one second to navigate there if you don't mind. Give me one second.

Do you know the page?

Q. It would be page 98.

A. I'm getting there. I apologize. I'm trying

to search, but I'm failing.

Yes, sir, I'm there.

Q. And in this section, you describe reasons to combine Veselov and Mohanty; is that right?

A. I believe so, yes.

Q. And those are the only two references that you are contending would be combined; right?

A. In that specific section, I believe that's the case, yes.

Q. Appeared then on page 225 of your declaration for the '809 patent, you have a section entitled "Reasons to Combine Veselov, Mohanty, and Czarny"; right?

A. That's correct.

Q. And in that section, the only references that you are proposing would be combined are Veselov, Mohanty, and Czarny; right?

A. For that specific section, that is correct, sir.

Q. And then on page 240 of your declaration for the '809 patent, you have a section "Reasons to Combine Veselov, Mohanty, and Hutchins (with or

without Czarny)"; right?

A. That's also correct.

Q. And the only references that you're proposing combining are -- in that section is Veselov, Mohanty, and Hutchins with or without Czarny; right?

A. That's also correct.

Q. If you can pull up the -- your declaration for the '926 patent.

A. Give me one second.

I'm there, yes.

Q. For the -- the '926 patent, you describe six grounds of obviousness; correct?

A. I believe so. That's correct, yes.

Q. In the first ground, you contend that Claims 1, 5 through 10, and 12 through 15 would have been obvious over Veselov and Mohanty; is that right?

A. That's right.

Q. And you include a section "Reasons to Combine Veselov and Mohanty" starting on page 97; is that right?

A. That's correct.

Q. And the context of Ground 1, the only references that you are proposing would have been combined are the Veselov and Mohanty reference; right?

A. That's correct, yes.

Q. You then have a Ground 2 in the '926 patent where you add the Ranum reference; is that right?

A. In Ground 2, specifically for Claims 1, 2, 4, 10, and 12 to 15, there is Veselov, Mohanty, and Ranum, obviousness for this -- yeah, Veselov, Mohanty, and Ranum. That's correct.

Q. And you have a section starting on page 207, "Reasons to Combine Veselov, Mohanty, and Ranum." And those were the only three references that you are proposing would be combined in this Ground 2; correct?

A. It's correct. That's correct.

Q. And while you -- in Ground 2, you state that it would be Claims 1 through 2, 4 through 10, and 12 through 15 would have been obvious over Veselov, Mohanty, and Ranum, the only elements that you are

contending Ranum is relevant to are elements 1.4, 14.4, 15.4, 1.7, 14.7, 15.7, Claim 2, and Claim 4, elements 4.1 and 4.2; right?

A. These are the sections I believe I explain why, you know, Ranum is used for those specific, yes.

Q. For all of the other elements of the claims for Ground 2, you are relying on the other analysis that you did relating to Veselov and Mohanty, just those two references from Ground 1; right?

A. I would have to check more carefully because, you know, I have to check that section, but I believe that -- that is correct.

Q. Okay. If you need to check, I want to make sure that that's accurate.

A. Yeah, I can check. I mean -- I mean, again, I don't remember offhand 245 pages. I see the sections in my declaration, but I have not checked every single paragraph and if they are, you know, veering off from -- from these elements or not. I believe the discussion is more comprehensive.

But, yes, I can -- I can go check if you

want me to.

Q. Yeah, please verify. I want to make sure that we are speaking about the same thing. If you are relying on Ranum for any limitation other than elements 1.4, 14.4, 15.4, 1.7, 14.7, 15.7, Claim 2, or Claim 4, please let me know where that is in your declaration.

A. Let me -- let me scan for one second and I will give you an answer.

I looked into that, and I believe you are correct.

Q. For the '926 patent, you then have a Grounds 3 and 4 where you contend Claim 3 was obvious over Veselov, Mohanty, and -- is it Seo or Seo (pronouncing)?

A. I don't know. The pronunciation is -- I don't know exactly. It looks Korean.

Q. We'll call it Seo, S-e-o.

I'll ask my question again.

For Grounds 3 and 4, you opine that Claim 3 would have been obvious over Veselov, Mohanty, and Seo with or without Ranum; right?

A. That's correct.

Q. And so you're proposing two alternatives. For Ground 3, it would be a combination of Veselov, Mohanty, Seo, and Ranum; is that right?

MR. ARGENTI: Objection. Form.

A. It's a combination of -- I -- I believe it's Veselov, Mohanty, Seo -- Seo with or without Ranum for ground -- for Claim 3, yes.

Q. And -- and I just want to make sure I understand what the grounds sort of 3-4 are. Is Ground 3 with Ranum and Ground 4 is without Ranum?

A. Let me double-check.

I believe the first one is Seo with Veselov and Mohanty without Ranum. And I think we can call that one -- let's see -- Ground 3. And then all together is my nice, continuous, and has all of them together.

Q. And for purposes of Ground 3 and 4, you have a section starting on page 231 of your 926 declaration, "Reasons to Combine Veselov, Mohanty, and Seo (with or without Ranum)"; is that right?

A. That is correct.

Q. And the only references that you're proposing to be combined are those four references; correct?

A. For that specific section, that's correct.

Q. And then you have a Grounds 5 and 6 where you contend that Claim 11 was obvious over Veselov, Mohanty, and Hutchins with or without Ranum; is that right?

A. That is correct.

Q. And like with Grounds 3 and 4, Ground 5 is without Ranum, and then Ground 6 would be with Ranum?

A. Just give me one second to double-check. I want to be precise.

That was the intention there, yes.

Q. And for Grounds 5 to 6, you have a section starting on page 243, "Reasons to Combine Veselov, Mohanty, and Hutchins (with or without Ranum)"; is that right?

A. That's right.

Q. And the only references that you're proposing would be combined in that section are

Veselov, Mohanty, Hutchins with or without Ranum; right?

A. For that specific section and Claim 11, yes, that's correct.

Q. If you could pull up your declaration for the '326 patent.

A. Give me just one second.

I have it in front of me.

Q. Well, let me actually -- on the -- the '926 patent, other than the Grounds 1 through 6 that we just went through, you don't offer any opinions that any claim of the '926 patent would have been obvious based on any other combination of references; correct?

A. Based on my declaration, that is correct.

Q. Okay. For the '326 patent, you include a first ground for where you contend that Claims 1 through 21 and 28 would have been obvious based on Veselov and Basavapatna; is that right?

A. Yes. 1 to 21 and 28 claims.

Q. And on page 95 of your '326 patent declaration, you have a section entitled "Reasons to

Combine Veselov and Basavapatna"; is that right?

A. That is correct, yes.

Q. I'm gonna struggle with that name. Hopefully, as the day goes on, I'll get a little bit better at saying it.

For -- for Ground 1, the only references that you are proposing would be combined are Veselov and Basavapatna; right?

A. That is correct.

Q. And then in -- you have a second obviousness theory in Ground 2 starting on page 213; is that right?

A. That's correct.

Q. And the second theory, Ground 2, is that Claims 4 through 5 and 17 would have been obvious over Veselov, Basavapatna, and Czarny; is that right?

A. That is correct.

Q. And you have a section 214, "Reasons to Combine Veselov, Basavapatna, and Czarny."

A. That is correct.

Q. And for purposes of Ground 2, it's only

those three references that you are contending would have been combined; right?

A. That's correct.

Q. You then have a third ground for the '326 patent which -- where you contend that Claims 22 through 27 would have been obvious over Veselov, Basavapatna, and Giakouminakis; is that right?

A. That's correct.

Q. Is -- do you pronounce that reference differently?

A. No, no. It's just that the references are very long, and you had --

Q. Right. Okay. I feel like you cringed, and I wasn't sure if that was because of the name or because of my butchering of how it's pronounced.

A. No, it's not your fault. It's just --

Q. Might --

A. -- the names are difficult.

Q. Might have been both.

For Ground 3, the only references that you propose would be combined are Veselov, Basavapatna, and Giakouminakis; right?

A. That is correct.
Q. So between the '809, the '926, and the '326 patent, every invalidity ground is based on Veselov as the -- the first reference; correct?
A. I believe Veselov is present in all three. I agree.
Q. And then between these three patents, you contend that Veselov would be combined with seven other prior art references; is that right?
A. I didn't count them, so I take your word for it. We discussed them previously, so whatever we discuss holds. If there's seven, there's seven.
Q. Can you tell me a little bit about how you went about identifying those seven references and why they would have been combined with Veselov?
MR. ARGENTI: Objection. I caution the witness not to discuss communications with counsel or work product.
A. I -- I didn't understand the question. Are you asking me about Veselov or the other references?
Q. I'm asking about the -- the other references. So if you had Veselov, how did you go

about determining what other references would be combined for each of the different patents?

A. I looked at the patents themselves, and then I looked at the -- Veselov. And then, you know, I did the search, independent search. I believe the counsel -- we discussed with the counsel and we collectively -- they offered some -- and I don't remember which ones were offered by me, which ones were offered by -- by the counsel. Like, you know, there's been a long time. But I maintained full control of, you know, the selection and internal process of my declaration. And in some cases, we discussed and we just -- I mean, I decided that this was the best course of action for the declaration.

Q. So what you did is you started with the claims of each of the patents, and then you used those to do a prior art search to identify references; is that right?

MR. ARGENTI: Objection. Form.

A. I mean, that was not entirely the process. I mean -- I mean, I had the patents. I looked up, saw the prior art. You know, I was informed by

different types of analysis. One of that might be what you just discussed, yes.

Q. And is that -- that's one of the reasons why there's different references for each of the three IPRs is each of them has different claimed inventions; right?

A. I tried to identify prior art based on each patent individually. I did not try to look across patents. I wanted to make sure that each patent is of its own analysis and look at the claims and specification of each of the patent independently. And based on that, I decided what to do next.

Q. Okay. And so it was sort of just working backwards from each of the challenged claims to figure out which prior art references to use --

MR. ARGENTI: Objection to form.

Q. -- right?

A. I mean, as I explained, I read the patents and I did a prior art search. I identified some prior art that was more suitable for those specific patents. It's -- each patent individually, and then I applied the legal guidance that I've got from the

counsel and it's listed in my declaration to perform the analysis that you see in my deposition.

Q. And before seeing the -- for example, the '809 patent, had you ever heard of someone combining or looking at Veselov and Mohanty together?

A. No.

Q. And before looking at the '809 patent claims, were you aware of any -- anyone who had ever looked at Veselov, Mohanty, and Czarny in combination together?

A. No.

Q. Likewise, for adding Hutchins, before looking at the '809 patent, any reason or any knowledge of anybody looking at Veselov, Mohanty, Czarny, and Hutchins together?

A. No.

Q. Is the -- for the invalidity analysis, was it sort of like taking the asserted claims and piecing together the prior art like a puzzle?

MR. ARGENTI: Objection. Form.

A. I wouldn't call it like that. I mean -- because, I mean, it's not a puzzle; right?

Claims -- some of the claims are independent. Some of them are dependent. You have to look at how a POSA would have looked at these patents at that time and how would he have, you know, understood the art. I don't -- I don't -- I don't use my declaration as a -- as a puzzle. I believe that, you know, the patents, they need to be studied individually and -- and basically form an opinion based on prior art that I identified that was available at the time to a person skilled in the art.

Q. What do you understand to be the differences between the '809, '926, and '326 patent claims?

A. I did not try to do a cross-patent analysis. As I said, I looked at each patent independently. So I'm happy if you point me to specific elements that you would like me to compare, but I did not opine on any cross-claims. I understand that there is some sort of similar language in some of the claims and specs, but I reviewed each patent individually and separately.

Q. You agree that the claimed inventions in each of the '809, '926, and '326 patents are

different?

A. I mean, they're different patents. I'm guessing they were allowed, so this would be different.

Q. And the actual claims themselves are directed to different components of -- or include different limitations; right?

A. I mean, without pointing me to a specific claim to compare, I won't be able to opine with certainty and precision. But I believe that what you just said is broadly correct. Correct. But I mean, again, this is not something that I can give you a precise answer.

Q. For the '926 patent, was the process similar to the '809 where you used the -- the claims of the '809 patent to look at the prior art and figure out which disclosures map to it?

A. You said the -- for '926. You mentioned '809. I reviewed each patent separately, so I did not use '809 patent claims to review '926 patent. I just want to be clear.

Q. Yeah, and I apologize. Maybe my question

wasn't clear. I -- I just meant we had just talked about the process that you went through for the '809 patent, and I was wondering if the process that you went through for the '926 patent was similar, where you used the claims of the '926 patent to look at the prior art and figure out what disclosures map to it.

MR. ARGENTI: Objection. Form.

A. I will repeat the question -- I will repeat my answer for the same answer that I gave you for '809. I looked at the prior art that was available at the time to a person of ordinary skill in the art, and I worked to understand basically the patent, the -- the entirety of the patent, not just the claims, and identify what I thought would be the available and closest prior art for that patent.

Q. But the starting place for your analysis was just looking at the '926 patent claims and then working backwards from those?

MR. ARGENTI: Objection. Form.

A. I -- I wouldn't say that. I read the patent from top to bottom, the entire patent, and, you

know, I used all the information present in the patent.

Q. Okay. And all of the information that was present in the '926 patent; is that right?

A. That's correct.

Q. And then you worked backwards from there?

MR. ARGENTI: Objection. Form.

A. I won't call it backwards. I used that information and -- to identify prior art that would be available to person of ordinary skill in the art to basically allow me to perform my -- to -- to be able to write a declaration and opine.

Q. And for the '326 patent, was your process the same as for the '809 and the '926 patents?

A. I treated each patent independently and separately, and I followed the same process or similar process, not identical, you know, but within reason.

Q. In each of the '809, the '926, and the '326 patents, you include a claim construction section; is that correct?

A. I believe so. That's correct. Yes.

Q. And in each of those declarations, you discuss the term -- the claim term "analyze/analyzing snapshot"; is that right?

A. That's correct.

Q. And you offered the same claim construction opinion regarding "analyze/analyzing the snapshot" in the '809, '326, and '926 patents as you also propose in the '031, '032, and '685 patents; correct?

A. I believe that is correct.

Q. And is your testimony from your prior deposition regarding that "analyze/analyzing the snapshot" also true for the '926, '809, and '326 patents?

A. I don't recall everything in my prior deposition. If you point me to the transcript, I will be able to read and give you an exact answer. So if you point me to what exactly you mean, I will be happy to do so.

Q. So for the -- if we look at, like, the '926 patent --

A. Where are you --

Q. Sorry, the '926 -- your declaration for the '926 patent at page -- paragraph 81.

Let me --

A. I'm there.

Q. -- know when you're there.

A. I'm there.

Q. Here you state, "A POSA would have understood the ordinary and customary meaning of '[analyze/analyzing] the snapshot' as at least encompassing direct analysis of the snapshot data"; is that right?

A. That is correct.

Q. And your opinion is that that would be sort of the correct meaning of the term "analyze/analyzing the snapshot" in the context of the '926 patent?

MR. ARGENTI: Objection. Form.

A. I believe that I -- they were consistent. So I say, "This understanding is consistent with the '926 specification."

Q. And then in paragraph 82, you have, "I have been asked to assume that '[analyze/analyzing] the

snapshot' also encompasses analysis of a VM instantiated from the snapshot"?

A. That's exactly what 82 says.

Q. And I think in -- in your prior deposition in the context of the '031, '032, and '685 patents, you said that you were just asked to assume that by counsel and you didn't form an opinion about whether it's correct. Is that also true here?

A. I don't know if this is exactly what I said in my prior deposition, but I was asked to assume that analyzing and analyze the snapshot also encompasses analysis of a VM instantiated from the snapshot. That is correct.

Q. But you don't have an opinion as a technical expert that that is a correct -- a correct way of interpreting analyzing the snapshot consistent with the '926 patent specification; right?

A. I was not asked to opine on that, so I don't have an opinion.

Q. And that's also true for the '926 and the -- or sorry, the '809 and the '326 patents as well; right?

A. That would be correct.

MR. DAVIS: Do you want to take a quick -- just like five-minute break?

MR. ARGENTI: Sure.

MR. DAVIS: Come back in five minutes or so. We can go off the record.

(A short break was had.)

BY MR. DAVIS:

Q. Welcome back, Dr. Stavrou. If you have your '326 patent declaration, if you could go to paragraph 88 and let me know when you're there.

A. I'm there.

Q. Okay. You agree that Veselov describes both agent-based and agentless scans?

A. That's correct.

Q. And when Veselov describes analysis using the agent, that is when the agent is installed on the "analyze" resource; correct?

A. Where do you see that? If you point me to where you see that, I will be able to help you.

Q. I'm -- I'm just asking in the context of an agent-based solution for Veselov, it's installing,

like, a software agent onto the "analyze" resource; right?

MR. ARGENTI: Objection. Form.

THE WITNESS: I apologize.

A. I'm sorry. Can you clarify more what you mean by the "installed resource"? The resource -- where do you refer to when you say "resource"? Because, you know, that -- that is very -- a term that is -- I don't think that I use for that purpose, but -- or the patent. So can you explain to me where you're referring to.

Q. Sure. If you go to paragraph 89 of your declaration.

A. Yes.

Q. You -- your opinion, your declaration states that Veselov describes analysis using an agent installed on the analyzed resource.

Do you see that?

A. I do, but I also explain that this is instantiating an assessment VM from the snapshot and installing an agent for that -- on that VM to monitor activity. That's why it's important that I

get the context. Now I understand your question better. Yes.

Q. Okay. And so when Veselov describes analysis using an agent, that's when the agent is installed on the -- the analyzed resource; correct?

A. I mean, this is one of the many variety of analysis techniques. It is one of the mechanisms that an agent is used here. As I said, for example, in that -- in that specific paragraph 89, I took -- I use the word "for example"; right? So -- and again, in Veselov, 14, 22 to 17, is an agent example. And of course I'm not going to continue reading the entire paragraph, but in that paragraph I give examples of how that can happen. It's not -- it's not all-inclusive. I just want to be clear about that.

Q. In the examples in Veselov where an agent is used, the agent is always installed on the resource that's being analyzed; right?

MR. ARGENTI: Objection. Form.

A. I mean, in some of the examples, in some cases, that is correct.

Q. Are there some cases where an agent is installed or used that is not on the resource that's being analyzed?

MR. ARGENTI: Objection. Form.

A. Again, I want to be clear that what we call a resource is not very well defined. So there are examples that -- as I mentioned, that "instantiating an assessment VM from the snapshot and installing an agent on that VM to monitor activity" is an example, that is correct.

Q. You say that "resource" isn't well defined. That is your -- your declaration, your sworn -- your sworn declaration uses the word "resource"; right?

A. I -- as an example, that is correct. For an example -- as an example, I said that that, "For example, it describes analysis using an agent installed on the analyzed resource." And I give an example of that analyzed resource. There might be other resources. For example, a server might be a -- a resource. I'm -- I'm not saying it is or not. I'm just saying.

Q. Where Veselov describes an agent -- an

example using an agent, the agent is always installed on the -- the duplicate resource that is actually being analyzed; correct?

A. In specific examples, that is correct.

Q. And there are no examples in Veselov where an agent is anywhere other than on the assessment VM; right?

A. I have to check the patent more carefully. I am -- I'm using the examples that I have in my declaration here. I did not -- I did not check if there were other examples. I'm using the ones here that I believe show the agent.

Q. And in paragraph 89, you reference -- you have four cites. You have 14, 22 through 17; 16, 45 through 53; Claim 2 and figure 3B from Veselov as showing this agent-based analysis; right?

A. This is an example and, yes, I'm using those references and cite Veselov as an exemplary -- examples.

Q. And in the context of each of those four citations, Veselov is describing first instantiating an assessment VM from a snapshot and then installing

an agent on the VM to monitor activity; right?

A. That would be correct.

Q. And the citation is to column 14, lines 22 -- and I think this is a typo -- 14, 22 through 17?

A. It's probably a typo, yes.

Q. Okay. And if you have Veselov -- it is Exhibit 1007.

A. Just give me one second to open it.

I have the exhibit Veselov.

Q. And if you can go to column 14, line 22.

A. Just give me one second. I see it.

Q. Do you think that the citation in your declaration should be 14, 22 through 27?

A. I believe that's correct.

Q. And 14, 22 through 27 is discussing Veselov's figure 3 embodiment; correct?

A. Let me review it.

Q. I'm sorry. I didn't catch that answer.

A. I need time to review the section that you just mentioned.

Q. Okay.

A. I believe it says -- in the illustrated example, it's an example of an agent-based approach.

Q. And the illustrated example it's talking about is figures 3A and 3B; right?

A. I believe so, yes.

Q. And then if you go down to column 16, lines 45 through 53.

A. 16 -- give me just one second. Which -- which lines you want? I apologize.

Q. 16, lines 45 through 53. That citation of Veselov discusses, "With the assessment VM instantiated, the scanning service may install the security agent program into the assessment VM instance."

Do you see that?

A. I do.

Q. And this is again with reference to what's shown and described with reference to figures 3A and 3B; right?

A. I don't see that statement in the section that you point me. I see basically the steps. So it -- it refers to steps, specific steps.

Q. If you go up to column 16, line 15 through 18.

A. I believe it says figure 4, yes.

Q. Veselov explains that, "FIG. 4 illustrates an example method of performing a security assessment of a target virtual machine (VM) in a computing environment like the example computing environments 300, 350 of FIGS. 3A-B."

Do you see that?

A. I do, but I want to point out that it's an example again. It says, "in a computing environment like the example." It doesn't specify only that.

Q. Understanding that it -- it says that it's an example, that is -- step 412 at column 16, line 45 through 47 -- is all talking about a computing environment like the example computing environments of figures -- figures 3A through 3B; right?

MR. ARGENTI: Objection. Form.

A. I believe that this is an example, and it has a -- I mean, I -- I believe that it can be applied to figures 3A and B, but not just those.

Q. Which other embodiments can it be applied

to?

A. I believe that, as explained in paragraph 91 of my declarations, Veselov -- when Veselov speaks about specific figures and specific embodiments, you -- he is -- these are meant to be used across different figures. And I can go to page -- to -- to my declaration when I say, Veselov describes several different embodiments and figures, but a person of ordinary skill in the art would have understood that the techniques and components describing the context of a particular figure or embodiment can also be applied in the context of other embodiments and figures. And that is -- I maintain that because the figures that you just mentioned are exemplar -- exemplar figures.

Q. In addition to agent-based analysis, Veselov also describes analyzing a snapshot that doesn't rely on agents; correct?

A. That is correct.

Q. And the examples that you give in Veselov for agentless analysis of an assessment VM is the analysis of the snapshot itself is the data file

without instantiating an assessment VM; right?

A. I believe some of the examples do talk about the analysis snapshot to be sent as data file without instantiating an assessment VM. And I point, I believe, to column 3, 61 to 67.

Q. And analysis of the snapshot itself is what you contend is in the embodiments of Veselov's figures 5A to 5B; right?

A. I believe I have examples of that. I believe so, yes.

Q. Other than figures 5A to 5B, are there any other embodiments in Veselov that you opine analyzes the snapshot itself?

A. I believe everything is in paragraph 89 of my declaration. I list also column 16, 67, all the way to 17, 3. I also talk about figures 3A depicting assessment VM without agent and figures 5A-B, agentless analysis of snapshot -- snapshot as data file. And again, it's in column -- description is in column 14, 13-22.

Q. In the reference to figure 3A, that is still instantiating an assessment VM; right?

A. I have to check. I don't have the figure in front of me. Let me go to the figure. I'm not sure about that. Let me check. And again I want to point out that these figures are just exemplars. They are examples. They are not the only way of doing things. And they are meant to be illustrative of what Veselov claims and the specification was trying to convey here.

Q. Yeah. I'm just asking about figure 3A.

A. I see the test environment and the computing resource service provider. Where is the -- the agent here? 3A. You mean not 3B, I apologize. I'm 3 -- I'm talking about 3A here.

Q. Oh, right. So my question is, in the context of figure 3A, what is analyzed is an assessment VM that is instantiated; correct?

A. Correct. But I want to point out that if you take a notice, the test environment is still 5. And there is a dotted line separating element 330 from the test environment 305. Do you see that?

Q. I'm just asking --

A. So the --

Q. -- about --

A. I apologize.

Q. -- the -- the context of analyzing the snapshot itself. So in -- in paragraph 89 of your declaration, you say that, "Veselov also describes analysis techniques that do not rely on such agents, including ... analysis of the snapshot itself as a data file (without instantiating an assessment VM)."

And just -- I want to just make sure that we're clear that figure 3A is not such an analysis technique because that figure 3A does require instantiating an assessment VM; right?

A. I want to be very clear that in paragraph 89, I provide some examples. I believe also figure 3A, as I state in my declaration, depicts assessment of a virtual machine without an agent.

And the reason that this is the case is because this is an illustrative example, as I said. And the -- when I look at figure 3A, the assessment VM is within the test environment 305, as we discussed before, the agent 330 lies outside of that

test environment.

Q. And the -- in figure 3A, what is being analyzed is a VM that has been instantiated; correct?

A. It talks about an assessment VM. I don't know if -- so there are many different ways of using an instantiated virtual machine. Sometimes it's just to get access to data.

So since this box 330 does not -- is under -- and we said before when we discussed before that, when we talk about the analysis techniques, we have to have an analysis using an agent installed on the analyzed resource: as an example, instantiating an assessment VM from a snapshot and installing an agent on that VM to monitor activity.

In figure 3A, I don't see that. I see an agent -- that is block 330 -- that is outside of the test environment 305.

Q. Block 330 is -- is a security agent; is that right?

A. That is what the patent says.

Q. Veselov does not describe any similar

security agents in the context of figures 5A or 5B; right?

A. I'm back to -- I apologize. I have go to figure 5 and need to just check them out. I don't remember them verbally.

I do not see an agent on those figures. That is correct.

Q. And when Veselov discusses analyzing the snapshot itself as a data file, Veselov never discloses installing an agent on the snapshot; correct?

A. Can you please repeat the question? Because I think that I didn't understand the question.

Q. When Veselov discusses analyzing the snapshot itself as a data file, Veselov does not disclose installing an agent on the snapshot; correct?

A. I don't think that an agent can be installed on a snapshot. I think an agent can only be installed on a virtual machine.

Q. That was gonna be my next question.

So it's not possible to install an agent on

a snapshot; right?

A. I mean, it depends on how you define it. Some people might say -- may use that, as you're saying, install it on the virtual machine. I don't see that in this context, but I don't want to be preclusive of any type of wording that someone might use in a different context.

Q. So it's not -- based on the way that Veselov is sort of describing things, it would not be possible to utilize agent-based scanning when analyzing a snapshot as a data file; right?

A. Can you please repeat the question?

Q. Based on the way that Veselov is describing security agents, it would not be possible to utilize agent-based scanning when analyzing a snapshot as a data file; right?

A. I don't know about that, because the way that Veselov is describing things, they can -- a lot of components end up changing. So, for example, if you take a look at figure 3A, 330 lies outside of the test environment. At that time, a lot of techniques called VMI, virtual machine

introspection, were using software that people -- some people call agent outside of an assessment VM to -- or a VM to perform data analysis on -- mounted for use of virtual machines.

In other words, the virtual machines that were used were not instantiated for the purpose of running the units but for the purpose of accessing the data in the logical volumes of the machine that the snapshot was taken from.

And I have a lot of background discussion about VMI that I can go and show you. Here in figure 3A, I see 330 to be outside of the testing environment 305. There is a dotted line that clearly defines it as being beyond the boundaries of the dotted line.

Q. And that's only in the context of in -- what you're describing of there being a security agent 330 outside of the testing environment is only in the context of where there is an instantiated assessment VM; right?

A. Again, the box that is in 312 is called assessment VM. It's -- I don't know if that -- the

VM that is referred to here -- and, again, I will point you to paragraph 91 of my declaration. Veselov describes different -- several embodiments and figures, but a POSA would have understood that the techniques and components described on a particular figure can also be applied in the context of other figures.

So here he might have tried to convey -- and, again, I see it in front of me. I see the test environment 305. The agent is not installed on the assessment VM that you see there because it's clearly outside of the boundaries of test environment 305.

So when I read this, I read it as a potential implementation where an agent 330 potentially reads data from the assessment VM. There is -- there are two pointers there. And in my -- that data might actually be the data files that -- that the disk space -- in logical volumes. I can -- I can -- when I look at this figure, it does not automatically jump to me that this is an agent that goes and gets installed inside the

assessment VM.

Q. And your opinion that element -- or that 330 is not installed onto assessment VM 312A is based purely off of what you see in the figure?

A. I am looking at figure 3A in front of me, and again I describe what I see. I see test environment 305, I see a dotted line, and I see box 330 clearly beyond the boundaries, actually outside of the boundaries, of test environment 305.

This is absolutely not on or close to the -- I mean, inside the test environment. And furthermore, assessment VM 312A is inside the test environment 305. That's what I see in front of me. That's correct.

Q. I'll direct you to column 14, line 22 through 24.

A. Give me one second. I need to orient myself. Where are we? 14?

Q. Yeah, column 14, lines 22 through 24.

A. Let me read them.

Q. And Veselov states for virtual machine 312A that the scanning service "installs a security agent

program 330 into the assessment virtual machine 312A"; right?

A. It says in this specific example, "the scanning service 310 installs a security agent program 330 into ... assessment virtual machine 312A-B." So it includes both A and B.

Q. And 312A only appears in figure 3A; correct?

A. I believe that's correct.

Q. And 312B only appears in figure 3B; right?

A. That's correct.

Q. And so Veselov expressly states that the security agent is in fact installed on the VM; right?

A. I believe that the figures are meant to be used as examples. So if you continue on the same column to continue reading, it says, "The security agent program 330 may be a software application or software package that can be activated by the scanning service 310 to monitor activity on the assessment virtual machine ... In one embodiment, the scanning service 310 may obtain the scan data for the security assessment as described above, the

scan data including," and it goes on.

I want to point out that the figures here -- I'm using the figures because Veselov basically states -- when he discusses figure 1, states that embodiments of the present disclosure may operate within or upon a computing environment. But at the same time, it explains that the techniques discussed in context of figure 2 can be performed by a various system described in other embodiments.

To me, when I looked at figure 3 -- I apologize -- 3A, I see -- I see two options. I see something that can be outside of the testing environment, and then I see the description that you just point me to that can potentially 330 be within the assessment VM. But, I mean, just by looking at figure 3A, it is obvious that 330 lies outside of the boundaries of the testing environment and outside of the boundaries of the assessment VM.

To me, for 330 to be installed on the VM, it would have been overlapping with the VM and it wouldn't have two arrows, one going to the scanning service and another to the assessment VM, but only

one arrow; I don't see that.

Q. Can you direct me to where in Veselov's specification it states that security agent 330 is not installed on the assessment VM but instead exists outside of the assessment VM?

A. I cannot point you to any section that discusses that, but I can point you to figure 3A that I have in front of me, which it is illustrating exactly what I described before. To me, when I look at the figure, I see Veselov trying to be able to -- trying to illustrate, potentially, multiple different incarnations and embodiments as examples in those figures. And in some of them, the description might match 100 percent, in some others, not exactly, because the goal was to be more inclusive of the potential examples.

So when I look at figure 3A, I see 330 as being outside of the assessment VM, and then the description potentially saying that another option is to be inside the VM. I don't see them to be conflicting, in my opinion, because these are software blocks that can be installed, for example,

outside of the assessment VM in view of what a POSA and background information virtual machine introspection would have allowed to be present.

And the reason that I'm saying that is because virtualization allows you to place software outside of a virtual machine to be able to perform the monitoring.

Q. And so your interpretation of Veselov is just that when Veselov states that the illustrated example shows installing a security agent program into the assessment virtual machine 312A, he's just wrong; it actually was supposed to be broader than that. You --

A. I don't believe -- I don't believe he's wrong. He is prefacing every sentence with, for example, This is an illustrative example. This is, like, in one embodiment and the likes. So he uses the language that points to the fact that it's -- it's just an example. It's not meant to be perceived literally.

And as you -- as I mention many times and in paragraph 91 of my declaration, some of the elements

are interchangeable based on the description that Veselov is providing.

Q. And can I just focus you on column 14, lines 22 through 24? It says, "In the illustrated example."

Is there a different illustrated example that you think is being shown?

MR. ARGENTI: Objection to form.

(Indiscernible cross-talk.)

A. (Inaudible.)

THE WITNESS: I apologize.

A. You're at 14, 22?

Q. Yeah. It doesn't say, In an illustrated example. It says, "In the illustrated example," which is referring to figure 3A; right?

A. So, again, I want to preface it, but it -- it starts, "In some embodiments" -- the same paragraph -- "the scanning service ... may perform a security assessment, as described above, on the assessment virtual machine."

In every single sentence, before and after, it's prefaced as, basically, the security agent

program may be a software application or software packet that can be activated by the scanning service. It doesn't say -- it says also, "In one embodiment, the scanning service ... may obtain the scan data for the security assessment as described above, the scan data including a rules," and blah-blah-blah after that.

The most important part to understand is that there are many, many references where it says -- Veselov explains a scanning service describes in conjunction with figures 3A and B may perform security assessment in according with various embodiments.

And I think that the most important parts is that I look at the figure and the figure shows me another potential incarnation of this. And I understand that it says, "In the illustrated example," but maybe when he wanted to talk about that, he wanted to be all-inclusive of all the potentials, so they might have used the same figure for multiple embodiments. That's what I read. And that -- in that specific embodiment, you know, data

can be in or outside.

Q. It would not be possible to install a security agent program 330 into a snapshot that is being analyzed as a data file; right?

A. I don't understand the question. A data file cannot have an installation process. A data file is not something that you can install anything on. It's a data file. However, when I -- as I explained to you, in many cases, a POSA would have understood that in many cases, a virtual machine would have been used as a medium to access logical volumes that were mounted in that virtual machine for the mere sake of accessing the data in the snapshot.

So there is the alternative where a virtual machine is used as a medium, as a conduit, to access data.

Q. And so what you're talking about is what -- what could be possible but not what Veselov discloses; right?

A. I -- in my prior background analysis that is included with my declaration, I illustrate many --

what is called many virtual machine introspection techniques which would have relied on that type of analysis.

So at the time of the invention, a POSA would have understood that that would have been another potential alternative.

Q. But just not one that's disclosed in Veselov; right?

A. I don't know. Like, I mean, you take a look at figure 3A and you -- you tell me what you see. I see the -- I see the agent outside of the virtual machine. To me, that looks like a virtual machine introspection.

Q. If you can go to Veselov column 4, 59 through 5-8, column 5, line 8. Let me know when you're there.

A. Column 4. You want me 51?

Q. Column 4 --

A. 4, okay.

Q. -- 59.

A. I'm here.

Q. Okay. And Veselov teaches that figure 3A --

or 3B is an embodiment where a scanning service "may be a component of the computing resource service provider 104"; right?

A. It says, "In some embodiments (e.g., as illustrated in FIG. 3B and described below), the scanning service." So in some embodiments, that's correct.

Q. And in other embodiments, Veselov states that the scanning service is implemented outside of the computing resource service provider; correct?

A. Yeah. I want to point out here, right, that is another example. "In other embodiments, including the example of FIG. 1, the scanning service 110 may be implemented on one or more computing devices (not shown) outside of the computing resource service provider."

So clearly, here it talks about something that is not shown, but it's using figure -- the same figure. Again, that points to me that some of the elements here, they might be not showing exactly as they are described because the goal was to have the figures to cover more than potentially one exemplar

in embodiments and examples.

Q. And Veselov is saying that the examples that are shown in figure 1 is different than figure 3B; right?

A. I don't see it as different. It says, "In other embodiments" and, again, it just gives different examples. I don't know if -- if -- I don't know what you call "different," but I see them as additional. I wouldn't call them different.

Q. Yeah. So, for example, figure 3B has a scanning service that is a component of the computing resource service provider, and in figure 1, the scanning server -- scanning service is not a component of the computing resource service provider; right?

A. Let me check.

I -- I believe that's correct. But, again, these are all illustrative examples. As I point out in paragraph 91 of my declaration, the several different embodiment figures are there for a POSA to understand that the techniques and components described in context of a particular figure can also

be applied in the context of other embodiments and figures. And I give you many examples where that's the case.

In fact, in many cases, as -- as I described before -- before, Veselov says "not shown" but he keeps describing the same figure. To me, that shows that some of the components are not meant to be potentially depicted because they are additional embodiments but based on the same -- you know, the same set of claims. And -- and description is -- is allowing him to describe them even if they're not exactly depicted as in figures that you have in front of us.

Q. And Veselov uses the word "some embodiments" and "may include" throughout the -- its description; right?

A. Where do you see that?

Q. Well, one of the examples is in column 4 -- 4 -- column 4, line 60, at the end of the line, to 61. It says, "In some embodiments ... the scanning service ... may be a component of the computing resource service provider"; right?

A. It continues, "In other embodiments" --

Q. Uh-huh.

A. -- "the scanning service ... may be implemented on one or more computing devices (not shown) outside of the computing resource service provider." That is correct.

Q. And so Veselov does not explain when or why a scanning service should be implemented within or outside of the computing resource service provider; right?

MR. ARGENTI: Objection. Form.

A. I believe that the goal here is to show all potential embodiments -- not all potential -- show enough potential embodiments to be convincing about how these things can be combined.

I don't agree with your assessment. I believe that it gives different examples. They are not necessarily all-inclusive, but they are descriptive enough for a person of ordinary skill in the art to perform -- to perform some of these tasks in more freedom than what is described necessarily by the figures and the text in this patent.

Q. And I think you've mentioned it a couple times in your answers. Paragraph 91, it's your opinion that any of Veselov's disclosures, embodiments, figures, any of its techniques and components, they can all be applied to any other embodiment or figure?

A. Again, I'll repeat what I have -- a small excerpt of paragraph 91, which I point you. "Veselov makes it clear that when a portion of the disclosure associated with a particular figure/embodiment describes certain techniques or components, these teachings are broadly applicable to the rest of the Veselov disclosure." And I point you to paragraph 24, line 54, and then all the way to 25-2, noting phrases such as, an embodiment "not necessarily intended to refer to the same embodiment or to any particular embodiment described."

And the reason --

Q. And --

A. Yeah, go ahead. I'm sorry. Go ahead. I'm done.

Q. Yeah. Column 24 that you're referring to --

if you go to, actually, column 24, line 30 through 34, you agree with Veselov that "one skilled in the art will realize that a virtually unlimited number of variations of the above descriptions are possible, and that the examples in the accompanying figures are merely to illustrate one or more examples of implementations"; right?

A. That's exactly what it says, yes.

Q. And is it your opinion that a -- it would be obvious, every single one of those virtually unlimited variations?

MR. ARGENTI: Objection. Form.

A. I believe that the patent provides enough examples and information for someone to be able to assess what was available at that time.

In other words, here, I think it explains clearly that a lot of these techniques can be interchangeable, how you put different elements, and it was not meant to be -- the examples are not meant to be and the variations are not meant to be prescriptive. That's why it's prefaced, you know, so that he has it that way. On column 24,

line 30 all the way to 34, it has that statement.

And, again, I'm not gonna comment or opine on every single one of them. If you give me an example, I'm happy to provide you with -- with an opinion after I review it. But, I mean, at this point, I cannot give you a blank statement answer.

Q. So yes or no, do you agree that Veselov describes a virtually unlimited number of variations of its embodiments?

MR. ARGENTI: Objection. Form.

A. It is -- in column 24, 30, it states that a person in the skill -- ordinary skill in the art would have realized there are virtually unlimited number of variations. I think that -- again, I think a POSA would have taken that statement to mean that for a specific implementation, the POSA would have been able to understand, given the description and examples and claims in the patent, if that was something that the patent would be -- is something that -- that would have been done.

Of course, there are a lot of variations, you know, that might not be feasible, but one in the

skill in the art would have been able, as an engineer, to be able to decipher -- not decipher. I apologize. Scratch that -- to be able to understand which ones were basically feasible.

So there are some -- some combinations that might not be feasible to begin with. But I think that this is -- the text is clear here in terms of -- in terms of what it tries to convey.

Q. Dr. Stavrou, do you contend that you are one skilled in the art?

MR. ARGENTI: Objection. Form.

A. Can you please quantify the question. I mean, I'm skilled in the art, but I -- I viewed the -- the specific patents that I have in front of me specifically here. You know, I believe we are on '926; right?

Q. Do you -- Dr. Stavrou.

A. Yes.

Q. Do you contend that you are one skilled in the art?

MR. ARGENTI: Objection. Form.

A. I viewed the patents as a person skilled in

the art at that time, not that -- I -- I did not apply my skill in the art. I applied what a person of ordinary skill in the art at that time -- and defined clearly in my declaration -- would have understood.

Q. Dr. Stavrou, do you consider yourself one skilled in the art: Yes, no, or I don't know?

MR. ARGENTI: Objection. Form.

A. I believe that I am skilled in the art, yes.

Q. Do you realize that Veselov discloses a virtually unlimited number of variations: Yes, no, or I don't know?

MR. ARGENTI: Objection. Form.

A. I -- I disagree with the way that the question is formed because the virtual unlimited number of variations has to be interpreted within the context of a person of ordinary skill in the art would -- would have understood that these variations were not necessarily unlimited because there are a lot of examples and specificity in Veselov to allow someone to understand what is within the context of that patent.

Q. Within the context of what patent?

A. Of the Veselov patent, sir. And again, here we are talking about the figures are merely to illustrate one or more examples of implementations. It is tied to the word "implementations" and "examples." So he is trying to say here that, as I explained in paragraph 91 of my declaration, that you should not take -- different embodiments and figure are there, "but a POSA would have understood that the techniques and components described in the context of a particular embodiment/figure can also applied in the context of the other embodiments and figures."

Q. Dr. Stavrou, where are you taking this deposition today?

A. I'm sorry?

Q. Where are you physically located today?

A. I'm located at my house in Fairfax, Virginia.

Q. And is anybody else in the room with you?

A. There is nobody else in the house with me.

Q. Okay. If you look at figure 1 of --

A. Before --
Q. -- Veselov.
A. Can we take a five-minute break? I don't want you to --
Q. Sure.
A. -- to interfere with the line of questioning, and I don't know how long it will take but --
(Unreportable crosstalk.)
MR. DAVIS: No problem.
THE WITNESS: (Inaudible).
MR. DAVIS: This is the perfect time to take a break. See you in five minutes.
THE WITNESS: Thank you.
(A short break was had.)
BY MR. DAVIS:
Q. Welcome back, Dr. Stavrou. Do you still have Veselov open?
A. I do.
Q. Figure 1 of Veselov includes a snapshot storage 108; right?
A. Let me go there. I apologize. I have to

locate the -- because it's all the way down. I do see element 108, "snapshot storage."

Q. And so the answer is yes, figure 1 does include a snapshot storage 108; right?

A. That is correct.

Q. Figures 3A and 3B do not include a snapshot storage; correct?

A. I do not see a snapshot storage specifically mentioned or shown -- sorry -- specifically shown in figures 3A and B.

Q. And figures 5A and 5B do not include a snapshot storage; right?

A. While the figures that we just discussed do not include a snapshot storage, I want to say that, as per our previous discussion, a lot of the elements were omitted among figures for brevity, according to Veselov, and it's been stated multiple times in the specification of the patent.

Q. Can you please direct me to where in the description of figures 5A and 5B or 3A and 3B, where it says that a snapshot storage is omitted from the figure?

A. Just give me one second. I -- I am trying to see if I can do a search, but give me one second. I want to point out that maybe for this specific element on that specific figure that you just mentioned, there might not be a specific mention. But I want to point out that in many places -- for example, take a look at column 4 at the bottom. 67 -- starting at 65, it says, "In other embodiments including the example of FIG. 1, the scanning service may be implemented on one or more computing devices (not shown)" -- that was not shown. Again --

Q. And that's the scanning service. The scanning service is different than the snapshot storage; right?

A. It is. But what I'm trying to explain here, in many cases, for -- there are elements that are omitted in some of the figures not because they are not necessarily present or cannot be done. Again, I will point you to paragraph 91 of my declaration, A POSA would have understood that the techniques and components described in the context of a particular

figure can also be applied in the context of another embodiments and figures.

And again, figure 1 states that, "Embodiments of the present disclosure may operate within or upon a computing environment." We discussed that. Veselov similarly explains the techniques discussed in the context of figure 2 can be performed by various systems described in other embodiments.

Q. And --

(Unreportable crosstalk.)

A. To me, figure 1 --

Q. -- Dr. Stavrou --

A. -- (inaudible) the fact that there is a snapshot storage 108, but it doesn't mean that other figures could not have included that element.

Q. And, Dr. Stavrou, I -- I think that you've read your paragraph 91 a couple of times. And I -- I'm just -- I can tell you, like, I know that paragraph 91 is there. I know that you have that opinion. You don't need to read it anymore into the record. You've answered it a couple of times. It's

just gonna take way longer for us to get through today if you're gonna read paragraph 91. You can even just shorthand it and say, And also see my opinion in paragraph 91. But can we just agree not to read it into the record again?

MR. ARGENTI: Objection. Form.

A. Okay. I agree but -- but your question is pointing me to that paragraph, which is very clear about the type of question you're asking. The reason I'm reciting that paragraph to you --

Q. So --

A. -- and the elements there is because they are relevant to your question.

Q. So, Dr. Stavrou, I'm just asking, does it say or does it show in figure 5A or 5B that it uses a snapshot storage? I'm -- and -- and I'm not saying I -- I understand your opinion regarding everything in Veselov can be used everywhere or in whatever fashion you want. I'm just asking, in the actual example, does it use a snapshot storage?

MR. ARGENTI: Objection. Form.

A. In the actual example, which is nonlimiting,

it does not show a -- a -- a snapshot storage.

Q. And that's one of the ways that figure 1 differs from figures 3A, 3B, 5A, and 5B is the snapshot storage --

A. And --

Q. -- 108; right?

A. There are more than one ways that figure 1 differs from the other figures.

Q. And -- but a snapshot storage is one of those differences; right?

A. That is correct.

Q. And the snapshots that are stored within the snapshot storage are in a different location than the virtual machines; right?

MR. ARGENTI: Objection to form.

A. Where do you see that?

Q. For example, in -- in figure 1, it shows the snapshot storage outside of the computing resource service provider.

A. I believe that's -- this is one embodiment, one example. And as we have discussed, where the snapshot storage would be located would primarily be

defined based on the implementation. And that has -- as we have seen, the computing resource provider can take different forms. So the -- while, for figure 1, the snapshot storage is shown outside of the computing resource provider, it doesn't automatically mean that Veselov refers to the snapshot storage exclusively only in that location per se.

Q. In the context of figure 1, the snapshot storage is located separately from where the virtual machines are located; correct?

A. Again, figure 1 does not show -- it shows different blocks of elements. And one block of elements is 108, and it's -- it has a -- I believe an arrow and photograph that shows connect -- shows it connected to the virtualization layer 144.

And in that specific figure, in that specific example and embodiment, the snapshot storage is just shown outside of the computing resource service provider. It doesn't show any location.

Q. Okay. So we shouldn't interpret figure 1 as

showing anything about the location of any of the different components; right?

A. It shows relationships. I don't believe it -- it is meant to show location, but I might be wrong. I don't -- no. I am not wrong. It shows relationships of elements.

Q. If you go to Veselov column 7, lines 50 -- line 50. Let --

A. Just a moment.

Q. -- me know when you're there.

A. I'm there.

Q. Okay. And this is part of a paragraph where Veselov is describing the snapshot storage service 108; right?

A. Yeah. It starts on column 7 all the way up to 34.

Q. And Veselov teaches that the snapshot storage service can store snapshot data with either its own unique identifier as well as the identifier of the virtual machine instance from which the snapshot data was derived; right?

A. Where do you see that?

Q. That's 7, 50 through 55.

A. I believe it starts with, "For example." Again, this is just an example. It says -- and I won't read it because you want -- I don't think it's necessary. But these are all exemplars. It just gives a couple of examples. And if you go to the top of this paragraph, it actually shows what we discussed, that the snapshot storage service can be different things and located -- or not located, but implemented differently.

Q. And Veselov, in all of the different ways that a snapshot storage can be implemented, it doesn't tell you -- tell a person skilled in the art when a snapshot storage should be used; right?

A. I don't understand the question. I mean, what do you mean "when"?

Q. It doesn't say that -- you know, it doesn't provide a basis for why you should implement a system that includes a snapshot storage as compared to other embodiments where a snapshot original is not used; right?

A. Here it basically -- I mean, it talks about

snapshot storage data objects, "which are identifiable and retrievable by a data object identifier, such as a file name or key," but does not enable queries on information in the snapshot storage service 108.

He -- it's -- he gives a lot of description here about the storage service.

Q. Uh-huh.

A. And I think that the fact that he spends so much time in -- and he has it as an element, it means that it's pertinent to the disclosure. And it's being used basically in combination with other elements, as shown in figure 1.

Q. Which embodiments in Veselov should use a snapshot storage?

A. I mean, I'm not -- I -- I don't -- again, I don't understand the question. The snapshot storage is a -- a location where snapshots are stored. Any embodiment that can be used with snapshot and snapshots -- involving snapshots can potentially use a snapshot storage service. It does -- it's not exclusive, but it's a potential.

Q. And you don't offer any opinion in your declaration about when a snapshot storage should or should not be used; right?

A. I have to scan my declaration. I don't know, again, if that's the case or not. Again, I believe I refer to the snapshot storage service as a data store because it basically stores -- stores data. And I think that basically -- I mean, again, I believe it's part of the system and the virtualization layer would allow a virtual machine to access, you know, physical hardware and also a scan service may "transmit a command to the virtualization layer 144 to provide snapshot data 146 (or to provide access to snapshot data 146) corresponding to the virtual machine 112."

And that is on column 7, 23 all the way to 33. So I see different excerpts with -- within Veselov that make a user -- what is called virtualization layer in relation to snapshot data. I mean, the description of 108 is referenced as a part of the snapshot data here.

Q. Okay. So let's look at 7, 23 through 33

that you were just reading from. So it says that, "In some embodiments the virtualization layer may be configured to itself generate the snapshot data"; right?

A. That's correct.

Q. And then it says, "In other embodiments, a separate process or service of the computing resource service provider 104 is used to generate the snapshot data"; right?

A. That is correct.

Q. Those are alternatives to one another?

A. I didn't say that they are alternatives. They're different -- they are different potentials. They are different embodiments. They are different examples.

Q. Right. And so when it says "other embodiments," that's referring to alternatives; right?

A. I have alternative -- not alternatives. Additional, I would say.

Q. They're different from one another. They're other embodiments?

A. They are different.

Q. Veselov never discloses that a -- it never discloses an embodiment where both the virtualization layer and a separate processor service -- the computing resource service provider generate snapshot data; right?

A. I don't believe they're meant to be exclusive of each other. I'm -- can you point me to where it says that you can only do one or the other? I believe it says "other," but it doesn't mean that it's exclusive, one or the other; right?

Q. Can you direct me to an embodiment that's disclosed and described in Veselov where it says that both should be used?

A. I cannot point you -- I mean, again, these are examples. They are not meant to be taken -- a POSA would have understood that these are examples. They are not meant to be conflicting. They are not meant -- they are different examples, but they are not meant to be conflicting examples. They're not meant to be a choice necessarily one or the other. In some cases, the -- the same system might rely on

one process to do this, and in other cases, in a different one. So you -- you can see here, "In these embodiments, the "snapshot service" -- it talks about the (inaudible) -- "generates the snapshot data" -- it talks about both embodiments -- "using computing resources of the server computer or a component thereof, and may store the snapshot data in one or more storage devices of the snapshot storage service."

I want to point out to "may," "may store." It's not necessarily only that the case. "The snapshot service may be a process or other executable code supported by the virtualization layer."

So back to your question in figure 1, this type of description here points me to say that, you know, the storage service here and the snapshot service can be located at different places.

And I mean, that means that basically it's not necessarily inclusive of a specific location, all of these elements that we discuss here. And again, these are all examples.

Q. Uh-huh.

A. It continues. I mean, I can continue. It says that, "The snapshot service 108 may be a group of computer systems" --

(Unreportable crosstalk.)

Q. So --

A. -- store snapshot --

Q. And, Dr. Stavrou, let me -- let me just -- let me ask questions.

A. I -- you can ask -- I mean, I'm answering questions.

Q. My question was, can you direct me to an embodiment that disclosed -- that is disclosed and described in Veselov where it says that snapshot data should be generated both by the virtualization layer and using a separate process or service to the computing resource provider 104?

If you can just point me to the particular column and line numbers, I'd appreciate it.

MR. ARGENTI: Objection. Form.

A. Apart from there, these two options, automatically for -- to a POSA would -- would have

meant that you can use either or both. It does not say anywhere that they cannot be used together or sequentially or in any other form. These are two -- two examples. The descriptions that they --

Q. What --

A. -- have are not so that these are examples are at odds with each other.

Q. And it says, "In some embodiments the virtualization layer" is used, whereas "other embodiments a separate process or service" is used.

Veselov does not disclose which of those options is used in figures 5A and 5B; right?

A. And again I want to -- for me to answer your question, I want you to go a little bit further. It says, "In these embodiments, the 'snapshot service' generates the snapshot data." And again, it doesn't say that these are two different -- the snapshot service has options, two different options, virtualization layer -- and these are not exclusive options.

So -- and when someone reads this paragraph, he does not come out with the feeling that, Oh,

these are mutually exclusive options and cannot be used together. Because it says in the -- in these embodiments, covering both of them, the snapshot service generates the snapshot data, which -- that could -- would have been a choice, an option for the snapshot service. Maybe not the only choice, but that's a choice.

Q. So there's -- Veselov is -- there's a -- a lot of different choices in Veselov about how to generate a snapshot; right?

MR. ARGENTI: Objection. Form.

A. Veselov has specific examples that I -- were discussed.

Q. And -- but --

A. I'm -- if you want me to finish or I can stop.

Q. And Veselov, it -- it describes all of the different examples, but it doesn't tell you when you should use one versus the other; right?

MR. ARGENTI: Objection. Form.

A. A person in the ordinary skill of the arts recognizing the options and examples would have made

a decision to use both, either, or other forms of -- that were available to him at that specific point in time. Veselov is describing different things that were feasible through his pursuit and gives examples. These examples are not mutually exclusive.

Q. And if you -- if we go down back to the snapshot storage service in column 7, line 50 through 55, I just want to understand -- starting at lines 53 through 55 where it says, "The snapshot storage service 108 may be queryable by either or both identifiers."

Do you see that, "either or both identifiers"?

A. I do.

Q. You understand that when it says "either or both identifiers," it's referring to the unique identifier of the snapshot data or the identifier of the virtual machine instance; right?

A. I disagree. It says -- because if you go to column 7, line 50, it says, "For example, the ... identifier as well as the identifier of the

virtual machine instance from which the snapshot data 146 was derived; the snapshot storage service 108 may be queryable by either or both identifiers."

They refer to two different identifiers here.

Q. Yeah. Sorry. Let me -- let me -- I'm gonna just ask you to explain it.

The words "either or both identifiers," what identifiers do you understand those to be referencing?

A. Again, these are just examples, and I want to preface my answer with that. So as you read this example, it says, "The snapshot data 146 may be stored with its own unique identifier" -- that's one option -- "as well as" -- that's a second option -- "the identifier of the virtual machine instance from which the snapshot data was derived."

It's pretty clear.

Q. Right. Okay. So -- and just in this one example, those are the -- the "either or both identifiers" is referring to, one, the identifier of the -- the unique identifier of the snapshot data

itself and, two, the identifier of the virtual machine instance; right?

A. "From which the snapshot data 146 was derived."

It's important.

Q. And then Veselov, starting at line 55, describes another example; right?

A. I believe so. Yes.

Q. And this is where "The snapshot service" -- "The snapshot storage service 108 may be non-queryable in so much as the snapshot storage service 108 stores snapshot data 146 (e.g., volume images) as data objects which are identifiable and retrievable by a data object identifier, such as a file name or key, but does not enable queries on information contained in the snapshot storage service 108."

Did I read that right?

A. That's correct.

Q. And so in this additional example, the snapshot data can be looked up by a file name or a key; right?

A. That's two potentials, yes. It says, "Such as file name or key."

Q. So in these two examples, there are four potential identifiers to retrieve snapshot data, one being the unique identifier of the snapshot; two being the identifier of the virtual machine instance; three being a file name; and four being a key; right?

A. These are all examples of potential ways of someone being able to locate snapshot data. They are not all --

Q. Doctor (inaudible) --

A. They are not all-inclusive, and they do not account for all the possible options. In many cases, all of these would -- I mean, some or all of these might have been available.

Q. So I just want -- I just want to know if I've just accurately counted the four that I see in the passage. I just -- I'd really like it if you could try to answer that question, which is -- and so I'll -- I'll just -- I'll ask it again.

In these two examples in column -- in

Veselov column 7, line 50 through 61, there are four potential identifiers to retrieve snapshot data, one being the unique identifier of a snapshot; two being the identifier of the virtual machine instance from which the snapshot was derived; three being a file name; and four being a key; is that --

A. That's not --

Q. -- accurate?

MR. ARGENTI: Objection. Objection. Form.

A. I'm sorry to say, but that's not correct. Because I want you to -- again, if you read the paragraph very carefully, it says, "May be stored with its own unique identifier as well as the identifier of the virtual machine instance" -- it doesn't say one or the other. It says both.

Q. Yeah, either or both.

A. No. It says, "as well as." It says, "May be stored with its own unique identifier as well as the identifier of the virtual machine instance," which means that's an additional piece of information. It's not a different piece of information. I mean, I'm reading exactly from that

paragraph. It's actually column 7.

Q. Uh-huh.

A. And it says -- it's at 5 -- 5 -- 52. It says -- I apologize. 51. It says, for example -- starting at 50, "For example, the snapshot data 146 may be stored with its own unique identifier as well as the identifier of the virtual machine instance from which the snapshot data 146 was derived."

Q. Are you saying that those are the same data?

A. No. I'm saying that this is additional information, sir.

Q. So are you saying that there are five things that are listed in the example?

A. I don't think you understand my answer. I believe I --

Q. I don't think I understand it either.

A. You do not, because I say that the snapshot data may be stored with its unique identifier. And there's additional information -- "as well as." It doesn't say as an alternative. It says "as well as." With this additional information, "the identifier of the virtual machine instance from

which the snapshot data was derived." That's additional information.

Q. Uh-huh. And so there's -- there's a total of four types of identifiers that the snapshot storage can use.

Do you agree with that? Do you agree that that's four, or do you think that there's more than four?

MR. ARGENTI: Objection. Form.

A. I think that the identifiers refer to different things here, and you're trying to lump -- lumps -- lump them up into meaning one thing, but they're very clearly described, what they identify. One identifies the virtual machine instance and the other -- others identify the snapshot data. And you are telling me that, basically, those identifiers are the same, and I'm saying -- I'm -- in terms of, like, what they try to characterize, that's incorrect.

Q. And maybe you're mishearing my question. I'm -- I'm -- I'm saying that they are four different identifiers. All I'm trying to figure out

is, are those the four identifiers that are there?

So let me ask you, what are the -- how many, number -- how many, like, a number of identifiers, are described in column 7, lines 50 through -- the two examples from column 7, line 50 through 61?

A. There are -- there is one identifier for the unique identifier for the snapshot data. There is another identifier of the virtual machine instance. And there are also two data objects which are identifiable by -- and retrievable by data object identifiers, which gives again two examples, but there might be others, like a file name or a key.

Q. Okay. I counted four. Is that right?

MR. ARGENTI: Objection.

A. If this is how you want to count them, I'm okay with that, but, I mean, I'm just explaining what they are.

Q. Other than those four identifiers, does Veselov disclose other ways to identify a snapshot?

A. I have to read more carefully. There might be other identifiers. I haven't looked at the patent. There might be other identifiers.

In this specific segment that you pointed me, in these specific examples, however limiting, those are some options, yes.

I mean, let me give you another example. In column 8, line 12, starting at line 10, it says, "The snapshot storage service ... may operate as a key value store that associates data objects with identifiers of the data objects that may be used by the customer to retrieve or perform other operations in connection with the data objects stored by the snapshot storage service." That is another set of identifiers.

Q. Are you contending that that is a different identifier than a key as a data object that we already talked about?

A. And, again, I want to point out that when we talked about that, that was an example.

Q. Right. Sorry. Let me -- I -- I -- I'm sorry for cutting you off, but I just want to -- just, if you can just answer the question that I ask, which is are you -- is it your opinion that that is a different identifier in 8, 12 -- 10

through 15 than the key that we were just talking about in column 7? Just "yes" or "no." If --

MR. ARGENTI: Objection to form. Let the witness complete his answers.

Q. Okay. My question is a "yes" or "no," and I'd appreciate it if you can answer it "yes" or "no." If the answer is "yes," I can ask you to explain your opinion.

A. It really depends on the context, my answer. That's why I cannot answer "yes" or "no." A POSA would have understood there are different ways of identifying data objects. The reason I'm telling you this is because in that section, original section we discussed on column 7, there are some examples, but they are not all-inclusive. And using those examples, if you want to peg an entire class of identifiers to just a key, I would argue that this is not correct.

Q. Okay. So your opinion is that 8, 10 through 12 describes a different identifier for locating a snapshot; is that right?

A. That's not correct.

MR. ARGENTI: Objection to form.
A. That is not correct. What I said in --
Q. Hold on. Hold on. No. The -- the answer is "not correct," and I'll -- I'll ask another question, and then you can give me an answer.
I just -- I'd just appreciate it if we just can try to --
(Unreportable crosstalk.)
A. I'm going to put on the record that you're not letting me finish my answer, which automatically makes me feel that, I mean, you don't want to listen to me. I mean, up to you, but I have to complete my answers for me to be able to explain to you what you are asking.
Q. So, Dr. Stavrou, I -- I promise I will ask you for an explanation if I need the explanation, but if -- if the answer is that you disagree with what I just said, you can say, that's not correct, and then I can ask you. But I'd like to have the option to move on to another question because --
(Unreportable crosstalk.)
A. I have a problem with the question. I don't

have a problem with the answer. So when you ask me a question that is ambiguous or it does not properly characterize the text, I need to be able to answer with a full answer so -- so it -- so you -- you get your answer. It's not about an explanation. It's about my answer.

Q. Dr. Stavrou, if you -- if you feel that you are gonna need to explain, I'd -- what I'd ask is, just so that we can have a productive day and get out of here at a reasonable time, if you can just say, I would need to explain my answer, like, that's not correct, but I would need to explain, like, then I can -- like, we can then go from there.

I just -- I'd appreciate if we can just have a little bit of more structure because I'm asking -- in a lot of circumstances, I'm asking small questions; I'm getting really long answers. And I'm trying to be patient but I also -- I do want to be able to get out of here today.

MR. ARGENTI: All right. Now that you've put your speech on the record, it's improper to limit the witness's answers in the way that you're

doing it. You ask your questions; he gives you his answers.

MR. DAVIS: Matt, I'd appreciate if you would keep your objections to one word as required from the PTAB.

BY MR. DAVIS:

Q. If we can -- Dr. Stavrou, if we can go to figure 3A. There's a box 306 in the top right.

Do you see that?

A. Yes.

Q. And I'll just -- I'll take you to column 11, lines 5 through 9, which describes 306 as the logical volume 306, which is composed of a fixed or variable allocation of physical data storage resources, such as data storage blocks selected from one or more hard disk drives of one or more server computers.

Do you see that?

A. Sure.

Q. I'm sorry. Just didn't catch that.

A. I do.

Q. Okay. And then if we go further down to 11,

28 through 33, it says, "Alternatively, regions of the physical storage device may be allocated to produce a plurality of uniformly or non-uniformly sized partitions; in an example embodiment, each partition may be allocated" in "a logical volume also known as a 'logical drive' or 'virtual disk drive' or 'virtual storage device' (e.g., the logical volumes 306, 316)."

Do you see that?

MR. ARGENTI: Objection. Form.

A. I -- I do, what it says there, yes.

Q. And you agree that a POSA would understand a virtual disk drive to refer to partitions of a physical storage device?

A. I think that the POSA would have understood that to be one potential interpretation, yes.

Q. And this is only an example embodiment, that you have each partition allocated to a logical volume; right?

A. That is correct. It's only one example.

Q. If we go to 11 -- Veselov at column 11, lines 9 through 12, Veselov also describes, "In one

embodiment, the entire virtual machine may be stored on logical volume 306, which in turn may be stored on a physical storage device (e.g., a hard disk drive)."

Do you see that?

A. I do.

Q. So in Veselov, a logical volume can be a reference to a physical device such as a hard disk drive; right?

A. Again, this is just an example. And that is correct if you -- if you -- if we confine it to a potential embodiment.

Q. And if we continue down to 11, 18 through 21, Veselov also explains that a logical volume can be a reference to a "block-level physical resources, such as on platter surfaces in microscopic magnetic regions"; right?

A. Where do you see that? I apologize.

Yes, I see that.

Q. 11, 18 through 21?

A. Yes, yes, yes. It's 20 to 21, yes.

Q. And --

A. Actually, it says, "The physical device may, for example, be configured to store data of the logical volume." That's actually different. It says the physical device is configured to store data on the logical volume in block-level physical resources, such as on a platter device in microscopic magnetic regions. It doesn't talk about the logical volume here, 306. It talks about the physical devices that store the logical volume.

Q. Okay. So the logical volume can be a hard disk drive, and then the actual data can be stored in this way on that logical volume; is that right?

A. It can be stored that way on physical devices. That's correct.

Q. And if we go to line 21 through 28, Veselov explains that a logical volume "may be stored on one physical device or on multiple devices"; is that right?

A. Where do you see that?

Q. Column 11, lines 21 through 22.

A. You said column 11?

Q. Column 11, yeah, lines 21 through 23.

A. It's the same -- it's the same place that we talked about. "The physical device may, for example, be configured to store data of the logical volume" in block-level physical devices.

Q. That's column -- that's 11. I'm talking about the next sentence. That was 11, 18 through 21.

So now 11, 21 through 23, it says, "The logical volume 306 may be stored on one physical storage device or on multiple devices treated as a single unit?"

Do you see that?

A. I do, yes. Yes.

Q. So a logical volume can refer to one physical storage device; is that right?

A. In one example in one embodiment, yes. But it also says "multiple devices treated as a single unit."

Q. And so another way that a logical volume can be is that it can be on multiple physical devices; right?

A. That's correct. But also, it says that

it's "aggregated and made available to a hypervisor running on a server computer system," potentially "as a single unit of storage capacity," it says later on, all the way down to 28. Notice it says, "and makes it available to the virtual machine as a single unit of storage capacity," and it continues. It has other in the same paragraph. This is for the same paragraph. Has more, other options.

Q. So there's -- there's quite a few options for what a logical volume can refer to in Veselov?

A. I think the -- the definition is well -- it's -- it's defined well. It says that there are different implementations of how -- or storage options for a logical volume in terms of physical devices and how the logical volume is stored as a -- in a block at the block-level device, yes.

Q. And you don't offer any opinion that Veselov's logical volumes as hard disk drives are virtual disks; right?

A. I mean, can you point me to exactly what -- where you refer to in my declaration? Because off

of top of my head, I cannot make that determination. I need to read my declaration more carefully.

Q. Well, I'm -- I don't -- I don't think that you offer that opinion, so I don't think that it appears in your declaration. That's why I'm asking.

A. I mean, I -- I have to validate that. So it's a very broad statement. And my declaration is 260 pages for '926. So I -- I cannot remember every single line that I -- is there, but, I mean, if you believe so, I'm -- I'm not gonna contest it. But I -- I reserve the right that this is something that you mention and I haven't verified.

Q. I mean, I guess I'm -- I'm -- I sort of need to know if you're offering -- I don't think that you're offering an opinion that hard disk -- I mean, is a hard disk drive a virtual disk?

A. It depends on the context, right? In many -- in some cases, if you have, you know, a virtualization layer that's on the same machine as the hard drive, it can be virtualized, a physical -- a physical -- a physical disk can be visualized.

Q. In the context of Veselov --

A. Yes.
Q. -- it describes hard disks --
A. Yes.
Q. -- as separate from virtual disk drives; right?
A. Again, a physical storage device, including a hard disk drive, can become virtual. That's how we do it in some cases.
Q. I'm --
A. Virtually --
Q. -- just saying, in Veselov, it distinguishes between a physical device, such as a hard disk drive, and a virtual disk drive. That's --
(Unreportable crosstalk.)
Q. Right?
A. That's correct. It does do -- it makes that distinction. That's correct.
Q. And actually, if you -- let's see. Which one is this?
If you look at your 926 declaration --
A. Okay.
Q. -- and you go to paragraph 132 -- oh,

whoops, sorry -- 133.

A. Yes.

Q. And what you are relying on as disclosing the -- a virtual disk of the protected cloud asset is where -- is Veselov's embodiment for a logical volume -- is a virtual disk drive; right?

A. That's exactly the -- the part, I believe, where we read it in the -- in the --

Q. Yeah.

A. Yeah.

Q. And you don't cite to or offer the opinion that Veselov's embodiments including a -- that have a hard disk drive as the logical volume satisfy the claimed virtual disk in the protected virtual cloud asset; right?

MR. ARGENTI: Objection. Form.

A. I mean, again, this is your process in -- in how Veselov treats a logical volume, which says it can be virtual disk drive or virtual storage device. Again, in the context of Veselov -- again, in the same 133 that you mentioned from my declaration, I mentioned that a snapshot "may be a block-level

image of the entire logical volume" and "scanning system 'may mount the logical volume or transform the snapshot into data file.'" And I continue. It says, "as a hard drive with data stored thereon."

So, again, the system may perform the security assessment. "The virtual computing environments enabled by the virtualization layer(s) ... may include various virtual computer components." Again, virtual disk storage and the like.

So, yes, it makes a differentiation in the sense that it uses physical disk drives as block devices to store logical volumes, otherwise called virtual disk drives. So there's a connection. I'm trying to explain -- I'm trying to -- my answer says that there is a connection, and hard drives are being used as virtual disk drives from -- by virtualization layer in some cases.

Q. You're not opining that Veselov's logical volumes as hard disk drives are virtual disks; right?

MR. ARGENTI: Objection. Form.

A. Where do you see that in my declaration? Again, a logical volume --

Q. So you don't cite to, for example, column 11, lines 5 through 12, where it talks about a virtual machine "stored on a physical ... device (e.g., a hard disk drive)"; right?

A. I don't -- I don't cite that specific column and line, but there are other ones that I cite on -- on paragraph 133 that basically indicate what -- I mean, I discuss -- again, I don't want to -- for the sake of saving time, I'm gonna point you to my paragraph 133 in my declaration where I have an extensive discussion in 134 about this.

Q. So is it your opinion that a hard disk drive is a virtual disk in Veselov?

A. It is my opinion that these two -- the two of them are separate, but they're connected in the sense that a virtual disk might reside in a physical hard drive.

Q. Okay. Where in Veselov does it say that the virtual disk will be inside of a hard drive?

A. First of all, let me point you out that when

it talks about logical volume, it talks about -- it uses the word "logical volume" and "virtual disk drive" interchangeably and "virtual storage device." I want to start with that because that will help us understand. That will help me answer your question.

If you go to column 11, it says at line 9, and I'm reading directly from Veselov, "In one embodiment, the entire virtual machine may be stored on logical volume 306, which in turn may be stored on a physical storage device," for example, e.g. a hard drive. The logical volume may store implementation -- "implementing and/or used by the virtual machine 312."

If the entire virtual machine is inside the hard drive, that automatically means that the logical volume is in the hard drive too.

Q. Yeah, but then it would be just on a hard drive.

And just to -- if we look at the -- where it talks about the virtual disk drive, that's just in an example embodiment; right?

A. All of those are example embodiments.

MR. ARGENTI: Objection to form.

Q. Okay.

MR. ARGENTI: If I could just jump in. I wasn't paying attention to the clock and thinking about the Eastern Time Zone, but can we have a discussion about lunch at some point?

MR. DAVIS: Would you like to -- we can go off the record.

MR. ARGENTI: Okay.

(A short break was had.)

BY MR. DAVIS:

Q. Welcome back.

If we -- do you still have Veselov in front of you?

A. Let me bring it up.

Q. Okay. And if you could go to column 6, lines 32 through 38.

A. Okay. I'm there.

Q. Column 6, lines 32 through 38, is discussing the figure 1 embodiment; right?

A. Yes.

Q. Veselov states that "a user device 102 may

transmit a request to the scanning service ... for a particular ... assessment of one or more instances of a virtual machine"; right?

A. An example, but yes.

Q. And the request may be an API call; right?

A. Start the paragraph like that. It continues, but that's the start of the paragraph, the sentence.

Q. Yeah. And I'm just sort of breaking it up.

What the API -- what Veselov discloses the API call can include is four -- four things: "Information corresponding to the requester" is one; "the user associated with the virtual machine" is two; "the on-demand storage service 108" is three; "and/or the particular virtual machine" is four; is that right?

A. That's what it says, yes.

Q. Veselov does not teach any other specific API calls in the context of figure 1; right?

A. Again, this is just an example. I think -- I think there is mention of cloud APIs. Let me check. I apologize.

That's not correct. For example, there's an example of -- on column 5, starting on top, it says, "The scanning service 110 may access the computing resource service provider ... or any associated virtual computing environments and/or computing resources, via the API ... or another API. In some embodiments, the scanning service may use the API 120 to provide user interfaces to ... user device ... enabling the user to configure settings," the scanning service -- or "the scanning service" as -- "110 as described further below."

So clearly, here it talks about other APIs, another API, and, I mean, there are many mentions of the API. I will give you another example of column 5, down on 59 -- starting in 59, column 5 of Veselov at line 59: "The virtualization layer 144 may also receive and process API calls from external devices or services. There might be multiple virtualization layers ... of the same or different types implemented on a server computer." And goes on.

And also, it talks about the "environment

API" in column 8, line 51. And also in column 14, line 41, it says -- starting actually earlier on line 37, "In various embodiments, an owner or administrator of the target computing resources to be assessed may configure one or more security assessments, such as by using the user device to access the scanning" --

COURT REPORTER: Doctor, can you slow down, please.

THE WITNESS: Thank you. Tiffany, I apologize. Let me slow down. I'm trying to be quick, because I don't want to be -- because I'm trying to read it.

It says, "In various embodiments, an owner or administrator of the target computing resources to be assessed may configure one or more security assessments, such as by using the user device 302 to" assess the scanning -- "to access the scanning service 310 via one or more APIs 338, web interfaces, and the like."

And again, I can go on. There are many other places, I believe, that their API is

mentioned, but I'm giving you some examples.
BY MR. DAVIS:
Q. Column 14 is discussing figure 3; right?
A. I'm sorry? I didn't hear your question.
Q. Yeah. Column 14 is describing figure 3, not figure 1; right?
A. Again, as I explained in paragraph 91 of my declaration --
Q. I -- and hold on. I'll just -- let me pause you. I understand that it's your opinion that you can combine. I'm just asking in the -- in the literal structure of Veselov, column 14 is talking about figure 3; right?
MR. ARGENTI: Objection. Form.
A. In this specific case -- not in the other cases that I just mentioned. In this specific example, in this specific section that you -- that I just read, that's correct.
Q. And we know that because it refers to it as API 338; right?
A. Correct.
Q. In the other examples that you provided,

does it -- is there any specific API call other than the ones that actually tells you what should be in the content of the API call itself?

MR. ARGENTI: Objection. Form.

A. I think the question -- I don't understand the question, but I will try to answer it to the best of my understanding. So for example, you mentioned figure 1; right?

Q. Uh-huh.

A. Figure 1 refers to environment API. There is another API in figure 3 -- figure 3A. And then also there is -- there is mention, for example, in column 4, it says -- in line 35, it says, "For example, the API 120 may be a web-based interface implemented on a web server of the computing service provider as described further below." So --

Q. Let me -- if I can pause you for a second, because I -- I think my question is a little bit -- a little bit different.

So in column -- column 6, lines 32 through 38, Veselov describes what an API call can include, the information it can include; is that fair?

A. It's just an example. And it says --
Q. Just as an example, but it tells us what information can be included in the API call; fair?
A. As an --
MR. ARGENTI: Objection. Form.
A. Fair. It tells us basically an example of the information that can be used.
Q. Yes, as an -- as an example. I think you also mentioned column 5, lines 1 through 5, also referred to an API 120 or another API; right?
A. Again, this is one mention.
Q. Right. I -- I'm just -- I'm -- I think that's one of the ones that you had just mentioned is column 5, lines 1 through 5 or 1 through 8; right?
A. That's correct.
Q. Column 5, lines 1 through 8, does not specify what information could be included in any particular API call; right?
A. That is not specified there. But if you continue in column 5, it says -- there is more information.

Q. Yeah. And let me -- let me --
A. And --
Q. Let me try to ask a question about it.
So it also refers to an API 120 in column 5, lines 13 through 17; right?
A. That's correct, as an example.
Q. And there, Veselov explains that a user can provide snapshot data to the scanning service by uploading via the API 120; right?
A. Yes.
Q. Uploading a snapshot via the API 120 would not be making any requests for information using the API; right?
A. I don't know how this is implemented. It might. It might ask --
Q. Well --
A. Again, APIs -- there's no specification of how the API would behave. It just describes the function of the API at that specific embodiment at that specific section.
Q. There are lots of different kinds of APIs; right?

MR. ARGENTI: Objection. Form.

A. I mean, you have to be more specific. There are a lot of APIs in what context?

Q. Not all APIs are provided by a cloud computing platform; right?

A. Again, I mean, you need to be specific. What you mean by "not all APIs"?

Q. I'm saying that you could have an API that's provided by a client environment. You can use an API for -- let me withdraw that.

What's your understanding of what an API is and what it's used for?

A. An API is -- the acronym means "application program interface," and it allows specific functions to be completed for a specific set of pre-defined -- we call them functionalities. Functional because program -- it's a programming interface to be able to accomplish specific tasks.

Q. And the claims of the -- of Orca's patents refer to an API provided by a cloud computing platform; right?

A. Where do you see that, sir? I need to see

the context. If you show me where it is, I will be able to help.

Q. For example, the '809 patent, element 1.1.

A. Let me get exhibit -- which patent you want?

Q. You can look at the '809 patent, if you'd like.

A. '809 patent. Let me grab it. Okay. Where in '809, if I may ask?

Q. Claim 1, the first claim element.

A. I mean, it says, "Determining, using an API or service provided by the cloud computing environment."

Q. Right. And so just -- what I'm just wondering is -- it can't just be any API to satisfy the claim, it has to be an API provided by the cloud computing environment; right?

A. Again, it's also talking about a service. It --

Q. And --

A. -- provides --

Q. Sorry for cutting you off. Go ahead.

A. I believe it has two options. It says "an

API or service."

Q. And if we were gonna be relying on -- if we were looking at APIs -- I want to set the -- the service aside for a second. But just as to APIs, the -- you could have an API that is not provided by a cloud computing environment; right?

A. So the term "cloud computing environment" is very broad. It encompasses a lot of different services. So, you know, you have to be more explicit about what you mean by that. Like, a cloud computing environment has a lot of elements in it, a lot of virtual assets, a lot of virtualization -- potentially more than one virtualization layers.

And it's also -- and this is the -- the wrinkle is that there are different implementations. Some of them implement things differently than others. Different products implement APIs differently than others. Different cloud providers and infrastructure implement APIs differently. The information itself is important, like, if you can acquire or not acquire the information, but the API is -- is just a conduit.

Q. Okay. And so what APIs are sort of available is gonna be sort of context specific? It depends on what -- what cloud environment you're using or if you're using a cloud environment at all?

A. Or virtualization environment or services running on that virtualization environment. That's correct.

Q. Okay. Does Veselov state what particular cloud computing environment should be used in its implementation?

A. I believe the goal was to avoid specifying a cloud computing environment to give a -- you know, to give -- the goal is to give examples of how a cloud computing environment would operate, not necessarily tying the teachings to a specific cloud computing environment.

Q. If we can go back to column -- well, actually, if we go to column -- Veselov column 2, lines 64. Starting at line 64, it refers to, "This problem" become -- "may become more acute when the target of the security assessment is a service or distributed application being provided using a

distributed computing environment (e.g., a 'cloud' computing environment)."

Do you see that?

A. I do.

Q. And then the next sentence is, "In such a computing environment."

Do you understand when it says "in such a computing environment," it's talking about a cloud computing environment?

A. I believe it also encompasses distributed cloud computing -- distributed computing environment. And "cloud computing environment" is an example of a distributed computing environment.

Q. Okay. And so not all -- I guess because it's an example, not all distributed computing environments are gonna be cloud computing environments?

A. It definitely includes cloud. It might be more.

Q. Okay. There could be noncloud distributed computing environments?

A. I mean, that's what is implied in the

previous sentence.

Q. In -- at column 3, it says -- 3, 1 through 5, it says, "The physical computing device that provides the service or distributed application may change over time (including, e.g., the servers hosting the target, network address(es) associated with the physical computing devices hosting the target, etc.)."

Do you see that?

A. I do.

Q. In the context of, like, a virtual machine, if -- would the virtual machine address stay the same if the virtual, like, storage locations change?

MR. ARGENTI: Objection. Form.

A. Again, every -- the virtual machine is many different types of addresses and identifiers. You need to be more specific for me to understand. Also, I want to caution that context is important. Different cloud providers' implementations for virtualization of virtual machines might behave differently depending on the specifics. So I cannot answer this question with a yes or no answer because

it really depends on the context.

Q. If -- if you had, like, a virtual machine identifier, would you be able to identify, like, the -- would that tell you where the virtual disks are located?

MR. ARGENTI: Objection. Form.

A. Again, I want to caution about precision of that statement. It really depends -- in some cases, you might be able to do that. In others, you might require more information. A POSA would have understood based on the specific system how this information would have been used. Some -- some systems and some -- the popular systems would have -- you would have softwares to have the virtual machine identifier because they tried to make it unique, you know, to avoid basically exactly this ambiguation when you move virtual machines around.

Q. Yeah.

A. But other identifiers -- other identifiers on the virtual machine might not stay the same. Or the disks might -- identifiers might need to be updated. Again, it's -- all depends on the

implementation, so I cannot give you a concrete answer, because I need to understand the exact system, exact conditions, exact implementation. There were some systems that -- that in -- that would have been true, where others that might not have been true.

Q. If we can going back to now column 6, 30. So we talked about the API call at 6, 32 through 38. At 6, 38, it says, "The scanning service may determine the corresponding virtualization layer for the virtual machine 112 identified by the request and transmit a command to the virtualization layer 144 to provide snapshot data 146 (or to provide access to snapshot data 146) corresponding to the virtual machine 112."

Do you see that?

A. I do.

Q. To obtain or transmit the snapshot, the snapshot is -- would have -- already exists somewhere, and it would be stored somewhere; is that right?

A. I mean, the snapshot data 146, are you

talking about that element? It's present --

Q. Yes.

A. -- there. It's present there, yes.

Q. Okay.

A. But it continues. It says, "And send it to the scanning service 110 or store the snapshot data 146 via a snapshot storage service 108." So, yeah, it's just an example again. And it gives, you know, two options here, not necessarily mutually exclusive, again.

Q. Yeah. So it can sort of retrieve the snapshot and either send it to the storage service or it can send it to the scanning service?

A. In that specific example, that's what it says here, yes, in that specific section of Veselov.

Q. In all of Veselov's analysis techniques, they all start with a snapshot; is that fair?

A. I mean, you have to tell me exactly what you're referring to. I -- I cannot make that statement. Again, I'm gonna point you to 91, and I'm gonna cite it -- it's cited, but I want to -- you to understand that some of the techniques were

interchangeable, the way that they were described. So if you don't give me specific example, I won't be able to give you an answer.

Q. Let me ask it -- let me ask somewhat differently.

A -- a snapshot is gonna be a state of some sort of resource, a virtual machine or -- or volume or whatever it is, at a point in time prior to the security assessment; is that fair?

MR. ARGENTI: Objection. Form.

A. That's one way of looking at it, yes.

Q. Is -- is the snapshot ever gonna be, like, a real-time view of a resource?

A. Again, a snapshot is information at a point in time. How close you are to real time that you can have a snapshot that literally is milliseconds or nanoseconds away. So the question becomes, like, how fresh that snapshot is -- is not clear -- or no. It's clear, like, how fresh it is. It's not -- I mean, your question is at real time. There -- there were, you know, techniques that they were getting snapshot, scheduled snapshot or then -- I mean,

attempting to be as real time as possible. It's not gonna be exactly real time, but you can be very close to real time.

Q. In -- in any event, just based on the fact that it's not the sort of running virtual machine, Veselov's analysis, the disclosed analysis is gonna be generating assessment results based on the state of the resource that's provided in the past, though; right?

A. Based on the resource that was provided at the previous point in time, that might have been close or not to real time.

Q. Does Veselov disclose how close in time the snapshot should be to the analysis?

MR. ARGENTI: Objection. Form.

A. Again, I don't think that disclose is the important part here. The goal was that you could actually have the freedom to do this analysis at any point in time. I don't think timing -- timing was part of what was pertinent on this specific patent.

Q. Can you pull up your '809 patent declaration at paragraph 126?

A. Give me just one moment because I don't have it in front of me.
Q. Uh-huh.
A. Yes.
Q. Yes, sir. Page 119 of the PDF.
A. Wait, of '809?
Q. Paragraph 126 of the '809, yeah.
A. I see 115 on mine. Are we looking at the --
Q. Let's see.
MR. ARGENTI: Page number 115 at the bottom of the page.
MR. DAVIS: Yeah.
Q. Page 115 at the bottom of the page, page 119 of the PDF.
A. Oh, I apologize. Yes.
Q. Oh, oh, yeah. Okay. I -- I understand.
A. Yes. I'm looking at the pages based on the declaration, not based on the PDF. I apologize.
Q. Okay. Yeah. Sometimes it gets confusing. It can sometimes be a little bit faster to jump to the page using the PDF page.
In any event, let me ask my question. This

paragraph 126 starts your opinions regarding the limitation of the challenged claims requiring, "'[determining/determine], using an API or service provided by the cloud computing environment, a location of a snapshot of at least one virtual disk of a protected virtual cloud asset, wherein the protected virtual cloud asset is instantiated in the cloud computing environment"; is that right?

A. I see that, yes.

Q. Actually, can I turn you to paragraph 162 of your '809 declaration? Sorry for jumping around.

A. I'm there.

Q. Paragraph 162, this is actually for a -- a different element, elements 1.5, 16.5, and 19.5 of the '809 patent; is that right?

A. I -- I see that. Yes, sir.

Q. And in paragraph 162, you state that, "Veselov teaches as part of its snapshot-based security analysis" that a "snapshot may include 'configurations of network protocols and services' and 'properties of connections to other computing resources'"; right?

A. I say "may include." Yes.
Q. And --
A. I'm sorry to interrupt. Inside Veselov -- sorry. I just want to make sure that's clear. Inside 9, 55 to 67, on Veselov.
Q. Yeah. And 9, 55 -- well, let me ask -- let me ask a first question.
So the -- the claim requirement refers to a network location of the protected virtual cloud asset. It's not your opinion that configurations of network protocols and services are the claimed network location of the protected virtual cloud asset; right?
A. So the point here is that there is network information. Some of that network information, when captured -- for example, the configurations of network protocol to services do reveal the network location of protect -- of assets, both -- both the asset that -- which they are collected from and other assets that might be connected to that specific asset. And the reason being is because that is part of the information that is naturally

included in configurations of the network protocols and services and also the purposes of connections to other computing resources. And this information -- this information would have been captured as part of, you know, this analysis.

Now, again, I'm not going to recite what I -- I discuss, because that paragraph 162 is very large and it has other elements. It's including, for example, that the scanning service may intercept traffic to the target VM and use it to simulate traffic to the assessment VM, which is later on.

But there are many, many -- many, many discussions in Veselov that teaches consideration of network information as part of the security analysis of the target VM.

Q. So it's your -- it's your opinion that Veselov discloses consideration of network information, but you're not -- you're -- it's not your opinion that Veselov discloses -- Veselov itself discloses correlating determined potential cybervulnerabilities with the network location of the protected virtual cloud asset; right?

A. Again, that information should be considered in -- in its totality. So because of -- information is being captured in different forms and being fed into a security analysis system, the security analysis system is not prohibited from accessing and assessing that information. So in that sense, Veselov is teaching capturing those information.

So it would have been -- a POSA would have understood that that information would have been available to the security analysis modules when they were captured under target VM.

Q. Right. So your -- it's your opinion that Veselov -- that the information might be accessible, but Veselov itself doesn't disclose -- you're not saying Veselov discloses correlating determined potential cybervulnerabilities with the network location of a protected virtual cloud asset; right? That's what you point to Mohanty for?

A. I mean, again, I would say it is -- Veselov teaches that the security assessment is done on the protected virtual cloud asset. That information would have been available through virtualization

layer for other -- through configuration logs to the -- to the snapshot that was captured.

And also it talks about network activity. For example, as part of the -- assessing VM, it is using -- it replays traffic. It tries to capture and play traffic that was meant for the -- for the original VM to the assessment VM.

All of those indicate that the network information was part of its security analysis. It doesn't explicitly -- mentions it in the sense that it doesn't -- uses it as part of -- in a specific segment in the spec.

But a person of ordinary skill in the art, given all that information that I just explained to you, would have understood that this information would have been available to a security analysis system.

Q. Okay. So you're -- you're not relying on Veselov alone as teaching the correlating -- the determined potential cybervulnerabilities with the network location of the protected virtual cloud asset. You're just contending that the information

could have been available to be used to correlate, potentially?

A. And -- and actually, that --

MR. ARGENTI: Objection to form.

A. That was captured. So again, I don't want to -- I want to repeat what I explained. Veselov teaches the security assessment is performed on the protected resource cloud assets, and that information -- the network connectivity between the virtual machine or other computing resources was considered as part of the information that was available to the security assessment, as I explained very clearly in 162.

Q. But Veselov does not actually correlate the network location, even if it's available, with the determined potential cybervulnerabilities; right?

A. Veselov does not -- explicitly mentions that in the spec, but the person of ordinary skill in the art would have understood that that information was available to the security assessment -- security analysis assessment modules that Veselov cites.

And that information, given that it would be

available, could have been part of what would have formulated basically the -- would have been part of how the vulnerabilities for that specific asset would have been assessed.

Yes -- also Mohanty explicitly teaches that, which is on paragraph 163. But I want to -- I don't want to dismiss Veselov off the cuff because, as you explain in 162, that information was available.

Q. In paragraph 162, you refer to, "Veselov teaches capturing various types of network data in the snapshot to facilitate subsequent analysis," and then you provide cites to column 15, 41 through 57, 15, 57 through 59, and a handful of others below.

A. That's correct.

Q. The 15, 41 -- if you can turn to Veselov 15, 40 -- or feel free to turn to Veselov. Veselov 15, 41 through 57; 15, 57 through 59; 15, 60 through 3; and 16, 3 through 14 is -- are all references to Veselov's figure 3 embodiment that includes instantiating a duplicate VM; right?

A. Those specific ones that you mentioned, it's -- they are correct. But if you go to 21, 3

all the way to 23, 8, it says, "(the security analysis may collect telemetry data of the VM 'indicating network activity' and 'analyze the telemetry data using assessment rules to produce the first assessment result')."

Q. And 21, 3 through 23 or -- 3 through 23 is referring to where the system installs a security agent program within the second virtual machine instance; correct?

A. Again, this is as -- as we discussed, if it is -- where exactly it has been installed and also the fact that, basically, the telemetry that is acquired, all of these are information that could have been acquired without necessarily an agent. There is nobody -- nowhere that it ties the information acquired for the assessment to the specific presence of an agent. Let me start with that.

The other part is --

Q. So --

A. Go ahead.

Q. So in column -- you pointed to column 21, 3

through 23. And I'm reading line number 5 -- 23 -- column 21, line 5, and it starts, "install a security agent program within the virtual machine instance," the second virtual machine instance, "the security agent program configured to, upon execution, collect telemetry data of the second virtual machine instance."

Did I read that right?

A. You did, but I want, again, to point you to column 9, since you want me to get you in a point where there is no specific exemplar, although these exemplars, as we have discussed, are interchangeable.

If you go to column 9, line 55, it says clearly, "The 'state' of the target resource represented by the snapshot data may include any properties of the target resource instantiated in the computing resource service provider 104 that are relevant to the security assessment. Non-limiting examples of such properties include: properties of logical volumes(s) containing the target resource; properties of physical storage devices allocated to

the logical volumes; file system and file information; operating system information; system and software patches applied; configurations of network protocols and services; properties of connections to other computing resources"; permissions, and so on.

The properties of connections to other computing resources, configurations of network protocols are all referring to information that pertain to the network location of the -- of protected -- of the protected virtual cloud asset, and they are directly tied to the generation of the security assessment. It clearly says "that are relevant to the security assessment." And they're normally giving the examples, and some of these examples are directly referring to that -- they would have included the network location.

Q. Dr. Stavrou, in column 9, lines 55 through 67, it never refers to telemetry data; correct?

A. It refers to figure 1 because it say "provider 104," and that figure --

Q. Dr. Stavrou, let me -- maybe you didn't hear

my question.

9, 55 through 67, never refers to telemetry data, t-e-l-e-m-e-t-r-y data?

MR. ARGENTI: Objection. Form.

A. Again, the word "telemetry" is not present, but it talks about "the 'state' of the target resource represented by the snapshot data." It starts like that on -- on column 55. So you can call that telemetry. You can call that with another word. I'm sure there are many words that are not present in that section. But I think that when it talks about "the 'state' of the target resource," that is information that is included as part of the analysis --

Q. Right.

A. -- because it's relevant to the security assessment. And it gives examples, and some of those examples refer clearly to network location in the sense that it is -- it's information that would have been included as part of configurations of network protocols and services, properties to other computing resources.

Q. It's your opinion that Veselov discusses things that might be related to network location but are not the actual network location themselves?

A. That's not true. I will give an example.

Q. Okay. Which of them -- which of these specific things that are listed is the network location that you're mapping it to?

A. Again, I'm not mapping anything to anything. I'm just --

Q. Wait. Hold on.

So --

(Unreportable crosstalk.)

A. (Inaudible.)

Q. -- you are not mapping any disclosure in Veselov to a network location?

MR. ARGENTI: Objection. Form.

Stop cutting the witness off.

A. I'm trying to answer your question, sir.

The configurations of network protocols and services, properties of connections to other computing resources, system log property -- properties in system logs would include in many

cases the network location that we're discussing here of the target protect -- of the protected virtual cloud asset by definition, because this information would have been pertinent to the configuration of the network protocols and services and also the connections to other computing resources.

Q. Is that necessarily true?

A. In what sense do you mean "necessarily true"? A POSA would have understood that this information was commonplace to be included on those files. I'm sure that -- yes.

Q. It has to be included --

A. Again --

(Unreportable crosstalk.)

Q. -- (inaudible) information?

A. Again, it would have been commonplace. It -- that information is routinely included in these -- in these files and depending upon the implementation. If you give me a specific example of a specific system in a specific file, I will be able to make that determination.

But a person of ordinary skill in the art would have understood that this information is routinely included and part of the normal operations of the computing system, including the ones that is being mentioned by Veselov, and thus, that information could with high probability be included as part of this information.

Q. Turning back to your paragraph 162 where you discuss that the -- the sentence starts, "Veselov explains that in some embodiments, the snapshot is captured while certain types of processing activity occurs in the VM."

Do you see that sentence that I'm referring to?

A. I do.

Q. The discussion in Veselov that you're citing to is only in the context of a duplicate instantiated VM; right?

A. Again, I start the sentence by saying, "For example."

Q. I'm only asking in the context of what you have cited. That's only in the context of

instantiated VMs; right?

MR. ARGENTI: Objection. Form.

A. In that specific context, in that specific nonexclusive example, that is correct.

Q. It would not be possible to collect telemetry data when analyzing a snapshot as a data file, like in figures 5A and 5B; right?

A. Again, you have to tell me what you mean by "telemetry data."

Q. I'm using "telemetry data" in the same way that the -- that Veselov uses "telemetry data" and that you cite in paragraph 162 of your declaration.

A. Again, I think you are confusing two different examples that I have in my -- 162 has two types of information, one that is included in the state of the snapshot and the other one that is being collected via telemetry data.

Q. Right.

A. Both of them have -- I mean, if you want me -- if you want me to continue my answer. I can stop.

Q. Okay. Let me -- let me just ask my question

again. I'm gonna just try to break it down.

Paragraph 162, you use the words "telemetry data" in the context of describing Veselov's 21, 3 through 23; is that right?

A. That is right.

Q. Okay. And using that -- those words, "telemetry data" -- let me ask you this: What is telemetry data?

A. I believe I have some examples there. It says, "data of the VM 'indicating network activity' and 'analyze the telemetry data using assessment used to produce the first assessment result.'"

Telemetry data are data that are being -- it's basic information about network. And that information can be captured different ways: actively, passively, or through network logs and configurations.

The telemetry data is not -- again, different people can use the word differently. Telemetry data in general means -- I would call it network information data. But some of that information can come from -- from logs that are

present in the state of the virtual machine, and the state of the virtual machine is captured by the snapshot. That's what I'm trying to explain.

Q. And that's based on your understanding as a person of skill in the art rather than what's in Veselov itself; right?

MR. ARGENTI: Objection. Form.

A. I mean, again, the word "collect" -- "telemetry data" is basically -- is well known. A person of ordinary skill in the art would have understood what that word meant.

Q. Right. And telemetry data is something that can be collected from -- to have network -- sort of active network activity, you would have to have an instantiated VM; right?

A. That -- that is what I don't think we are on the same page. Telemetry data can be obtained by an active VM by -- by observing an active VM, but also, it can be inferred by looking at logs and network configuration information present in the state of the virtual machine that is captured by a snapshot.

Q. Where can you point me, best disclosure or

any disclosure, just column and line number -- you don't need to read it -- where Veselov teaches that telemetry data can be inferred from other information contained in the snapshot?

A. I will -- again, Veselov uses the word "telemetry data" in conjunction -- in -- in specific locations, like, for example, column 21, lines 7 -- all the way. It talks about telemetry data in conjunction with network activity. I will point you that network activity can be extracted from network logs, connectivity logs, and system logs. That's -- that was --

Q. Where -- hold on. Pause for just a second.

Where does Veselov state that you can extract that information from network logs?

MR. ARGENTI: Objection. Form.

A. A person in the ordinary skill of art would have understood that a person -- not a person -- but analyzing a snapshot would have included information of that type because it was routinely present inside the snapshot state.

Q. Right. So -- so it's Veselov -- it's --

Veselov does not disclose it, but a person of ordinary skill in the art would have understood it; is that fair?

A. Veselov --

MR. ARGENTI: Objection to form.

A. Veselov gives examples of embodiments, one of them being telemetry data in a specific embodiment. But as we discussed on paragraph 91 of my declaration, some of the these things apply to other embodiments and figures.

Q. Okay.

A. And what we discussed on 162, page 153 of my declaration.

Q. Okay. So where in Veselov does it state -- I'll just ask one more time, and then I'll move on, because I think the Court will get it -- does it -- does Veselov disclose that network activity can be extracted from network logs, connectivity logs, and system logs?

MR. ARGENTI: Objection. Form.

A. As I say in page 153, "Moreover, in some embodiments, Veselov teaches capturing various types

of network data in the snapshot to facilitate subsequent analysis. For example, Veselov explains that in some embodiments, the snapshot is captured while certain types of processing activity occur in the VM 'in order to apply tasks of ... security assessment to real-time dynamic ... static data, network connections, communications to computing resources, and other computational activities of the assessment virtual machine."

And, again, this is 15, 41-57. In this case, in this specific example, it talks about the assessment virtual machine, but that can be applied in the first part, which is basically the snapshot is captured. The snapshot is captured when things happen on purpose.

Q. And this goes back to your paragraph 91. You think everything in Veselov can all be combined together; right?

A. I don't -- I think --

MR. ARGENTI: Objection. Form.

A. I don't -- I think you are misinterpreting or misconstrue my paragraph 91. I don't want to

read it again for the sake of time, but I want you to -- I don't think that's a correct interpretation of what I'm saying in 91.

Q. Can you turn to the '926 patent, your declaration for the '926 patent, and paragraph 147?

A. Give me one second to switch.

Q. Yep.

A. Which paragraph? I apologize.

Q. Paragraph 147.

A. I'm on page 134 of '926, paragraph 147, "6. Elements 1.4," it says.

Q. Okay. And I think, as you were just saying, paragraph 147 is the start of your section where you're addressing elements 1.4, 14.4, and 15.4 of the '926 patent; right?

A. That's correct.

Q. And these elements recite analyzing "the snapshot of at least one virtual disk to determine the existence of a plurality of potential cyber threats, each cyber threat based on data stored on the virtual disk, wherein the data includes at least one of," and then there's a list of -- of items;

right?

A. I do see that.

Q. Okay. In that first part of the limitation where it says "the data," you understand that to refer to data stored on the virtual disk; right?

MR. ARGENTI: Objection. Objection. Form.

A. Where do you see that?

Q. So, like, the third -- so the third line of your paragraph 147 is quoting -- is quoting the claim language; right?

A. Yes.

Q. Okay. And it says, "each cyber threat based on data stored on the virtual disk, wherein the data includes."

And so I'm just asking, you understand that the word "the data" -- like, I don't think "data" appears anywhere else in the claim. It refers to --

A. That's why I got confused.

(Unreportable crosstalk.)

A. (Inaudible.) Yes. (Inaudible.)

Q. Okay. Got it.

And so to satisfy the claim language, the --

each of the detected cyber threats must be based on one of the listed types of data. For example, unencrypted sensitive data, unencrypted system credentials, et cetera, et cetera; right?

A. It says "at least one" of them, yes.

Q. If you go to paragraph 156 of your '926 declaration.

Paragraph 156 is still part of this same -- same section on elements 1.4, 14.4, and 15.4; right?

A. I believe so, yes.

Q. Your opinion that Veselov teaches elements 1.4, 14.4, and 15.4 is based on Veselov's discussion of CVEs; right?

A. Among other things, yes.

Q. What are the other things in Veselov that you opine on that satisfy this?

A. I mean, all of this section is the analysis, right? So it starts in the -- in the (indiscernible) that I discussed above, teaching the security assessment detects the existence of a plurality of potential cyber attacks. That's one element there.

COURT REPORTER: Okay. I can't -- can we take a break, please?

MR. DAVIS: Sure.

COURT REPORTER: Thanks.

(A short break was had.)

MR. DAVIS: Isaiah, could you pull up the '926 declaration, Exhibit 1002, at paragraph 156?

BY MR. DAVIS:

Q. Okay. And, Dr. Stavrou, before the break, we -- I had asked you, other than -- well, let me -- so other than the CVE analysis in Veselov, what do you contend satisfies this claim element?

A. I want you to go to 157 paragraph, on page 146. And I will read the top of that, start of that paragraph. "Second, Veselov teaches identifying nonsecure system configurations, which encompasses additional types of 'potential cyber threats.' As I noted above, Veselov discusses known security assessment services that identify 'vulnerabilities, bad configurations, and the like.'"

Exhibit 1007, column 1, line 46 to 49.

"Veselov further explains that its own analysis techniques may include 'host configuration assessments' ... and that the analyzed snapshot may include various types of configuration information." For example, column 9, 42 all the way to 67, and column 2, 35 all the way to 41. "For example, the analyzed snapshot may include properties such as 'properties of logical volume(s)," and goes on.

Q. Dr. Stavrou, just if I can jump in and ask another question.

So the -- there's the CVEs, and then there are bad configurations.

Is there any other specific thing that Veselov is detecting that you contend are the claimed cyber threats?

A. Again, if we go to 158, please, page 147.

Q. And I think paragraph 158 is where you start your discussion of "based on data stored on the ... disk"?

A. Correct.

Q. I just want to make sure that you are focused on the question I'm asking, which was, are

there other types of cyber threats that you're saying Veselov discloses?

A. I believe these are the -- I would say some examples, yes. That's why I put them there. And, yes, I covered those to there in those paragraphs. You are correct.

Q. And the two examples are vulnerabilities and bad configurations.

Are there any other specific types?

A. So I want to point out that CVEs capture a very vast set of vulnerabilities with many examples that have many elements of the individual data, at least individual examples on the data list that the claim of '926 recites.

So while I don't go into exhaustive list of all the potential vulnerabilities that CVEs explain, I want to point out there's a clear map in between CVEs and those elements.

Q. And CVEs refer to a common vulnerabilities and exposures database?

A. Yeah. Yes, sir. It's an acronym that talks about that.

Q. And as the name suggests, CVEs are gonna be cyber threats that represent vulnerabilities; right?

A. Some of them also refer to other types of weaknesses. I clearly stated, when the CVE was created -- I mean, there are some examples that I have in my depositions that show the breadth of CVEs, and of course, this is public information.

Q. Each of the exhibits that you're referring to are -- those are the ones that are in footnotes 33, 34, 35, 36, 37, and 38; is that right?

A. It's part of exhibits. I believe that these numbers are correct. These are examples.

Q. And which of these exhibits that you're referring to are not vulnerabilities?

A. Again, I have to go through all my deposition because I have different examples that cover different things.

They talk about potential cyber threats in different types of forms. A POSA would have understood that these are examples I give, for example, for startup services. And again, some of them are associated with vulnerabilities, but not

all of them are associated with vulnerabilities. I want to be very clear. I'm not exhaustive in my declaration. I couldn't have been.

Q. And if we go to the page 143 of your declaration, and then to the top of page 144, you have a sentence, "A POSA" -- I'll let Isaiah get to it -- oh, sorry. PDF 147. It says at the bottom of this page before the footnotes, "A POSA also would have known that many CVEs were associated with services that were" -- and then it continues on to the next page -- "commonly run when the computer system starts up."

Do you see that?

A. I do.

Q. The -- you say that these services are commonly run when this computer system starts up.

Is that actually a detection of when -- like, what is run when the computer system starts up?

MR. ARGENTI: Objection. Form.

A. Again, I don't understand the question. This -- a POSA would have understood that,

basically, these services were part of what a computing system would commonly run, depending, you know, on different factors, but these were not -- you know, I cite some examples here. I'm sure there are others. Here the point is that it is part of what the '926 specification referred to both of these type of security issues are potential cyber threats.

Since this identifies them, if you go down to page 145, at the top, it talks about -- yes, there. You see, basically, "risky application features," and then "services running on startup, and the like." So we are talking about these two categories, "risky application features" and services that are "running on startup, and the like" that are bolded.

Q. And staying here, this is a quote from the '926 patent specification; right?

A. I believe so, yes. I have it as 6 -- column 6, 21 all the way to 32.

Q. And the beginning of this quote that you have is saying that the examples are cyber threats

that do not represent vulnerabilities; right?

A. According to the '926 patent, that's what it says. That's correct.

That's why I wanted to respond to your question where you said everything is vulnerability and I said no. It encompasses a larger set of other things, including risky application features and services running on startup and the like, as '926 recites here.

Q. And which of the CVE examples correspond to what you contend are risky application features?

A. Here I'm giving examples. Again, that's just examples. It starts on page 143, if you may go.

Q. I -- and I'm just asking, can you tell me -- you have a number of exhibits. Which specific exhibits are you referring to?

A. I believe Exhibit 1090. That's where I point you. Like, if you take a look at the middle of this page, it says, Exhibit 1090, "(security risk associated with library used by multiple software products)" -- wait. No.

Yes. "A POSA also would have known that many CVEs were associated with services that were" --

Q. And, Dr. Stavrou, if you could read a little bit slower for our court reporter, please.

A. Yes. Go down, a little bit down. Yeah. The ones that I'm talking about are in the next page, sir. There. They are there.

-- " with services that were commonly run when the computer system starts up."

And it says Exhibit 1100, 1101, 1102, 1103.

Q. And, Dr. Stavrou, when you do a -- a CVE assessment, do you automatically necessarily detect every type of CVE that shows up in a CVE database?

MR. ARGENTI: Objection. Form.

A. I -- I'm am not an expert on CVEs. I use them for my work, but I don't routinely perform that. I don't generate threat score and threat reports -- or, sorry, threat reports.

But CVEs were designed to, you know, describe different types of vulnerabilities. They -- they cover a very broad range of

vulnerabilities and what -- the patent contends that they are not vulnerabilities.

But, I mean, as part of CVEs, some of them are considered vulnerabilities, so there is a small -- I think that CVEs capture a much broader -- vulnerabilities in a much broader sense than what the patent does, in the sense that basically there are -- what is called also common weakness over weaknesses.

Some -- some CVEs, they might check multiple boxes. There might be more than one vulnerability in a CVE or more than one weakness in a CVE. And it's not automatic one-to-one mapping, I would say. So it depends on the CVE, the type of CVE that was -- when it -- was it published. There is a lot of other -- there is a lot of other factors that you have to look. I mean, I did not do an exhaustive search, sir, for -- for these. I mean, I just picked some examples to use here. I'm sure there are many other examples.

Q. Exhibits 1090, 1091, 1100, 1101, 1102, 1103, those -- those specific CVEs, they are not

referenced or mentioned in Veselov; right?

A. Those specific ones, they are not. Yes.

Q. And you have not provided a -- a reason to combine Veselov with any of these specific CVE vulnerabilities; right?

MR. ARGENTI: Objection. Form.

A. As a matter of principle, Veselov uses CVE assessments. Teaches applying those specific packets as the CVEs, which is basically -- as I discussed in different paragraphs in my declaration, so the CVEs -- the use of CVEs was -- a POSA -- a person of ordinary skill in the arts would have understood that a user of CVEs, assessments and configuration assessments and general assessment was commonplace and many, many scholars and tools were performing that at the time of the invention.

So it was not an uncommon thing to see. So if you take a look, I think Veselov discussed the scope of -- again, can we go to page 141, for the sake of the reporter.

Q. And let me just -- let me ask before you -- before you get there, what is your basis for

concluding that every -- every CVE would be detected based on the disclosures in Veselov?

MR. ARGENTI: Objection. Form.

A. I don't contend that. I'm just saying -- I'm using what Veselov says, and I'm pointing to page 141, paragraph 155, of my declaration where I specifically show that, "Veselov discusses the expansive scope of types of security problems that its scanning service may detect when analyzing the snapshot."

And I start, "The present disclosure contemplates implementation of any suitable security assessment, including security assessments that are defined by rules packages, such as Common Vulnerabilities and Exposures (CVEs), Center for Internet Security (CIS) benchmarks, 'best Practices' packages, static or runtime behavior analysis, host configuration assessments, and the like." And that is verbatim. So it is verbatim from column 2, 35 all the way to 41. And I continue. I don't want to waste more time. All of that is cited in paragraph 155. Plenty of different

places where you can actually see the connection of CVEs to Veselov.

Q. And is it your opinion that every vulnerability that appears in the CVE database is necessarily going to be found by Veselov's system?

A. Again, Veselov is not trying to contend that every vulnerability is gonna be discovered. This is up to the scanners, the technology that's used. There are many, many factors if vulnerability is gonna be discovered or not.

The mere fact that a vulnerability is actually listed and that vulnerability is actually described allows for any type of security assessments to assess the description of that information, the type of vulnerability including applications that might be susceptible, among other information, to be able to perform a scan on the system and detect those. It doesn't provide assurances about the success of the detection, because that's not up to Veselov.

Q. And the way that a CVE assessment works is that you would take the information that's scanned

and then you can compare it against the CVE database; right?

A. I would say that this is one way of doing it. There are many, many different products that have been, you know -- I would say make the success or failure based on how well they can -- they can interpret data from CVEs through detection.

So what you just described is, you know, one potential path that, you know, someone might think about, but it's not the only one.

Q. So whether or not a CVE is going to be found is going to depend on whether the assessment system found the underlying application or software program or whatever else it might be, and then the CVE populates with the information regarding the vulnerability associated with that -- that boot-up software; is that fair?

MR. ARGENTI: Objection to form.

A. Yeah, that's one -- that's one way of looking at it. Sometimes they are not automatic factors. It depends on how the scanner is implemented. And I want to be very clear.

Sometimes you do the reverse. Sometimes you start with the CVE and you are asking yourself, Are there applications? I mean, it depends on how the process -- you want to go about it.

Q. Yeah.

A. But there -- there are different ways of doing it. There's not -- I mean, what you described is one potential valid way, but that's not -- that's not the only one. And --

Q. So --

A. -- I want to be clear --

Q. So if -- if -- if the result of a scan reported that a vulnerability, a CVE, existed, the CVE was returned as the output, that would mean that the -- like, the -- the services commonly run when the computer system starts up, that it detected that?

A. No.

MR. ARGENTI: Objection. Form.

A. No. It works a bit differently. That -- that could have been one path. But what I'm trying to tell you is that the CVE describes a

vulnerability, how this scanner will match that vulnerability to the system, and what type of information it's going to require is up to the scanner to determine, so that CVE is an input to the scanner. It's not a form that the scanner will return upon doing the scan back. The CVE is in many -- in many cases an input. Not to say that there might not be scanners that they try to implement like this, but commonly, the CVE would be an input to the process.

Q. Uh-huh.

A. Because it's a database of vulnerabilities that you feed into the -- into the scanner.

Q. Okay. And where in Veselov does it state that it detects services that are run when the computer system starts up?

A. So just to clarify, remember we discussed about configurations? So which -- which of the services start at the beginning of the system would have been part of the information that would be captured at this state. Sometimes it could have been information present from configuration files,

some other times present from run time information that captured this part of the snapshot.

There are many different ways to determine which of the applications are a part of the start-up. I'm just giving a couple of examples.

Q. Yeah. So it's -- Veselov discloses that it takes a snapshot which could have any number of different types of data, which could then be used to determine CVEs, potentially?

A. That can be used to determine running applications that might be susceptible to vulnerabilities such as the ones that are described by different CVEs.

Q. And so is there in your -- in your declaration, where -- what are you pointing to in Veselov as disclosing detecting the services that are available on boot-up? Just the -- the line number -- the column and line number of Veselov.

A. Again, I want to point out --

MR. ARGENTI: Objection. Form.

A. -- that you are asking me to be inclusive of all potential examples of all potential CVEs and

vulnerabilities. And Veselov discusses this in a very clear form where information from -- for CVEs and applications and data are passed through a scanning service. It's up to the scanning service to perform that assessment.

The point of Veselov is the enabling -- it's enabling -- sorry. I will point you to page 141 that we are. And I [sic] says -- it says, "(Assessment allows user to 'evaluate the vulnerabilities of the target resources')."

And then go down -- and also, "identifies 'security risk information')."

And I will go a little bit down, if you don't mind, to page 142. It says -- a little bit down of -- line 3, 14 is "(scan configuration determines 'tests or tasks to perform, types of vulnerabilities to evaluate, and the like')."

Veselov is giving you the recipe. It gives you the ingredients, but it doesn't -- gonna give you all examples of every possible vulnerability, weakness that has been identified because that would not -- that's not the point of the disclosure here.

The point is that that information was available, and as I explained in different paragraphs, it -- "As I previously explained, common security assessments performed by systems like Veselov's routinely detected cyber threats."

And I cover that very extensively in paragraph 8D1 and 2. And then, again, I continue, "As I explain below, this broad disclosure of identifying different types of security problems teaches analyzing the snapshot to detect the existence of a 'plurality of potential cyber threats.'"

And again, as part of these cyber threats, I give you some examples that match -- that -- ones that -- that were more specific.

Q. Okay. So --

THE WITNESS: And I want to ask the reporter, if I may, if I'm going slow enough or I need to slow down more. I don't want to create drama.

MR. DAVIS: I think you're doing much better.

COURT REPORTER: Yes. Thank you.

BY MR. DAVIS:

Q. If we can go down to paragraph 161 of your declaration for the '926 patent, "The combination of Veselov and Mohanty also teaches that the data stored on the virtual disk includes 'at least one of' the many types of data listed in claim elements 1.4/14.4/15.4"?

A. I do.

Q. And in particular, you state that, "The references teach ... weak encryption schemes, unencrypted sensitive data, personally identifiable information, weak passwords, and services to be run on startup"; right?

A. I do see that, yes.

Q. You do not offer an opinion that Veselov or Mohanty disclose or render obvious unencrypted system credentials; right?

A. I believe that I picked some examples since we needed at least one of -- from at least. And I don't opine on anything other than those because I -- I -- it was not necessary.

Q. Okay. So -- and I just want to make sure that we're crystal clear. So you do not offer an opinion that Veselov or Mohanty disclosed or render obvious unencrypted cyber threats that are based on unencrypted system credentials; right?

MR. ARGENTI: Objection to form.

A. I have to check my entire declaration to be certain. In this specific paragraph and page, I talk only about those. I don't know if that is the case throughout my declaration. I -- I have to check.

Q. Okay. Well, then you should -- what I'm asking is in the context of this claim limitation, so it is from the beginning until -- from 147, I think, until where we -- 161. If you need to look at it, you can. But I -- I want to make sure that we are clear about which ones you're offering an opinion on and which ones you are not.

And so I want to go through the list of what's in the claim and understand what you are not offering an opinion on. So if you need to look through to refresh yourself so that you can answer

that question -- I think the answer is no. I think it should be quick. But I --

A. I don't want to take up your time. I'm looking at it very closely, and I would agree with you. But I want to preface it with, while what I describe here in my declaration does not have the specific example, there might be CVEs that were matching those as I explained for Veselov. So --

Q. And, Dr. Stavrou, I am only asking for the opinions that you have actually offered in your declaration.

A. Okay.

Q. I'm not asking about the opinions you may have considered and not put in your declaration. So just limited to what have you actually offered an opinion on in your declaration.

A. Fair.

Q. So with that understanding, hopefully this will be quick. You do not offer an opinion that Veselov or Mohanty disclose or render obvious since -- or -- let me start over.

You do not offer an opinion that Veselov or

Mohanty disclose or render obvious cyber threats that are based on unencrypted system credentials; right?

MR. ARGENTI: Objection. Form.

A. I don't believe that's the case. But, again, my analysis picked some, because it was one -- at least one of. So there is no opinion, but that doesn't make it that it doesn't exist. I just want to make sure.

Q. Yeah. I'm -- I'm just asking in your declaration. I just -- and I need a clean answer, so I'm gonna ask it again. I just -- if you can just say no, then I can move to the next one. You have five. I'm not trying to say that you don't have the five. I'm just -- I need a clean answer, please.

You do not offer the opinion that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on unencrypted system credentials; right?

MR. ARGENTI: Objection. Form.

A. No, with the caveat that, you know, that was

not considered.

Q. Okay. And you do not offer an opinion that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on disabled "Address Space Layout Randomization"; right?

A. To the extent that this was part of the configurations, I do, because again, some of -- this is the -- and this is the problem of me being able to answer with a yes/no answer. Some of these -- some of these vulnerabilities were a byproduct of, for example, bad configurations or other things like --

Q. Dr. Stavrou, point me to where in your declaration you offer the opinion that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on disabled address space layout randomization, that specifically -- exact thing, not what it could be or what it might have been or what you may have said in your declaration. I'm asking, show me specifically where it is in your declaration.

MR. ARGENTI: He's trying to answer your

question. If you're gonna cut him off and not allow him to ask you -- to answer the question, then I don't know why you're gonna keep re-asking it. He's giving you his answer. Stop cutting him off.

MR. DAVIS: Matt, please keep your speaking objections to a minimum.

BY MR. DAVIS:

Q. Dr. Stavrou --

MR. ARGENTI: Objection. Form.

Q. -- point me to where in your declaration you discuss disabled address space layout randomization. If you are contending that you have an opinion on it in your declaration, in this element, show me where it is.

A. I want to point out that address space layout randomization as a vulnerability can be a byproduct of bad configuration.

Q. Where in your --

A. What --

Q. -- declaration do you say that?

A. It's not a -- first of all, this information, it's not necessarily -- I don't -- I

don't have to state it in my declaration to --

Q. You -- stop. You do. Your testimony is limited to what you have in your declaration, so I'm -- that's why I'm asking you. I'm not asking about --

A. My --

Q. -- what you could have said.

A. My -- a POSA -- a person of ordinary skill in the arts would have understood that bad configurations can also lead to other weaknesses, including the one that you just mentioned.

So --

Q. Dr. --

A. -- while I don't have it in my declaration verbally, there are many ways of having -- bad configuration can lead to some of the elements that are listed in '926 as -- as weaknesses, not vulnerabilities.

Q. And I'm going to --

A. And I want to -- I want to point out -- because while I don't have it listed, and I have limited myself into five elements, there are other

elements that are also present through other forms of scanning, for example, bad configurations.

MR. DAVIS: Okay. I'm gonna move to strike your answer other than, It's not in my declaration, or whatever language you used where you said it wasn't in your declaration.

I'm going to go to the next one.

Q. You do not offer an opinion that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on "boot record manipulation"; right?

MR. ARGENTI: Objection. Form.

A. I will repeat that through the scanning of CVEs and other vulnerabilities, information -- such vulnerabilities might have been obvious to a scanner or a POSA. I did not explicitly discuss it in my declaration, because that would have known -- been known to a POSA. I give specific examples, but they are not limiting because the type of analysis that a CVE would offer could have captured many of those, at least by the mere virtue that I described as part of the CVEs and all configurations.

MR. DAVIS: I'm gonna move to strike other than, I did not specifically discuss it in my declaration.

Q. You do not offer an opinion in your declaration that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on suspicious definitions; correct?

MR. ARGENTI: Objection. Form.

A. I will repeat my answer as previously, that again these are specific -- these can be included in CVEs and other information, and I should -- we -- we cannot make a bluntly stated argument that, These are not captured just because they are not discussed in my declaration.

A POSA would have understood that some of them are captured by information provided by Veselov and Mohanty to the scanners.

MR. DAVIS: Move to strike other than, They are not discussed in my declaration.

Q. You do not offer an opinion in your declaration that Veselov or Mohanty disclose or render obvious detecting cyber threats that are

based on data in application logs indicating that the protected virtual cloud asset access personally identifiable information; right?

MR. ARGENTI: Objection. Form.

A. Again, this is a very broad category that some of the application vulnerabilities and CVEs and configurations could have potentially identified those. A POSA would have understood that.

MR. DAVIS: Dr. Stavrou, where in your -- I'm gonna move to strike.

Q. And also tell me where in your declaration, give me a paragraph and a page number if you contend that you have opined on this. I need you to --

MR. ARGENTI: Objection to form.

Q. -- listen to my question, and I need you to tell me where it is if you contend the opinion is there. Otherwise, I need you to say, It's not in my declaration.

MR. ARGENTI: Objection. Form.

A. In my declaration, I give specific examples, but I also discuss CVEs. The CVEs are a very broad category of vulnerabilities that include, in many

cases, applications that exhibit the vulnerabilities that you just mentioned. I cannot include every possible combination of all of this in my declaration, but I did talk about CVEs, which encompass some of these vulnerabilities. And I cannot bluntly state that I don't have the discussion because I do have discussion about CVEs.

Q. Dr. Stavrou, you do not include any CVE specifically that refers to data and application logs indicating that the protected virtual cloud asset access personally identifiable information, in your declaration; correct?

A. I do not have -- I did not include an example of this. That doesn't mean that they don't exist.

Q. Dr. Stavrou, you do not offer an opinion in your declaration that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on applicable -- or, sorry -- based on data and application logs indicating that the protected virtual cloud asset accessed a computer containing personally identifiable information; right?

A. While I do not have examples of that pointed in my declaration, that doesn't mean that the CVEs don't exist or configurations that a POSA would have understood can lead to the detection of this vulnerability or this weakness.

MR. DAVIS: I'm gonna move to strike other than, I do not have examples of that in my declaration.

Q. Last one. You do not offer an opinion in your declaration that Veselov or Mohanty disclose or render obvious detecting cyber threats that are based on at least one change in at least one area of virtual disk as compared to an earlier point in time; right?

MR. ARGENTI: Objection. Form.

A. Again, while there are no examples in my declaration, a POSA would have understood that, given the fact that there are multiple snapshots and information provided to a scanning service about the different times potentially that the disk was captured, that this information could have led to that -- the -- the discovery of that weakness.

MR. DAVIS: Move to strike other than, There are no examples in my declaration.

Q. Okay. In paragraph 162 of your declaration, you contend that Veselov broadly teaches using a variety of scanning techniques; correct?

MR. ARGENTI: Objection. Form.

A. It does say that he "broadly teaches using a variety of scanning techniques to analyze the snapshot, explaining that its scanning service can use 'any suitable security assessment,'" -- and I go on -- "including assessments applying 'best practices' packages, static or runtime behavior analysis, host configuration assessments, and the like."

And this is "EX1007 (Veselov), 2:35-41."

Q. And based on that statement in Veselov, is it your understanding that every -- every security assessment that is known to a POSA could be used in Veselov?

A. Any suitable security assessment that was present at that time and was available to a POSA could have been used.

Q. Okay. Where in Veselov does it state that a suitable security assessment would include avoiding exposure of unencrypted or weakly encrypted data? Where does it say that that would be suitable?

MR. ARGENTI: Objection to form.

A. I have explained -- I -- can you go to 153, if you don't mind, so the reporter can be on the same page of as us. Yes.

It is in -- in paragraph 8 -- I say, "As I previously explained, avoiding exposure of unencrypted or weakly-encrypted data, such as sensitive data, was a common best practice applied during security scans."

It was a best practice, as is recited by Veselov.

Q. Right. Well, Veselov says that it's compatible with suitable security assessments.

Just to be clear, Veselov does not reference unencrypted or weakly encrypted data, such as sensitive data; fair?

A. A POSA would have understood that there was a common best practice applying, like during the

security scan, to do that.

Q. And that's your testimony. That's just not what -- Veselov doesn't use those words; right?

A. I explain that in paragraph 8D1-2. There are other exhibits that I point to that support this argument about what a POSA would have understood.

Q. And just to make sure that I get an answer to my question, Veselov does not refer to avoiding exposure of unencrypted or weakly encrypted data, such as sensitive data; right?

MR. ARGENTI: Objection to form.

A. Again, you're focusing on a very narrow interpretation of the --

Q. But I want you to answer my question.

A. You're not letting me.

MR. ARGENTI: Objection to form.

Q. I am. You're answering a different question. I'm asking you my question, which is Veselov -- let me ask a simpler question.

Veselov refers to best practices; right?

MR. ARGENTI: Objection. Form.

A. Where -- where exactly do you see that?

Q. Well, I'm looking at paragraph 162 of your declaration where you quote the words "best practices" from Veselov; right?

A. That's correct.

Q. Okay. So Veselov uses the words and describes "best practices"; right?

A. That's correct.

Q. Veselov does not spell out what it means by "best practices"; right?

MR. ARGENTI: Objection. Form.

A. Again, a POSA would have understood --

Q. Hold on.

I'm just asking, what -- does Veselov say it? Not what a person would have understood. I'm just asking, what does -- does Veselov explain what "best practices" means?

A. No. But a person of ordinary skill in the art at that time would have understood, given the art at that time, that this included the unencrypted or -- exposure of unencrypted or weakly encrypted data, such as sensitive data, and that was a common best practice applied during the security scan.

MR. DAVIS: I'll move to strike after the word "no."

Q. In paragraph 163, you -- you state that Mohanty provides a more detailed description of determining the existence of threats based on weak encryption schemes and unencrypted sensitive data; right?

A. That's what it says, yes.

Q. And specifically, what you are pointing to is Mohanty's discussion of contextual tags that identify the characteristics of the scanned asset; right?

A. I'm giving one example, yes. That's correct.

Q. And in Mohanty, there are two types of context tags. There are things called static tags and there are things called dynamic tags; right?

A. I believe that's correct.

Q. And if we look, for example, at the bottom of page 153 of your declaration, which is still part of 163, you quote column 5, lines 16 through 58, of Mohanty. And it says, "static tag information 204

could include indication of whether there is sensitive data in or handled by the asset"; right?

A. That's correct.

Q. And then -- and that's what you're relying on for the sensitive data of the claim; right?

MR. ARGENTI: Objection. Form.

A. That's not entirely true because, as I continue, I say, "Mohanty" -- it's actually -- if you can continue on the next page, please, just for the sake of the reporter.

So, like, in the third line of page 145 -- 154, I say, "Mohanty also describes determining remediation for the asset based on the detected security issues, and the listed examples of such remediation include 'applying a stronger encryption to sensitive data.'" That is on column 10, 27 all the way to 34.

"In view of these teachings, a POSA would have understood Mohanty is teaching, or at least suggesting, that certain detected threats are based on 'weak encryption schemes,' as recited." And I continue, "For example, Mohanty's explanation that

the remediation may involve applying 'stronger' encryption to sensitive data stored on the asset indicates that, in some circumstances, the encryption scheme applied to that sensitive data is weak."

And I continue, and on 164 talks about unencrypted sensitive data. Again, "As I explained above, encrypted sensitive data was a common concern for security assessments because such data tends to be" --

Q. Dr. Stavrou, what was my question?

A. Your question, sir, was about the tags, and you are suspicious if Mohanty was limited to that part in terms of discussing the sensitive data. And I said that's not the case.

Q. Okay. I would love for you to answer, That's not the case. That would be much faster and more efficient than jumping in and --

(Unreportable crosstalk.)

MR. ARGENTI: Objection. Form.

Q. So in -- and it makes it really hard to, like, have questions and answers when you just sort

of -- especially when you're just reading your declaration. You can just say, like, I also discuss more in the next couple paragraphs. So just -- it would speed things up and probably make life easier for our court reporter.

In -- on the top of page 154, you reference "Mohanty also describes determining remediation" of "the asset based on the detected security issues."

Is remediation the same as detecting?

A. Remediation is the process of what -- by which you try to fix a problem --

Q. Okay.

A. -- I believe, in this context.

Q. And so applying a remediation of applying a stronger detection -- or a stronger encryption is not determining the existence of a potential cyber threat. It's talking about sort of a different act, which is some sort of remediation afterwards; right?

MR. ARGENTI: Objection. Form.

A. Again, I want to go on page -- I'm trying to answer your question. On page 155, it talks about -- in the middle of the page, it says,

"contextual tags identify presence of sensitive data." And then further on, it says, "correlating threats with contextual tags." And I continue -- I don't want to read the entire section here because I want to avoid to basically -- I say that a POSA would have recognized that, number one, the discussion recognizes the importance of protecting sensitive data with encryption; number two, unencrypted sensitive data stored on an asset was a common target of threats; and, three, unencrypted sensitive data was even more in need of protection than weakly encrypted sensitive data.

So what I'm trying to say here is weakly encrypted data and unencrypted data fall in essence in the same bucket when you apply strong encryption as remediation. And the fact that you needed to apply strong encryption, it meant that you had -- that there's a need of remediation that points to the presence of a security risk that was identified to be able to remediate.

You can agree with me that you cannot remediate something that does not exist.

Q. So in --
A. It has to be identified first.
Q. So in Mohanty, for the sensitive data, are you referring -- are you relying on Mohanty's static tags, dynamic tags, or both?
A. There is a discussion of contextual tags that I pointed you to and --
(Unreportable crosstalk.)
A. Yes.
Q. And there are two types of contextual tags in Mohanty: static and dynamic; right?
A. Correct.
Q. And what I see on column -- the bottom of page 153 in your cite is reference to static tag information can include "indication of whether there is sensitive data in or handled by the asset"; right?
A. That's one point where I mentioned that. That's correct.
Q. Okay. So you're relying on -- at least, you're relying on static tags as for sensitive data; right?

A. It doesn't mean that dynamic tags cannot be used, though.

Q. Right. So, but I -- I just want to know -- I want to know if I can figure out your opinion at all.

So are you relying on static tags, yes or no?

A. In some cases, that's correct, yes.

Q. Okay. And then you have a "see also," and it says -- 5, 54 to 58, "Dynamic tag information 206 could include ... whether or not suspicious data has been transferred into or out of the asset 224"; right?

A. Where do you see that, if I may ask?

Q. At the top of page 154 of your declaration.

A. Yeah. I see "could include," yes, that's correct.

Q. And are you contending that suspicious data is -- that has been transferred into or out of the asset, are you contending that is sensitive data?

A. I think that it depends on the context. What is -- what is sensitive data is depending on

the context.

Q. Okay.

A. So in some cases, suspicious data -- I mean, no. I cannot answer that without knowing the context. If you give me an example, I'll be able to answer.

Q. In Mohanty, is the suspicious data that's being referenced -- I just -- it's not the same word. Like, Mohanty uses the word "sensitive data" for static tags, and then it uses this -- you reference "suspicious data" for a dynamic tag.

And so are you contending those are the same thing?

A. I'm contending that suspicious data can contain sensitive data.

Q. And what is that based on? Just your personal belief, or is it something that is actually disclosed in Mohanty? And if it's in Mohanty, can you point me to it?

A. So, again, I --

MR. ARGENTI: Objection to form.

A. -- I believe that you're reading everything

very narrowly. Again, dynamic tag information could include whether or not suspicious data have been -- has been transferred into or out of the asset 224. It was routinely -- a POSA would have understood that sensitive data would have been the target of cyber attacks because they are important for the -- for the asset and for the adversary.

The fact that there was a suspicious data transfer could have indicated that sensitive data were transferred in or out of the device -- I read it as out of the asset 224, in this case -- and could have included sensitive data.

Q. And where -- where in Mohanty does it -- does it say that, or is it just your opinion?

A. Again, a person of ordinary skill in the art would have understood that Mohanty would have taught, or at least assessed, that certain detected threats are based on the fact that data -- sensitive data are being transferred out of the device and could have applied stronger encryption to sensitive data stored on the asset to prevent such compromise as a remediation.

Q. You agree with me that Mohanty does not use the word "sensitive data" in the context of its dynamic tags?

A. These are all examples, including the ones that they talk about static tags. So --

Q. And in the examples that are given in Mohanty, Mohanty does not refer to sensitive data as being something in a dynamic tag; fair?

A. It's not clear, because it talks about suspicious data transferred in and out. I would point you that there are plenty of products, including ones that they were present at that time, that were looking into information being transferred in and out of assets as a principle of identifying sensitive data.

So suspicious -- many -- in many cases, suspicious transfers of data out of an asset would have been correlated with potential cyber hack, and that would have triggered all the remediation that would -- we would -- potentially triggered the remediation that we discussed.

So what I'm trying to tell is that you need

to put things into context. A POSA would have understood that when it talks about suspicious data, that data could have included sensitive data because it is done in that context. It's done in the context of column 5. It's not done in the context of -- it's actually continuing. Like, you have the static discussion on column 5, 16 through 54, and immediately after follows the 54 to 58. So there's not even two components of the patent.

I apologize. Can we take a small break? I think we're on time for an hour plus.

MR. DAVIS: Yeah. Let's take a five-minute break.

MR. ARGENTI: Sounds good.

(A short break was had.)

BY MR. DAVIS:

Q. Welcome back, Dr. Stavrou.

If we can go to your paragraph 165 of the '926 declaration.

This is the section where you start elements 1.6, 16.6, and 19.6; correct?

A. Give me one second because I see a different

page. Can you give me the page on the declaration?

Q. Oh, I just said paragraph 165. It is page 156. It's at the bottom of the page.

A. About Mohanty, yes. But it's not the start of my discussion for these elements. It's actually at the bottom of the discussion.

Q. Oh, hold on one second. I think I might have had the wrong declaration open. Give me one moment. I apologize.

It's actually paragraph 165. You state, "Mohanty's discussion of threats associated with sensitive data also teaches or at least suggests, that the data stored on the virtual disk includes common types of sensitive data of concern to security assessments, including 'personally identifiable information' and 'weak passwords,' as recited."

Do you see that?

A. I do.

Q. And you don't include a citation to Mohanty for that disclosure. You rely on secondary references; right?

A. I believe I provide different citations. I don't have something -- again, yes. For that specific section, that is correct.

Q. You do not offer an opinion -- and if you do, please direct me to where it is in your declaration -- that Mohanty or Veselov disclose analyzing a snapshot to determine any tags; right?

MR. ARGENTI: Objection to form.

A. I -- I -- a POSA would have understood that you can apply the teachings of Mohanty to Veselov and vice versa. I don't think that the goal -- so, again, while this is something that is not explicitly mentioned, a POSA would have understood that the teachings are not applied piecemeal, and you can apply teachings from one -- Mohanty, in this case -- to Veselov's scanning.

Q. Mohanty does not teach or discuss analyzing snapshots; fair?

A. Again, I will point you for the reasons to combine that I have for that specific -- for the specific Mohanty and Veselov.

Q. I -- I understand the combination. I'm just

asking, Mohanty itself, by itself, does not discuss analyzing snapshots.

A. I don't have Mohanty in front of me. If you allow me to go check Mohanty, I will check if there is discussion of snapshots in Mohanty at least, but I don't have it -- I don't have the exhibit in front of me.

Q. You can -- I -- you have Mohanty as an electronic exhibit.

A. I can pull it up. I don't have it --

Q. You're welcome to pull it up and look at it.

But specifically, what I want to know is where in your declaration you contend that Mohanty discloses analyzing snapshots.

A. I need to bring Mohanty up. It's not automatic.

Okay. I have it up.

Mohanty does have the word "snapshot," but I don't think it's referring to the same type of snapshots that we're talking about here. But it does -- it is in the same -- it talks about vulnerabilities, whatever these cause for virtual

computing environments.

Q. And while you have Mohanty -- Mohanty open --

A. Yes.

Q. -- static tags are -- if you go to column 4, lines 1 through 15.

A. Can we do the same thing, for the reporter, please, just to be on the same page.

Q. Oh. If the -- if the --

MR. DAVIS: Isaiah, could you pull up Mohanty column 4? I think you should have Mohanty.

REMOTE TECHNICIAN: You said column 4?

MR. DAVIS: Yeah.

REMOTE TECHNICIAN: Okay. Stand by.

MR. DAVIS: Oh, column 4 rather than the figure. So it's on page 8 of the PDF on the right side.

REMOTE TECHNICIAN: Oh, gotcha. Thank you.

MR. DAVIS: And actually, if you go to column 4, line 9. The line numbers are right in the middle. So line 9 is, yeah, right around there.

Oh, actually, so it starts at line 4.

BY MR. DAVIS:

Q. So let me ask my question.

So at column 4, line 4, of Mohanty it says, "When an asset (e.g., a virtual machine or a virtual application) is created and deployed in a virtual environment, information about the asset can be written as metadata to one or more tags (see FIGS. 2 and 3)." And then, "Further information can be written to tags as situations occur."

Do you see that?

A. I do.

Q. And so what Mohanty is describing is that when you create an asset, you can add the static tags to it when it's created; right?

A. But it continues and says, "Further information can be written to tags as situations occur." So it's not really only at the beginning of the creation. It's also at the beginning of the -- of the created and deployed virtual environment.

Q. And the -- I think, if you go to column 4, lines 15 through 18, it refers to dynamic tags, and those are the ones that have information that is

subject to change during the lifespan of the asset; right?

A. That's what it says about dynamic tags.

Q. And so the static tags are static; they're created and they stay the same. And then the dynamic ones are ones that adjust over time; fair?

A. That's how -- no. That's not how I -- because on column 8 -- sorry -- column 4, line 8, it says, "Further information can be written to tags as situations occur." It means that you might have initial information, but that information can be augmented by situations.

So I don't see the static tags as being by -- being static in a way that new information can be added. It says, "Further information can be written to tags as situations occur."

Q. Right. And isn't that -- it doesn't say, Further information can be written to -- to static tags; it says "tags." And the dynamic tags would be written to because that data actually changes; right?

A. I don't think that this is correct, because

it says, "Further information can be written to tags" without specifying static or dynamic. And the discussion continues about -- specifically about static tags after the period. It says "static tags" there. So it doesn't -- it doesn't say that it refers only to dynamic tags. I don't see that here.

Q. So you think that something that is static can actually change?

A. Again I --

MR. ARGENTI: Objection to form.

A. I think you use the word "change." Here is -- we're not trying to change. We're just again adding information to the tag.

So to the extent that addition or adding -- adding further information, I mean, change -- I think "change" means altering information.

Q. You're trusting the interpretation of "static" or "static information" to be alterable?

A. I'm reading the patent, the specification of the patent. I'm not trying to opine on what the patent used for the word "static." I'm reading exactly what it says.

Q. And at column 4, lines 15 through 16, it says, "Dynamic tags 106 have information that is subject to change during the lifespan of the asset."

Do you see that?

A. Uh-huh.

Q. Mohanty doesn't have a similar disclosure that says static tags have information that is subject to change during the lifespan of the asset; right?

A. I don't believe that's the case.

Q. We can go back to your declaration, paragraph 169.

A. Which of my declarations?

Q. Of the '926 declaration.

A. And paragraph?

Q. 169.

A. I'm there.

Q. And paragraph 169 is the start of your discussion of elements 1.5, 14.5, and 15.5; is that right?

A. Yes.

Q. And in paragraph 170, you state that

"Veselov and Mohanty both teach performing CVE assessments that determine the existence of various potential cyber threats based on data stored on the virtual disk"; is that right?

A. That's correct.

Q. In the context of elements 1.5, 14.5, and 15.5, you do not offer an opinion that Veselov or Mohanty determine a risk associated with determining -- or with detecting a cyber threat based on weak encryption schemes; right?

A. Yeah. As I explained in the previous section, "Veselov and Mohanty both teach performing CVE assessments," and as part of that, they "determine the existence of various potential cyber threats based on data stored on the virtual disk, and Mohanty further teaches determining the existence of threats by correlating 'threat information' with the asset's vulnerability data and ... contextual information."

And I continue the discussion there with pointing to different places for Mohanty about that. And, again, that entire 170 paragraph, which I'm not

gonna recite for the -- for the sake of time, explains that reasoning. So while I don't focus on a specific example or a specific weakness, it is clear that -- that there is -- this is -- this is basically -- the threats are related.

Q. What are you contending is the -- in Mohanty -- is the risk, the claimed risk?

A. Is there a question?

Q. Yeah. What -- I -- what is it in Mohanty that you are contending is a risk associated with each of the determined plurality of potential cyber threats?

A. I believe this section describes that.

Q. So, for example, at the bottom of page 161 and extending into 162, you have, "Mohanty further teaches determining the existence of threats by correlating 'threat information' with the asset's vulnerability data and with contextual information describing data stored on the asset and other characteristics of the asset."

Are you relying on the threat score or -- as the risk? That's what I'm wondering.

A. Again, if you go to page 162, please, I clearly say that, "Mohanty explains that the threat score 'represents threats correlated with vulnerabilities based on Threat Impact, OS Supported, Threat Type, etc." That's on 6, 17-20. Score --

Q. So -- and I don't need you to keep reading. I just want -- I just want to ask the question of, so you say Mohanty explains the threat score. Is the threat score what you're mapping to the risk of the claim?

A. Again, I'm not mapping anything. I am using it as a form to express the risk, but that's not -- I mean, others can think of others things. In this specific case, we use a threat score. Yes.

Q. Okay. So in -- in the context of your opinions in your declaration, you're relying on the -- what Mohanty refers to as a threat score as corresponding to the claimed risk associated with each of the determined plurality of potential cyber threats; right?

A. I believe that this is a correct

interpretation, and I would put the caveat that basically this is about, again, a risk of cyber threats. Yes. And again, I will point you, if I may to the -- page 162, "The threat score correlates threat information with vulnerabilities and asset characteristics to get magnitude of impact of threat in terms of threat score," which again is an indication of risk.

Q. Turning to paragraph 173, this is the -- of your '926 declaration, this is the section of your declaration that starts, "Elements 1.6, 14.6, and 15.6"?

A. That's correct.

Q. And you quote the claim element in paragraph 173; right?

A. That is correct.

Q. And in this element where it refers to the potential cyber threats, you understand that to refer back to the detected cyber threats that are discussed in Elements 1.4, 14.4, and 15.4; right?

A. Can you explain to me where you see that? Yeah. The threats there -- it says, "Threats

associated with the protected virtual cloud asset based on the determined risk associated with each of the plurality of potential cyber threats."

Q. Yeah. And so I just -- the -- in element 14.4, you analyze the snapshot to determine the potential cyber threats. And then elements like 1.5 and 1.6 are referring to the same cyber threats, like as an antecedent basis, each of the limitations is talking about the same potential cyber threats; right?

MR. ARGENTI: Objection. Form.

A. I don't know. I mean, I -- I do recognize that this is -- I -- I think that's probably correct, yes.

Q. Turning to paragraph 174, you point to Mohanty's prioritization score as prioritizing the potential cyber threats; right?

A. Yes.

Q. And in the portions of Mohanty that you quote in paragraph 174, it refers to a prioritization score for vulnerabilities; is that right?

A. I believe I say that prioritization scores are calculated based on several component scores, including a vulnerability score, a contextual score, and the previously discussed threat score. That's exactly recited on page 164, and I give some references in Mohanty which --

Q. Sorry, I -- sorry. I don't have a question pending.

If we can -- I'd like to actually discuss -- I've avoided having to say this for a little while -- Basavapatna.

A. So -- I'm sorry. Are we switching from this one? I'm trying to understand.

Q. Yeah. I -- yeah. We'll pull up Basavapatna.

MR. ARGENTI: So before you switch, if Dr. Stavrou had anything further in his answer -- you said you didn't have a question pending. He was in the middle of answering your question.

THE WITNESS: Yes. I --

MR. DAVIS: There was no question pending. You're welcome to ask something if you want on

redirect, but it's not coming out of my time. So if we can --

MR. ARGENTI: The question was, In the portions of Mohanty that you quote in paragraph 174, it refers to a prioritization score for vulnerabilities; is that right?

I'm reading it from the transcript.

MR. DAVIS: Okay. Well, you can feel free to ask that question on redirect. I'll -- I withdraw my question. How about that?

MR. ARGENTI: Objection to form.

MR. DAVIS: And let's go to Basavapatna.

THE WITNESS: Okay. And can you tell me which exhibit you would like me to pull up?

BY MR. DAVIS:

Q. Exhibit 1008.

A. Give me just one second.

Q. Actually, if -- instead of -- let's look at your declaration for the '326 patent, which is where you rely on Basavapatna. And if we can go to paragraph 108 of your declaration.

REMOTE TECHNICIAN: Counsel, do you know

what PDF number that is?

MR. DAVIS: I will figure that out in a second.

THE WITNESS: It's paragraph 108. Is it 101 -- page 101.

BY MR. DAVIS:

Q. And in paragraph 108 of your declaration for the '326 patent, you are discussing your opinions regarding your motivation to combine Veselov and Basavapatna; correct?

A. In that section -- complete section, that's correct.

Q. And you state in, like, the -- I think it's the third sentence, security assessments of physical machines and security assessments of VMs and snapshots of their virtual disks typically examine the same types of data.

Do you see that?

A. I do.

Q. And that's -- you reference that because Basavapatna is directed to security assessments of physical computing assets; right?

A. Correct. But -- but I also want to caveat it that, again, I stand by what it says there, that the process is examining the same types of data.

Q. But -- but Basavapatna, it is not describing virtual assets; right?

A. Again, why it does not describe virtual assets? The data derived from physical assets and virtual assets for the sake of security assessments, were the same types of data.

MR. DAVIS: I'll -- I'll move to strike as nonresponsive after "correct."

MR. ARGENTI: Objection to form.

Q. You agree that Basavapatna -- it's getting late in the day and I'm getting tongue-tied.

There is no disclosure in Basavapatna of virtual machines; correct?

A. Basavapatna performed security assessments, and I have to check the patent itself if there is in fact a mention of a virtual machine. I did not check exactly for that word. If you want me, I can pull up Basavapatna and check.

Q. Sure. Go ahead and check.

MR. DAVIS: Isaiah, while Dr. Stavrou is looking at that, could you actually pull up Basavapatna. I'll just have a couple of questions on that when Dr. Stavrou is ready.

A. I don't see the -- the mention of the word "virtual."

BY MR. DAVIS:

Q. And you're referring to you don't find the word "virtual" in Basavapatna; is that right?

A. I mean -- yes. I'm -- there is a -- the word "virtual," but it's referring to virtual private networks.

Q. And if we can go to paragraph 57 of Basavapatna.

REMOTE TECHNICIAN: Where would I find that, Counsel?

MR. DAVIS: It would be on -- hold on.

THE WITNESS: 12. Page 12 of the PDF.

MR. DAVIS: Thank you. And then it should be at the, sort of, bottom-left quadrant of the page.

///

BY MR. DAVIS:

Q. So paragraph 57 of Basavapatna is entitled -- or starts a section that's entitled "Section 2.1.4, vulnerability detection data."

Do you see that?

A. Uh-huh.

Q. And that vulnerability detection data, you understand, goes from, then, paragraph 58 to paragraph 62; is that right?

A. That's what it looks like.

Q. And then at paragraph 63, it starts a -- Basavapatna starts a new paragraph or a new section discussing countermeasure detection data; right?

A. Correct.

Q. Looking at paragraph 59 of the vulnerability detection data section, Basavapatna teaches that detection data for a given asset specifies what tests were run by sensors protecting the asset as well as the outcome of those tests; right?

A. That's what it says.

Q. And you understand that in the context of Basavapatna, the sensors that it's referring to are

either host-based sensors or network-based sensors; is that right?

A. They can be either or both, yes.

Q. And just in terms of, sort of, terminology, a host-based sensor is another word for a security agent that's installed on the asset; right?

A. In the context -- and I want to caution here, because a host in virtualization or in general, if you have VMI, the agent might not necessarily be installed on the virtual machine. It can be installed on the host that -- that contains the virtual machine.

So here the word "host" is ambiguous in the context -- it's not ambiguous in this context, but if you -- if you take it in a virtualized environment where the agent is installed, as we described -- discussed with figure 3A, from Veselov, it's something that does not necessarily need to be on the virtual machine.

Q. And I'm just asking about Basavapatna, which doesn't discuss visualized machines; right? So for Basavapatna, a host-based sensor is actually

installed on the machine being analyzed; right?

A. In this context, that's correct.

Q. And a -- a "host-based sensor," that's another word for a -- a security agent; right?

A. I don't think that they are identical or we should equate them. There -- I mean, otherwise it would have said security agent.

Q. And then the network-based sensors in Basavapatna are hardware devices and are software in a data communication path between assets 104 protected by the sensor and the network resources that the asset is attempting to access; right?

I'm reading --

A. That's what it says.

Q. -- from paragraph 27.

A. That's what the paragraph says.

Q. Okay.

THE WITNESS: So I want to ask a logistics question, if I may. And I don't want to interrupt your question -- line of questioning. Until what time do we have, and when is going to be our next break, if I may ask?

MR. DAVIS: Would you like to take a break now? Is that why you're asking? Otherwise, it will probably be in 10 or 15 minutes.

THE WITNESS: I apologize. I didn't hear you.

MR. DAVIS: Would you like to take a break now? Or otherwise, it will probably be in about 15 minutes.

THE WITNESS: Not a problem. We can do it in 15 minutes. And until what time are -- are we scheduled to go on for today? I'm just trying to think about things.

MR. DAVIS: I think there's probably a couple more hours left. I'm gonna try to be wrapped up before then, but I think that's the sort of -- seven hours would be.

THE WITNESS: But you -- seven hours is -- 10:00 plus seven is 5:00, right? And we are now --

MR. DAVIS: We can -- we can talk about this -- I mean -- or we can go off the record and talk about this if you want.

THE WITNESS: Let's do that.

MR. DAVIS: Okay.

MR. ARGENTI: Yeah. Off the record.

(A short break was had.)

BY MR. DAVIS:

Q. In paragraph 60 of Basavapatna, at the end of -- at the end of the paragraph, it discusses, "Identifying that a particular asset has an installed or running version of a particular software product can be interpreted to mean that the asset is vulnerable to particular vulnerabilities known to exist on or that are attributable to the particular version of the product."

Do you see that?

A. I do.

Q. And the determination of whether a particular asset has an installed or running version of a software product is gonna be based on the output of the host-based or network-based sensor; is that right?

A. I apologize. Can you tell me where you read that from?

Q. I -- I'm under -- I -- I'm asking if that's

your understanding.

A. But where are you?

Q. For example, paragraph 59 discusses, "The vulnerability detection data for a given asset specifies what tests were run by sensors protecting the asset" -- "asset, as well as the outcome of those tests."

A. Okay. And what is the question about that?

Q. So my question is, where Basavapatna discusses identifying that a particular asset has an installed or running version of a particular software product, that would be something that was detected by either the host sensor or the network sensor; right?

A. These are the two types of sensors that are discussed. That's correct.

Q. And then if we go to paragraph 30 of Basavapatna, Basavapatna discusses a risk metric for each asset and each threat.

Do you see that?

A. I do see that.

Q. In the middle of the paragraph?

A. I see paragraph 30 says -- it says, "Therefore, it is helpful to determine a risk metric for each asset and each threat. The risk metric is a quantitative" -- "quantitative measure of the risk that" is -- "a threat poses to an asset, both in terms of the probability that the threat will affect the asset and the magnitude of the" asset [sic] "that the threat will cause." Yes.

Q. And so the -- the risk metric that's being determined is how problematic a threat is to the particular asset; right?

A. I mean, that's one way of looking at it. I mean, again, the risk metric is a quantitative measure of the risk that a threat poses to the asset. But it also placed it into two -- basically, the probability and the magnitude of effect.

Q. Right. And so the magnitude of the threat would be, for example, like, the whole computer could get taken down or something like that; right?

A. It doesn't specify if the -- where the effect is applied, right? It says "effect." It says that -- "and the magnitude of the effect that

the threat will cause." It doesn't say "for the asset," does it? I don't read it saying that.

Q. For example, if you turn to -- if we go to paragraph 130.

A. So just to be clear, I want to point out the reading is not complete, because if you go to page -- to paragraph 120 -- and I'm trying to answer your question. If you go to paragraph 120, in the middle of the paragraph, it says -- four lines down, it says -- I want to make sure that the court reporter can see the screen. Are -- are we there in terms of the reporter?

REMOTE TECHNICIAN: Yes.

A. I apologize. It's hard to see that. But it says clearly, "However, system administrators, and other users, often want to gain an overall view of their systems. Therefore, aggregating the risk metrics on a per-threat basis, per-vulnerability basis, a per-asset basis, and/or per-asset group basis allows the network monitor to provide such a function. These aggregate metrics can help system administrators determine which metrics, which

vulnerabilities, and which threats, pose the most serious problems for a system. Each of these aggregate risk metrics is described in more detail below."

So it talks about the systems here. It doesn't talk about an asset. So I want to be clear that this is basically important.

Q. So when it talks about -- so I -- I think an example in Basavapatna, if we look at figure 1, is that it has five -- what looks like five laptops; right?

A. Let me go there. I apologize. I'm scrolling --

Q. Figure 1 of Basavapatna.

A. Yeah. Figure 1 of Basavapatna has a bunch of sensors and a bunch of laptops connected to that.

Q. And so when it -- when Basavapatna is discussing a view of the system, it might be that it's -- you have five -- five computers?

A. Absolutely. And I want -- this is further reinforced on the -- on the -- basically on the out -- on the "Background" paragraph too. It says,

"A system of assets can be connected over one or more networks," which is illustrated. And then on paragraph 3 it says, "Each asset in a system of assets can be at risk from multiple threats at any given time."

Again, it talks about -- assets independently or a system of assets.

Q. And the -- the risk of threats to each asset could be used to determine, you know, which of these assets should I try to remediate first; right?

A. Again, if you look at it as a system of assets, not just a single asset.

Q. As -- as a system of assets, if I had five of them and they -- they just all may have different vulnerabilities or threats associated with them, and so it seems like the -- the aggregate risk score is just gonna look at -- or the system level risk score is looking at, you know, what is the risk to all of the assets individually in the system; right?

A. Yes. And again -- and again, I'm reading from my declaration and I don't want to freeze. It says, "Risk metrics" --

On page 98, it says, "Risk metrics can be generated to illustrate or assess the risk evident in particular assets by virtue of the asset's exposure to a particular vulnerability and thereby also, in some instances, an associated threat known to exploit the particular vulnerability."

So it talks both about assets and systems of assets.

Q. And if you -- if you go to, for example, paragraph 137.

A. Let me switch. I apologize.

Q. In this paragraph, Basavapatna is describing a process for aggregating risk metrics on an asset group basis; right?

A. That's correct.

Q. And the aggregate risk metric looks at the risk metric for each asset in the group and then just combines the aggregate risk metrics using statistical techniques by taking a mean; right?

A. Those are examples, but yes.

Q. The aggregate risk metric doesn't take into account how important any one computer is to the

system itself; right?

A. I believe that -- I'm not entirely sure that this is correct. Because if you go to figure 2, which is on page 3 of the PDF -- give me one second. I need to switch to that figure. And again, I'm looking at figure 3. You know, it -- it talks about -- you know, it talks about other things.

For example, it talks about, you know, detection score. It talks about threat vectors. He has basically counter-measures, what I did -- asset configuration data, and basically other vulnerability details.

To me -- and counter-measures not protecting the asset and counter-measures protecting the asset. All of that has been considered. So again, the asset is a -- is a member of the system, and then -- but there are different ways of -- of doing that.

Like, aggregate risk metrics -- and I'm citing 120 from Basavapatna -- "aggregate risk metrics can help system administrators determine which metrics, which vulnerabilities, and which threats, pose the most serious problems for a

system."

So I mean, there are different metrics. So I mean, it's not -- it's prescribing which metrics that are gonna be used. That's what I'm trying to say.

Q. Okay. It just -- it sort of leaves it open to, you know, how you're gonna implement it?

A. Yeah. It also -- it -- in paragraph 138, it says clearly, "Ranking assets, Vulnerabilities, and/or threats according to aggregate risk scores allows a user to quickly identify which assets are most at risk, or which Vulnerabilities and threats are most dangerous for a system."

But again, it leaves it open because there are different ways of -- of -- different organizations have different types of threats that they're worried more about. So that -- that's not prescribed in the singular -- singular function here.

MR. DAVIS: Let's take a five-minute break now. And then --

THE WITNESS: Okay.

MR. DAVIS: -- we can come back, do a little bit more, and then you can -- we can take another break.

(A short break was had.)

BY MR. DAVIS:

Q. If we can pull up Mohanty.

A. Are we switching from Basavapatna? I just want to understand.

Q. I'm sorry, what?

A. Are we switching from Basavapatna?

Q. Yeah. We'll look at Mohanty.

A. Give me just one second. Sorry. And which declaration do you want me -- okay. Let's start at 1.

Q. I just -- I just have questions on Mohanty itself. And --

A. I'm trying -- go ahead.

Q. Mohanty at column 1, lines 11 through 17, refers to traditional vulnerability assessment VA products which scan machines to report vulnerabilities.

Do you see that?

A. Again, column 1, you said? Which line?
Q. Line 11 is where it starts.
A. I see.
Q. You understand, in the context of Mohanty, that "traditional" vulnerable -- "vulnerability assessment products" is referring to agent-based systems for physical computers?
A. Where do you see that?
Q. I'm asking if that's your understanding.
A. I don't know exactly what Mohanty tries to compare against. It says, "Traditional Vulnerability Assessment" products. I really don't know.
Q. That's a --
A. The time -- or there's a time associated with this patent. And also, I don't know if it gives any more information than just "Traditional Vulnerability Assessment products which" can scan -- "scan machines to report vulnerabilities have difficulties in a virtualized environment."
I -- I don't know what "difficulties" refers to or what additional assessment means.

Q. Okay. So reading Mohanty, you just don't know what -- what they're referring to with respect to "Traditional Vulnerability Assessment" products?

A. Again, vulnerability assessment products evolve over time. I need to see the timeline that Mohanty specifically talks about.

Q. And I think Mohanty is dated June 27, 2017.

A. I will take your word for it. Yes.

Q. So at that time, you would have understood traditional vulnerability assessment -- oh, that's the date of the patent. It was actually filed November 11, 2014.

A. Yes.

Q. So as of 2014, traditional vulnerability assessment products would have been things that you install, like a McAfee that you install onto a computer; is that fair?

A. That would be an example, I guess.

Q. At column 6, line 54 through 58, Mohanty describes --

A. Can you go there? You said column 6?

Q. Yeah, column 6, line 54 through 58. A

little further down to the bottom right. Yeah, there we go.

And it refers to "a standard 314, for example a VA scanner by QUALYS or RAPID7, performs vulnerability checks (i.e., scans) on the virtual machines 318 and the virtual applications 320."

A. I see that. These are exemplar products. Yes.

Q. And those exemplar products would have been understood to be agent-based solutions that are installed on a virtual machine; right?

A. I'm not sure how they were implemented. I mean, I have to check. But I think that -- yeah, I have to check.

That's not -- I mean, I don't have description of these products, these exact products, because they are from way back, so I -- I would need to understand more about the products to be able to tell you if they're agent-based or not.

Q. As part of your investigation in forming your opinions for your declaration, did you investigate whether those are agent-based products?

A. If you point me to my declaration where I opine on that, I would be -- I -- I don't -- my declaration is very large, and I have three of them in front of you. If you point me to where in my declaration I say that these are agent-based products, I would be happy to oblige.

Q. I don't think you address it.

A. Then if I don't address it, it means that I didn't look at it.

Q. Okay. And I believe you answered it earlier, but Dr. Kaeli opined that QUALYS and RAPID7 at the time were referring to agent-based products.

You have to reason to disagree with that; right?

MR. ARGENTI: Objection. Scope.

A. I have not looked at what -- and I don't want to mispronounce the name, so the expert that you mention -- has or has not said, and I don't know the context at which it was said.

And, again, I want to point out that these are just exemplar products. The most important part is that the teachings are -- you have to point me

where Mohanty is -- is -- Mohanty teachings are only applicable to agent-based products. I don't -- I don't read it like that.

Also, given in Veselov and what Veselov teaches, it -- it would have been obvious to a POSA to combine because they -- they -- the -- the type of data that Mohanty and Veselov reference for their analysis are very, very similar, if not identical.

Q. In the context of -- in your declaration, do you --

A. Which declaration, sir?

Q. Your declaration for the '809 or the '926 patents.

A. You have to point me to which one of those two.

Q. Well, no. I -- I don't think that this exists, and so I'm asking you a question, which is, you don't offer an opinion that taking a snapshot of a virtual cloud asset would also include any of its tags that are discussed in Mohanty; right?

MR. ARGENTI: Objection. Form.

A. I mean, I don't opine either way because, I

mean, I -- the information is the state of the virtual machine that the snapshot captures. So I'm not claiming either that it does or it doesn't, because I don't know what the snapshot data would look like.

If the tags were present inside the snapshot, inside the virtual disk or memory, then the snapshot information should or could potentially have captured that information. Without context, I cannot answer that with "yes" or "no."

Q. Because Mohanty describes that in order to provide contextual information, you need to have those tags. That is the way that Mohanty determines context; right?

A. Again --

MR. ARGENTI: Objection. Form.

A. Again, a person of ordinary skill in the art would not -- would take the teachings of Mohanty and Veselov and would try to combine them, but not as a puzzle -- this information from here, this information from there. It's clear that the combination of Veselov and Mohanty was well-known

techniques to perform the same predictable functions.

And, again, I'm not gonna go into my declaration -- for example, '809 -- but I have an extensive section that I discuss the reasons to combine, and I'd like you to point you on that for the sake of saving time.

Q. Which ...

MR. DAVIS: Can we pull up a different exhibit, which is Exhibit 1084, Czarny?

THE WITNESS: Give me some time to find it.

REMOTE TECHNICIAN: What's the name of that one again, Counsel?

MR. DAVIS: It's C-z-a-r-n-y.

REMOTE TECHNICIAN: Gotcha. Thank you.

MR. DAVIS: Which I say as Czarny, but I couldn't tell you if that is correct or not.

THE WITNESS: I'm laughing because I have the same problem as you do.

BY MR. DAVIS:

Q. Czarny. If you can go to column 7, lines 46 through 67.

A. Give me just one second. You said line ...

Q. 7, 46 through -- yeah. So this paragraph on the left.

A. Okay.

Q. In the -- I guess the second sentence, it starts "In some embodiments, the security vulnerability level may be provided as a score value indicating a level of vulnerability of the target device 103"; right?

A. I read that. Yes.

Q. And the risk that is -- that Czarny is looking at is to determine whether or not a target device should be granted or denied access to a secure environment; right?

A. Where do you read that? Give me one second to orient myself too because I maximized my screen.

Q. Yeah. It's the beginning of this, like 7, 46 through 50.

A. 46 through 50. It says -- yes. It says, can analyze the security vulnerability level of a target device to determine whether to grant an access by the target device in a secure environment

104. That is correct.

Q. And so what the -- the system is looking at is the risk of the -- the risk of the particular asset before it becomes part of a distributed computing -- distributed computing system; right?

A. Where do you read that, actually? I don't read it like that.

Q. Well, right. Because it's determining whether to grant or deny access of the target device to the secure environment, so, presumably, when it's determining the risk, it's before it's within the secure environment; right?

A. I'm reading that this is one embodiment. I'm not entirely sure that this is a restrictive of Czarny.

Can you point me to where it says that that's the only way that it can happen?

Q. I mean, I've -- I've pointed you to where it discusses this. And so that's -- at least in the -- in this context, you'd agree that this is determining risk before it is part of a distributed computing environment; right?

MR. ARGENTI: Objection. Form.

A. Again, I believe that we -- what you're reading is correct, and I would agree with you for that specific section in that specific small part of the specification, that's what it says, yes.

Q. And you agree that Czarny doesn't disclose or discuss virtual assets; right?

A. I have to check. Give me some time to check.

I believe Czarny, while it does not discuss virtual assets, I believe the reason for us -- the -- the -- the way that -- that a POSA would have understood the combination of what Czarny does with Veselov would be depending on the teachings, not the fact that it's actually applied to a specific virtual environment or a physical environment or a set of info. It has to do with basically the way that the security reporting is performed.

And, again I'm not gonna -- I can point you to my one of my declarations that discuss Czarny and the reasons to combine.

Q. And I'm -- and I'm just asking that Czarny,

it just -- it doesn't talk about virtual assets or virtual cloud assets. That's just not what it's directed to; right?

A. Yes, but the type of information obtained in the vulnerability reports from physical assets can be combined with virtual assets because we're trying to take teachings between Czarny and Veselov, which is using the vulnerability scans in a virtual cloud -- in virtual cloud assets and resources.

So while Czarny does not mention that specifically, we are not relying on that for us to do the combination.

Q. And in your proposed combination, you're not relying on Czarny as disclosing analyzing snapshots to detect cyber threats or vulnerabilities; right?

A. For which specific declaration are you talking about? And if you can point me to a specific section that you are basically referring me to, I will be happy to answer that question.

Q. In either the '809 or the -- in either the '809 or the '326 patents.

A. Okay. Again, I will point you to page 225,

section A of my '809 declaration, where I explain the reasons to combine Veselov, Mohanty, and Czarny.

And, again, the combination in page 226, if the reporter can pull it up because I'm gonna read a little bit of that.

Q. To be clear, I'm not -- I'm not -- let me clarify my question, which is, what you are relying on Czarny for in the combination is only elements 1.8, 16.8, 19.8 from the independent claims; right?

A. Let me double-check, sir.

Again, on section 13, I use the combination of Czarny for claims 1, 16, 19, 6, 17, 7, and 18 for the '809 patent in my -- in my declaration. But also in Grounds 3 and 4, Czarny is present on Claim 11 with Veselov, Mohanty, and Hutchins with or without Czarny. Again, page 240.

Q. Yeah, I'm looking at paragraph 207 -- 269 of your '809 declaration, which it appears to me that the only element that you're relying on in this combination is elements 1.8, 16.8, and 19.8?

A. Are we talking about '809 patent?

Q. For the '809 patent.

A. Yes. I believe it says Claims 1, 16, and 19 on 233, page 233. If we can go there. I just want to --

Q. Right.

(Unreportable crosstalk.)

A. Yes, you're right. For that, it says Claims 1, 16, and 19, and elements 1.8, 16.8, and 19.8, correct, for that specific section, yes.

Q. Yeah. And so you're not relying on Czarny as disclosing or rendering obvious any of elements 1.1 through 1.7, 16.1 through 16.7, or 19.1 through 19.7; right?

A. I believe that this is correct. But I'm using it for other claims too.

Q. Right, some of the dependent claims. Just, I'm just focused on the independent claims.

A. I'm sorry. Yes. Now that you qualified it, I agree with you.

Q. And for this element 1.8, 16.8, and 19.8, you're not relying on Czarny for teaching -- strike that.

MR. DAVIS: Can we please pull up Ranum,

R-a-n-u-m?

THE WITNESS: Do you know exhibit number?

MR. DAVIS: 1093.

THE WITNESS: Thank you.

MR. DAVIS: Actually, do you want to take a bit of a break?

Or when is your family gonna be coming home?

THE WITNESS: I told them that we would try to power through and try to finish sooner, so I kind of sent them to eat outside --

MR. DAVIS: Oh, okay.

THE WITNESS: -- and allow me to -- and I apologize for that, but I had to do it because I don't want to give distraction while we do this.

BY MR. DAVIS:

Q. If you look at the abstract of Ranum, Ranum is directed to active network scanning and passive network monitoring; fair?

A. I think that it says also -- further down the abstract it says, "Furthermore, running process and file system activity may be monitored in the network to further detect malware infections."

Q. Right. That's still using the network scanners -- network scanning and passive monitoring?

A. Yeah, but I want to -- yes, but I want to point out that it's -- while it's on the network, it is referring to things that are present in the host, like the running processes and file system activity not happening.

Q. Ranum -- Ranum uses active network scanning and passive network monitoring to analyze malware that may be on an actual device; right?

A. Again, it clearly says -- in the abstract, it says, "managed hosts in a network to compute hashes or other signatures associated with processes running thereon ... suspicious files hosted thereon."

So while it's running on the network, it talks about information present inside the host.

Q. Active network scanning and passive network monitoring are different security assessment techniques than what is disclosed in Veselov; right?

A. While they are -- on the face of it, it looks different, they rely on similar information.

That's important here. So we are not relying on different set of information.

So, for example, Veselov does -- would be able -- scanners in Veselov would be able to get -- host suspicious files, as we have discussed, or files in general. And malware signatures, again, it talks about malware signatures that various antivirus vendors have cataloged to detect malware infections. All of these agree with me that McAfee would have been the scanner or host.

So these things are present in a host. And the data here, the important part is that the data that Veselov analyzes and what Ranum is talking about are similar. Some of them might not be. So they're not identical. And then Ranum might have more information about the network. But there are -- there's an overlap. That's what I'm trying to say.

Q. So your point is that all of the things that the -- the targets being analyzed are similar and all have similar data on them, and therefore, you can combine lots of different security analysis

techniques; is that right?

MR. ARGENTI: Objection. Form.

A. I believe that what I said is a little bit different, that scanners for both -- both of these -- both of these patents would have been relying on similar data that would have been extracted from a host, similar to what, for example, a snapshot information -- information a snapshot could have been used to basically identify a malware in running applications, and I believe that Ranum here is used -- the teachings of Ranum are applied to -- specifically to, I think, '926 patent, at least where Ranum discloses, you know, threats based on particular types of data, important threat-risk levels, and comparing computed cryptographic classes of disk files to area hashes for security assessments.

Q. And that's -- the discussion of security hashes is not something that Veselov itself discloses; right?

A. If would have been clear to a POSA that when you compare applications to a known list of

application similar, or you perform scanning of a -- of a snap -- a snapshot, that one of the techniques that were present at the time is comparison -- magnetic comparison, cryptographic comparison -- because that would actually be something that some of the CVEs would convey a signature, basically, but it would have been in a cryptographic hash.

So to perform the machine, a POSA would -- while Veselov does not explicitly say that, a POSA would have understood that this is one of the ways to perform that (indiscernible), yes.

Q. A network scanner -- active network scanning and passive network monitoring are only detecting activities of active instantiated VMs; right?

A. Again --

MR. ARGENTI: Objection to form.

A. -- I want to point out that while your statement is correct in some cases, it's not correct in general, and let me explain why.

Because information -- as we have agreed, the information that's contained on the snapshot contains the information of a state of the virtual

machine. That allows you to be able to understand, for instance, which processes were running, which applications were installed, which similar applications were running. That type of information would have been available with the network and passive scanning that Ranum suggests.

So the combination would have allowed -- the scanners would have been relying on similar information that -- the same type of information that both Veselov, Mohanty, and Ranum would have worked off of to create, basically, the -- the scans, the security assessments.

And here --

Q. And that's --

A. Yes, sir.

Q. That's what you're referring to in Veselov where it has the duplicate instantiated VM, for example, that's discussed in column 16 and in column 21 of Veselov; right?

A. I believe this is one example. But I want to point out that the snapshot information would have a state of the virtual machine that would have

allowed to identify applications and running applications too, because of the memory, and it would have allowed us to be able to feed the sensors, the scanners, and generate information that Ranum was also relying on.

And while Ranum achieves the same goal, potentially using different types of sensor, the type of analysis in machine is -- can be applied. The teachings of the machine of Ranum can be applied to Veselov.

Q. Can we go to column 10, lines 34 through 41?

A. Let me do that.

Q. And here Ranum describes "active scanners 110 that can communicate packets or other messages within the network to detect new or changed information describing various routers ... hosts ... servers ... or other devices 130 in the network."

Do you see that?

A. Uh-huh.

Q. It would not be possible to send or communicate packets or other messages to a snapshot

as a data file; right?

A. It's not through the data file. It doesn't have active processing.

Q. Right. Because it doesn't have any active process, you can't send a message or a packet to it?

A. Again, I want to point out -- and, again, I don't know if it's clear, but a POSA would have understood that if you have scanners that obtain the same type of information to create a port, a security port, the way that you obtain that information is -- it might be -- it might take place different ways.

So here Ranum is talking about how to obtain that information for running processes, files, and host information through the network, and this is valid on its own and perform, basically, the machine using cryptographic hashes.

In Veselov, this happens differently. So it doesn't mean that it cannot happen.

Q. Yeah. And my question is a different one -- I think maybe a simpler one, which -- I just want to make sure that I'm right that because a snapshot is

a data file, does not have any active processing, it would not be possible to communicate messages or packets to it as described in Ranum?

A. That is correct. And, again, I don't -- I don't believe that we're using the teachings of the network here for the combination.

Q. If you go to column 16, line 47, this is the start of Ranum's discussion of figure -- figure 3 as an exemplary method that may use to provide strategic anti-malware monitoring in a network.

Do you see that?

A. I do.

Q. And that discussion continues on to column 17; right?

A. That's correct.

Q. And looking at 16, 47 through 57, Ranum discusses determining if any processes currently running on managed hosts in the network match known malware signatures using an active scanner; correct?

A. Can you tell me exactly where you read that?

Q. 16, 47 through 57. It says -- I guess it's line 51 through 54 -- 55 -- that the method shown in

figure 3 "may generally use one or more low-latency third-party information feeds and leverage credentialed scans that may be performed with one or more active scanners to determine if any process currently running on managed hosts in the network match known malware signatures."

A. Yeah. I want to point out that it starts earlier. That says, "According to one aspect of the invention."

Q. I --

A. One example.

Q. Completely agree.

I'm just asking, in the context of figure 3 and the discussion on 16 and 17, Ranum is determining processes currently running on managed hosts in the network using an active scanner; is that fair?

A. That's what it says, yes.

Q. And then in column 17 where Ranum discusses -- let me start over.

In column 17, Ranum discusses cryptographic hashes on every file on the known reference systems,

is comparing those cryptographic hashes to the data that was collected using active scanners; right?

A. I mean, I believe it says at the -- at the top of column 17, it starts with, "In one implementation, to provide the strategic anti-malware monitoring in the network, an operation ... may include indexing of one or more trusted files systems to create tables or manifests that list file hashes, file names." That is not associated with an active scanner. That is associated with a file system which is a host element or other unique signatures.

And it continues -- I can continue if you like. It says, "For example, in one implementation, the reference system may include a cleaned system shipped from a suitable vendor that can be trusted to have no malware infections." That refers to -- I believe that refers to a system, meaning a host.

Again, "In another example, the trusted file systems may correspond to computer systems that have been pre-configured to only include default operating system files, valid patches, and other

files that are installed (or should be installed) on all devices in the network." And it gives an example of Windows 7 computer. To me, that refers to a host. It does not refer to a network -- active network scan.

Q. Yeah. So that's -- what you were just reading about is the trusted file systems --

A. No, sir.

Q. -- as a reference system?

A. Not really. I'm saying that it says files installed or should be installed on all devices, including a Windows 7 computer.

And, again, it continues further down on 17, "As such, in one implementation, operation 310 may compute complete cryptographic hashes on every file on the known reference systems."

Q. Right. But pause.

What are the known reference systems? Those aren't the running systems in the network.

A. Yeah.

Q. They're a reference; right?

A. Yeah, of course. But -- but you have to

admit that these are hosts, and the file system is in a host. It doesn't have a shred of network. There's no -- the word "network" does not appear a single time on 17, the first part of 17. Not a single time.

Q. Right. Because the -- everything you just read is talking about the trusted file system that's using -- used as the baseline comparison.

None of those are scanned; right?

A. Again, it refers to a host. It doesn't --

Q. Hold on. But am I -- am I wrong --

MR. ARGENTI: Objection. Form.

Q. -- or am I correct?

A. Again, you are wrong about what, sir?

Q. That everything that you just read from the beginning of column 17 is talking about -- it's talking about the trusted file systems and the trusted reference systems.

A. But I want to point out that the cryptographic -- so how you call a system, if you call it trusted or not, it does not make it less of a system -- the host, the computer. You can call it

trusted or untrusted, based on the patent, but it's still a computing system, a computer.

So it doesn't talk about -- here, it does not refer to any network element. It refers to specifically operations that happen on a computer. You can call it trusted. You can call it untrusted. You can call it other names. But this is a host.

Q. And you're -- what -- in terms of the things that are actually in the network that you're scanning, it's using active scanners to determine what is on that system; right?

A. Again, when it talks about cryptographic operations, it talks about file systems and a host. And, again, I -- I can point you a little bit further down on 17.

Q. Yeah, can you go all the way to 17, 49 through --

A. No. I would like to -- so I want you to go to 24. It says, "However, those skilled in the art will appreciate that any suitable technique may be used to index the trusted file systems ... based on file sizes and cryptographic hashes on beginning

blocks, ending blocks, or other selected portions associated with the files."

Those files cannot be accessed externally from a network. It has to be on the --

Q. Hold on.

So, but that discussion is also in the context of "the reference system may include a clean system shipped from a suitable vendor that can be trusted to have no malware infections."

So it is -- it's indexing. It's not -- in the context of the trusted file system, it is not determining or detecting vulnerabilities or malware; right?

MR. ARGENTI: Objection. Form.

A. It doesn't say if it does or it doesn't. It's a process that is done to identify potential malware. It does not -- it does it as a form of comparison here.

We do not -- we -- the reason that we create that release and this cryptographic release is to be able to potentially ferret out malware. In order for it to be -- in order for that -- for the system

to be deemed distrusted, it has to basically detect.

So one way of reading that is that it's being performed in a manner to create a full list of files with cryptographic hashes on the reference system to index the trusted file system associated. It says that on 21 to 25, column 7. I'm reading from the patent.

Q. Yeah. And in that section of column 7 that you're reading from, there is no malware, there are no security threats that it discusses detecting -- right? -- none.

A. Again, I want to point out that it creates a baseline for comparison --

Q. Yeah, right.

A. -- for it to be able -- but in that baseline, there is nothing that tells me or anyone that malware was not present when the scan was performed or was present. It doesn't say anything about that.

Q. What about 17, 9 through 12, where it says you get a "clean system shipped from a suitable vendor that can be trusted to have no malware

infection"? You're saying that doesn't tell us that there's no malware on it?

A. Again --

MR. ARGENTI: Objection. Form.

A. -- I want to point out -- give me -- let me explain to you. This is -- this is --

Q. I'm very skeptical.

A. Let me --

MR. ARGENTI: Objection to form.

A. I don't believe that you are -- again, it says known to have no malware infections, wherein the file hashes may include cryptographic hashes. But then it says, "For example." It says, how to, "For example, in one implementation, the reference may include a clean system shipped from a suitable vendor that can be trusted to have no malware infection." In another example. It's -- this is -- you admit that this says another example.

Q. Let me ask you a different question. I understand your point. I understand your point.

A. If it was the same example, then why would we have to say it in another example?

Q. Sure. And just, in column 17, 49 through 54, you agree that it -- it does discuss detect potential virus or malware infections on the scanned hosts, and it specifically does that using active scanners; right?

MR. ARGENTI: Objection. Form.

A. Again, in that specific section, in that specification example, that might be true.

So I want to point you --

Q. At 17, 54 through 50 -- through 62 -- hold on. I have a question.

In 17, 54 through 62 --

A. 54 through 62, yes.

Q. -- it also describes that it's active scanners that may perform a credentialed scan in operation to inspect and enumerate all processes running on the scanned hosts and generate lists that include hashes corresponding to the enumerated processes; right?

MR. ARGENTI: Objection to form.

A. I will again repeat this is an example and it validates what I told you later, that this active

scanning performs a credentialed scan that requires host information and also inspect and enumerate all processes running on the scanned hosts. It says scanned hosts.

That information is the same type of information you would have obtained in Veselov to create a security assessment. My point being is that you have different ways of accessing common information that would be necessary for security assessments.

In this case, in these specific examples, it uses an active scanner, but it performs exactly the same type -- it will yield the same type of data that a would -- POSA would have understood that would have been common to be used in a security assessment even if it was obtained through a different mean.

Q. If you can turn to your declaration for the '326 patent.

A. Which page?

Q. Paragraph 246.

A. It's on page 200 for the PDF. I'm there.

Q. You rely on Ranum as disclosing elements 1.4, 14.4, and 15.4 of the '926 patent; right?

A. Where do you see that? I'm trying to see it because you point me to a paragraph. I don't know which section Ranum refers to. Give me just one second.

I believe 246 talks about Claim 13.

Q. Yeah. I think I -- sorry. I said the wrong -- the '926, not the '326. I apologize. That was my -- that was my mistake.

A. That's why I was trying to understand the question.

Q. It was quite confusing for me too because I was looking at it and it did not match up with what I thought I was gonna be asking about, but I think it will be much better when we're looking at the '926 declaration and looking at paragraph 246, which is on page 219 of the PDF.

A. If you go too long, I will ask for a break, but if you think that you can finish sooner than later, then I will withstand, because I believe we're at 5:22 Eastern, and I don't know --

MR. DAVIS: You know, I probably have -- depending on how fast this goes, I might have, like, 15, 20 more minutes. So if you want to take a five-minute break right now, that way, I can sort of go through my notes, make sure that I kind of have -- because I'll want to do that at some point. So if you want to take a five-minute break, we can do that, and then --

THE WITNESS: (Indiscernible.) If you think we can finish in the next 15, 20 minutes, I will do it.

MR. DAVIS: Okay. I'll probably want to take a five-minute break at the end. I can just -- I can do it now. Because I'm going to want to go through my notes and make sure I'm not forgetting something.

THE WITNESS: Up to you. If you want to continue, we can. If you want to break, we can break. I'm not --

MR. DAVIS: Okay. Let's keep going.

BY MR. DAVIS:

Q. Okay. So in paragraph 246, you start

discussing elements 1.4, 14.4, and 15.4; right?

A. That's correct for '926.

Q. And then in paragraph 247, you state, "As I explain below, Ranum provides additional express disclosure of detecting threats that are based on weak encryption schemes, unencrypted sensitive data, personally identifiable information, and weak passwords"; right?

A. I believe that's correct.

Q. And other than the weak encryption schemes, unencrypted sensitive data, personally identifiable information, and weak passwords, you are not opining that Ranum discloses any of the other types of listed cyber threats found in the data claimed in elements 1.4, 14.4, or 15.4; right?

A. Again, to the extent that Ranum depends on CVEs, or CVE information is used, I want to caution that these are just examples.

Q. For purposes of your declaration, these are the only ones you identified, and you didn't identify the other ones; right?

A. Again, if you go down to page 217, please.

It talks in general about sensitive data that the assets contain. And it's bolded there. And, again, whether passwords for users -- again, if you go down a little bit. Yes, sensitive -- whether passwords for users associated with the assets comply with certain policies, whether assets that contain sensitive data such as credit card information, comply with policies and on -- and/or industry best practices.

Again, I want to explain that industry best practices, they cover big swath of potential vulnerabilities. And while this specific section discusses specific examples, it also talks about best practices in general and also sensitive data in general.

Q. I mean, this could take an hour if -- if we have to go through -- because, I mean --

(Unreportable crosstalk.)

A. If we have to -- if we have to -- like, I mean, I'm not gonna change --

Q. I know, but you -- you have in your declaration and you say that this express

disclosure -- so let me -- let me ask.

Like, where in your declaration do you opine -- not -- I'm not talking about what might have been in there that you could have put. I'm talking about where in your declaration do you say that there is an express disclosure of Ranum, that it discloses or renders obvious disabled address-based layout randomization?

A. Again --

MR. ARGENTI: Objection. Form.

A. Again, I want to caution that some of these are very specific and they fall into broader categories of vulnerabilities, including things that, for example, industry best practices would have identified based on configurations, as I have explained.

So I don't want to give you any precise answer in the sake of saving time.

Q. Where -- where in your declaration do you say that? Where in your declaration do you opine that the address -- disabled address-based layout randomization is as part of a broader category of

CVEs? Tell me where that is in your declaration, or tell me that it isn't in there and you're coming up with it now, which is okay, but I'm gonna move to strike it because I'm asking you -- my question is, in your declaration, where is the opinion?

MR. ARGENTI: Objection. Form.

Q. That's all I'm asking: Where in your declaration?

A. In my declaration, I talk about industry best practices and best practices in many different places.

Q. Where do you say industry best practices includes determining disabled address-based layout randomization? Where is that in your declaration?

MR. ARGENTI: Objection. Form.

A. Again, my declaration is not meant to be inclusive of all possible vulnerabilities that someone can come up. My declaration refers --

Q. Okay. Hold on. Answer my question.

Where in your declaration do you address disabled address-based layout randomization? That's it.

MR. ARGENTI: Objection to form.

Q. That's my question. I want a paragraph number and that's it, please.

A. While my declaration does not have that mentioned specifically, it is part of a category of vulnerabilities that specific policies or best practices could have identified based on the understanding of a person of ordinary skill in the art at that time.

And I will keep saying that because -- you can go through all the entire list, but I want to be clear that while there are some examples in my declaration, I also talk about best practices, which would have encompassed more than just singular examples that are in my declaration. And as long as we understand that these best practices, a POSA would have understood that they could have covered some of these class of vulnerabilities, we are on the same page.

MR. DAVIS: I'm gonna move to strike and note for the record that Dr. Stavrou is unable to point to any paragraph in his declaration where such

an opinion exists because it isn't in his declaration.

Q. I'm gonna move on to my next question.

At the bottom of page 217 of your declaration, going on to page 218, you have a quote from Ranum at 13, 54 through 14, 3.

Do you see that?

A. That's correct.

Q. I see that the word "snapshot" appears in the second and fifth line of that quote. Just want to confirm that that snapshot is not a snapshot of a virtual cloud asset or a virtual disk of a cloud asset.

Do you agree?

A. That's correct. It refers to different type of snapshot.

Q. And you do not offer any opinion in your declaration that Ranum is analyzing snapshots of a virtual cloud asset; right?

A. I don't believe so.

Q. And Ranum does not teach or suggest that active scanners can be used to analyze snapshots of

virtual cloud assets; right?

A. I don't think that this is here.

Q. In each of your declarations for the '809, '326, and '926 patents, for example, just as an example, on the '926 patent, in paragraph 17 and 18, you refer to --

(Unreportable crosstalk.)

Q. Oh, go ahead. Let me know once you're there.

A. I think we should all go there.

Q. Yeah. So page 11 of the PDF.

A. I'm there, sir. I think it's 10 but might be wrong. 17 is 10.

Q. Yeah. Sorry. Okay. It starts on the very bottom of page -- PDF page 10.

And this is where you note your -- I assume you were advised by counsel about the legal standards for secondary considerations of nonobviousness?

A. Yes.

Q. And in paragraph 18, you state that you have been advised there are several factors that may be

considered as a secondary consideration, including commercial success, industry praise, skepticism, licensing of the invention, copying the invention, any long-felt need that the invention solved, failure of others, and unexpected results of the invention; right?

A. That is correct.

Q. And you understand that the purpose of secondary considerations is to prevent hindsight analysis of the obviousness of the claims; right?

A. I don't see it listed here anywhere.

Do you -- can you point me where you see that?

Q. Yeah. It's the sentence at the -- it's the last sentence of paragraph 17 of your '926 declaration.

A. Ah, yes, that's -- you are correct. I'm sorry, sir. Yes.

Q. And nothing in your declaration for the '926, the '326, or the '809 patents addressed or applied any of these recognized objective indicia of nonobviousness to guard against hindsight; right?

A. I have applied the legal principles listed in paragraphs 17, 18, and 19. I am not aware of evidence of nonobviousness even though I have run through a lot of exhibits. I had a lot of evidence of obviousness, but I did not -- I'm not aware and I didn't run into any evidence of nonobviousness.

Q. You don't have any discussion of any evidence of copying of Orca's inventions in any --

A. Again --

(Unreportable crosstalk.)

Q. Right?

A. I will repeat. I will -- I am not aware of any evidence of nonobviousness, and I applied 17, 18, and 19, and I went through dozens and dozens of exhibits included in this declaration, but I did not run into any evidence of nonobviousness.

Q. And so, just, it's true that your -- and this is the same question that was asked of you in the '031, the '032, and the '685 patents.

Nowhere in your declaration do you offer any opinions where you specifically discuss copying, industry praise, long-felt need, skepticism,

commercial success, or acquiescence or acceptance of the patented inventions; right?

A. If you can refer me to my declaration transcript where I discuss that, I will be happy to answer.

As far as I can tell from this specific set of patents, I don't -- I mean, unless you point me, based on memory -- which, again, it can be flawed -- I don't discuss secondary considerations of nonobviousness, as I was not aware of any evidence of nonobviousness.

Q. Are you aware and have you looked or done any analysis of Orca's side-scanning technique?

MR. ARGENTI: Objection. Form.

A. I'm not familiar with that technique, and I have not run into any exhibits that refer to that. If you can point me to an exhibit that talks about that, I will be happy to discuss it.

Q. And you're not aware -- you haven't done any analysis of, for example, Orca's products or Orca's success in the market?

A. I have not looked into -- I have not

performed any market research for Orca.

Q. In your mind, as a person of ordinary skill, what would be some examples of what would constitute copying of an invention?

MR. ARGENTI: Objection. Form. Scope.

A. I have not considered such a question for these specific patents. I was --

Q. How -- how could you apply the -- the factors of secondary considerations, including copying of the invention, if you don't have any idea what it might be?

MR. ARGENTI: Objection to form, scope.

A. I didn't say that, sir. I said that I have not -- in my -- the -- in the exhibits that I present as part of my declaration, I did not see any evidence of nonobviousness or copying. So unless you can point me to an exhibit that discusses that specifically, I won't be able to help you.

Q. Do you think that it would be evidence of copying if a company were to use or maintain copies of the patents themselves and use them as part of their product development?

MR. ARGENTI: Objection. Form. Scope. Foundation.

A. Again, I don't know which patents you are talking about, which companies are you talking about, and which technologies are you talking about. If you're more specific, I will be able to answer your question, potentially.

Q. If a company had the specification of the '926 patent, would that evidence copying of the '926 patent in your mind?

MR. ARGENTI: Objection. Form. Scope.

A. Are you referring to a specific incident? And, again, the context is important. Are you talking in the patent -- prior to the patent becoming public? Again, there is so many questions.

Also, the specification -- you talked about specification. What about the claims? You also talked about specific -- I mean, again, without having more context, and given the fact that I don't have anything in front of me and have not studied it, I won't be able to opine.

Q. In preparing your opinions in this case, did

Wiz provide you with any of its own internal documents that might be relevant to secondary considerations of nonobviousness?

A. Not sure.

Q. Did you ask Wiz if there were any internal documents that might be worth considering or that could bear on secondary considerations of nonobviousness?

MR. ARGENTI: Objection. Form.

And to the extent that you're calling for discussions with counsel and work product, I'm gonna instruct the witness not to answer.

A. I'm not aware of any of those.

Q. As part of your preparation of your opinions regarding obviousness, what evidence of secondary considerations did you search for?

MR. ARGENTI: Objection. Form. Foundation.

A. I went through a lot of exhibits, as you probably know, dozens and dozens of exhibits. I am not aware of any evidence of nonobviousness.

Q. Did you do any searches to look for any documents that might show that people in the

industry use any of the asserted patents or any of the -- like, the '926, the '326, or the '809 patents?

MR. ARGENTI: Objection. Form.

A. My focus was, at the time of the invention, what was there, art available to a person of ordinary skill in the art. I did not look at products because at that time, products of the patent -- I'm not -- I was not aware of -- I was not looking at products, sir. I was looking at inventions, you know, industry standards, things like that. I did not look at the products.

Q. Okay. And so you didn't do, like, a separate individual search to see if you might be able to find evidence relating to some secondary indicia; is that fair?

A. Again, I went through many, many -- and I will repeat that because, again, some of the exhibits might bear on -- and I don't know that for sure. I'm just saying it because I went through dozens and dozens of exhibits for this specific set of declarations, and I'm not aware of evidence of

nonobviousness.

MR. DAVIS: Let's take a five-minute break. I think I'm pretty much wrapped up, but I just want to double-check. I could have a couple more questions.

MR. ARGENTI: Sounds good.

(A short break was had.)

MR. DAVIS: I have no further questions, so I'll pass the witness.

MR. ARGENTI: Thank you.

In that case, we'll go off the record.

I'm gonna consider whether I have any -- any redirect questions. So we can go off the record.

(A short break was had.)

MR. ARGENTI: No questions from me. Thank you.

(Off the record at 4:48 p.m.)

ACKNOWLEDGMENT OF DEPONENT

I, ANGELOS STAVROU, Ph.D., do hereby acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct, and complete transcription of the testimony given by me and any corrections appear on the attached errata sheet signed by me.

_____ _____

(DATE) (SIGNATURE)

CERTIFICATE OF COURT REPORTER - NOTARY PUBLIC

I, TIFFANY M. PIETRZYK, Certified Shorthand Reporter No. 084-004371, CSR, RPR, CRR, and a Notary Public within and for the State of Illinois, do hereby certify:

That ANGELOS STAVROU, Ph.D., the witness whose deposition is hereinbefore set forth, was duly sworn by me before the commencement of such deposition and that such deposition was taken before me and is a true record of the testimony given by such witness.

I further certify that the adverse party, WIZ, INC., was represented by counsel at the deposition.

I further certify that the deposition of ANGELOS STAVROU, Ph.D. occurred virtually via Zoom videoconference, on Wednesday April 2, 2025, commencing at 8:59 a.m. CST to 4:48 p.m. CST.

I further certify that I am not related to any of the parties to this action by blood or marriage, I am not employed by or an attorney to any of the parties to this action, and that I am in no way interested, financially or otherwise, in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 3rd day of April, 2025.

My commission expires: February 28th, 2028

Tiffany M. Petrzylo

NOTARY PUBLIC IN AND FOR THE
STATE OF ILLINOIS

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