UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

- - - - - - - - - - - - - - - - - -x

APPLE INC.,	:	
Petitioner,	:	Case IPR2014-00237
v.	:	Patent 8,504,697
VIRNETX, INC. AND SCIENCE APPLICATION INTERNATIONAL CORPORATION,	:	Case IPR2014-00238
	:	Patent 8,504,697
Patent Owner.	:	

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Deposition of FABIAN NEWMAN MONROSE, Ph.D.

Washington, DC

Thursday, October 23, 2014

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Pages: 1 - 296

Reported By: Lee Bursten, RMR, CRR

Deposition of FABIAN NEWMAN MONROSE, Ph.D., held at the offices of:

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Pursuant to agreement, before Lee Bursten, Registered Merit Reporter, Certified Realtime Reporter, and Notary Public in and for the District of Columbia, who officiated in administering the oath to the witness.

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E X H I B I T S

(Exhibits retained by counsel)

(Exhibit 1082 attached to transcript)

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P R O C E E D I N G S

FABIAN NEWMAN MONROSE, Ph.D.

having been duly sworn/affirmed, testified as follows:

EXAMINATION BY COUNSEL FOR PETITIONER

BY MR. KUSHAN:

Q Good morning. Could you give us your full name.

A Fabian Newman Monrose.

Q And where do you reside?

A 800 Long Meadows Road, Chapel Hill, North Carolina.

Q And you understand that the testimony you're to give today is to be truthful, correct?

A I do understand.

Q And you're under oath?

A I understand.

Q Have you ever been deposed before?

A I have not.

Q You have not? Have you ever, outside of this proceeding, served as an expert witness in a legal proceeding?

A I've served as an expert witness on other matters related to these proceedings.

Q Let me try to understand that. So is it that you've written reports or declarations about other patents?

A A declaration, yes.

Q Okay. Outside of the proceedings for VirnetX, have you been an expert witness for anybody?

A I have not.

Q Okay. And so you've never been deposed, right?

A I have never been deposed.

Q So I'll go through a few rules and then make sure we're on the same page.

A Sure.

Q In a deposition like this, I'll ask you questions. You're going to give me an answer. When you give me an answer, you have to give me a verbal answer. So if I ask you a question and you nod your head, you have to then add "yes" or "no" so I know what you're saying. Okay? Do you understand that?

A Understood.

Q Okay. If you need a break, just let me know, and if I'm in the middle of a question, I'll try to wrap up and let you have a break. But just keep me informed about when you want a break.

In the course of the deposition, Mr. Palys may be making objections. And when he's completed his objection, then continue to answer the question, unless he's directly asked you to not or instructed you to not answer the question.

A Okay.

Q So if you have a question about my question, just let me know, so I can try to improve it. So if there's any ambiguity or something that you hear in the question, just let me know and I'll try and give you a better question.

A Sounds fair.

Q Okay. So let me just get some of the paperwork out of the way. I'm going to hand you -- these are exhibits which have already been marked. This is Exhibit 1001.

(Petitioner Apple Inc. Exhibit 1001 was previously marked for identification and attached to

the deposition transcript.)

BY MR. KUSHAN:

Q This is an exhibit which is the same exhibit number in the two proceedings. You understand, there were two Patent Office proceedings that you provided declarations in?

A Yes, correct.

Q Okay. And they both relate to the same patent owned by VirnetX, right?

A Yes, the '697 patent.

Q And that's this patent, correct?

A That is correct.

Q I'm going to hand you Exhibit 2025 in IPR number 2014-00237.

(VirnetX Exhibit 2025 was previously marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q And this is one of your two declarations. This is in the IPR proceeding I mentioned. I'm going to call that the 237 proceeding, just for simplicity. Can you just confirm that's your declaration?

A This is.

Q Okay. And so this declaration, you're addressing a patent in the prior art that was issued to Beser; do you remember that?

A I do.

Q And this is just to get us oriented. I'm going to hand you your declaration, which is Exhibit 2025 in IPR 2014-00238.

(VirnetX Exhibit 2025 was previously marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q The same process, this is your same declaration, the second declaration you provided relating to the '697 patent in the 238 proceeding; is that correct?

A That's correct.

Q Okay. And in a similar way, if I say the 238 proceeding, it's the second proceeding I just mentioned. I'll just call this your 238 declaration.

A That would be helpful.

Q Okay. So do you understand VirnetX has

sued Apple for patent infringement?

A I understand.

Q Have you had any role in the litigation involving Apple on behalf of VirnetX?

A I have not been part of the litigation.

Q Have you been given any materials from the litigation?

A I have not been given any materials from the litigation.

Q Okay. So you haven't seen any information that has originated from Apple describing any Apple systems? And -- I'll narrow it. Everybody's seen something from Apple, I'm sure. But let me say it slightly better.

I'm wondering if you have been given any materials from counsel that have been originally obtained from Apple in the litigation.

A So I'm not sure I fully understand your question, but so there are prior art that's identified by Apple, which I obviously have seen.

Q Okay. But outside of the information in these two proceedings, you haven't received any

information from, for example, the litigation that's underway between VirnetX and Apple?

A I have not.

Q Okay. Can you just give me a description of what you did to prepare for today's deposition?

A Sure. For the deposition itself, I went back to my declaration to refamiliarize myself with '697 in particular, I guess the specifications, the claims, looked at the prior art that was identified, which involved going back and looking at the entire intrinsic history.

So I went back, I looked at -- reviewed again the petition, the decision instituted by the PTAB, went back to my declaration, made sure everything was consistent. Those are the general processes. It was an iterative process, I had to go back, this was several months ago, verify, go through, and just refresh my memory on some of the specifications and the prior art.

Q Did you review the arguments that VirnetX has filed in the proceeding that quotes your declaration?

A I did. By that, you mean the patent owner's response and how it uses my declaration?

Q Yes.

A I did. Mm-hmm.

Q Okay. Can you just give me a rough estimate of how much time you spent preparing for the deposition today?

A For the deposition? Hard to say precisely.

Q An estimate is fine.

A Probably somewhere between 20 and 30 hours, in that ballpark, I would say.

Q Did you meet with counsel to prepare for today's deposition?

A I met with counsel about the deposition.

Q How many times?

A So since the -- let me think about that. Since the -- we met in early October. We're in October, sorry. A day and a half, sometime in early October, I think was -- the 6th or the 7th or the 7th or the 8th, sometime then. And then earlier this week.

Q So you mentioned a number of documents that

you reviewed. Would you say you've reviewed every document that had been filed in each proceeding as part of your preparations for today's deposition?

A Yes.

MR. PALYS: Objection to form.

A I reviewed -- so every document that is pertinent for these proceedings for 237 and 238, as cited in my declaration.

BY MR. KUSHAN:

Q Okay. So there were a number of exhibits that the patent owner filed in its response to the proceedings, and those are numbered in the series 2001 through two thousand I think four or five. Did you review all of those exhibits?

A Two thousand -- I'm trying to remember the exact exhibit numbers, which ones these were.

Q I'm just trying to understand, you just used the word "pertinent" to describe the category of documents that you had reviewed. And I'm just trying to make sure I understood that to be all the documents that were in the record of the proceeding, or a subset.

A I see what you're saying. So the exhibits and other documentation that supported the petition that were relevant to the decision and its instituted grounds. That's what I looked at. I'm sorry. I'm not a lawyer and there are all these legal terms. I'm trying to figure that out.

Q I appreciate that. This is just to understand what you've been looking at so I know if I have to give you more time to look at something, we can do that later.

A Mm-hmm.

Q Did you look at any documents that you had not looked at before you wrote your declaration in your preparations today, for the deposition today? So what I'm asking --

A Yes.

Q Okay. You did look at some additional documents?

A Yes.

Q And what were they?

A I believe a -- in legal terms, the Federal Circuit decision came out after my declaration. I

skimmed that.

Q Was there anything else?

A No documents.

Q And did you notice anything of significance about the Federal Circuit decision when you reviewed it?

MR. PALYS: Objection to form.

A "Significance"? What does that mean?

BY MR. KUSHAN:

Q Well, you read the decision of the Federal Circuit, correct?

A Correct.

Q And did it have an effect on any of your opinions that you had previously expressed in your declaration?

A No. Nothing in that decision affected my opinions expressed in my declaration.

Q Okay. So let's just go back a little bit. Before you prepared -- when were you first retained to help in the proceeding?

A This particular one, or retained by counsel for VirnetX?

Q Well, let's just start with the easier question. When were you first retained by VirnetX for any reason?

A So I believe that goes back to around July time frame of 2014.

Q Okay. And what were you asked to do at the time you were retained by VirnetX?

A What --

MR. PALYS: Hold on. I counsel the witness to not disclose any information that you may have discussed with counsel. If you can answer the question without doing that, go ahead. But if your answer requires you to divulge any information or communications between you and counsel, I instruct you not to answer.

A I guess on the advice of my counsel, I will choose not to answer the question.

BY MR. KUSHAN:

Q No, no. Let's try to make sure that's an accurate instruction to you. So I'm allowed to ask you what they asked you to do. That's in a general sense. I'm not asking for you to recount kind of the

conversation you had with them, but I would like your understanding of what you were asked to do.

A Understood. So I was asked to take a look at the patent at that time, I can't recall off the top of my head which one that was, that was assigned to VirnetX. I was also asked to provide an understanding of what I believed was disclosed in that patent, and later provided with some identified prior art that I believed was used by petitioner with respect to anticipation claims for that patent.

Q So the patent that you -- the first patent that you mentioned, was it the '697 patent?

A No.

Q Do you remember the number of the patent or any part of it?

A I believe it was '135.

Q '135. Okay. And so you were asked to analyze the patent to see whether it had described something in it?

MR. PALYS: I'm going to instruct the witness not to answer that question. You can ask him what he did, but not in particular what instructions

he received from counsel or communication like that.

BY MR. KUSHAN:

Q So did you analyze the '135 patent to see what it was describing?

A I did.

Q And the '135 patent is not involved in this proceeding, right?

A That is correct.

Q And so I just would like to understand what you were looking for in the '135 patent.

MR. PALYS: I'm going to also object to this line of questioning under scope.

A So I think just like I would with any document, whether or not I understood what was being expressed in that document, for a patent, specifically whether I understood the specifications, the claims and the scope of the claims, and kept that -- and keeping in mind whether or not my understanding would have been similar to what one skilled in the art and how they would have interpreted that context at that time.

BY MR. KUSHAN:

Q So you weren't looking for any particular example of a system or anything in the patent?

MR. PALYS: Objection, form and outside the scope of direct.

A I'm not sure I understand what that means, by looking for a specific system in a patent.

BY MR. KUSHAN:

Q I'm just trying to understand, you did an analysis of the '135 patent, and I'm trying to see if you were looking for something in it or if there was some other -- you know, you were just reading it generally for some reason.

MR. PALYS: Objection to form and outside the scope of direct.

A So first and foremost, as I said, in reviewing any such material, I have to be comfortable that I understand what is being expressed in that material. So as an academic, I went through, looked at the -- what was in there, does this make sense to me, if it does, how should it be interpreted.

And then if any prior art, you know, is there any way that this prior art is anticipating any

of the claims that I'm looking at generally that's in the patent.

BY MR. KUSHAN:

Q So then one of the things you might have been looking at or the reasons that you might have been looking at the '135 patent was to see if the '135 patent claims were anticipated by any prior art?

MR. PALYS: Objection, form, and outside the scope. I'll just ask you to keep it within the scope of the direct. We're talking about a patent that's not at issue in these proceedings.

MR. KUSHAN: Joe, just make your objections, single word objections, and don't have talking objections, okay?

A Could you repeat your question?

BY MR. KUSHAN:

Q Yes. So you indicated in one of your answers you gave me that you were looking to see if the '135 patent claims are anticipated by prior art; is that right?

A At some point --

MR. PALYS: Same objections.

A -- I looked at that.

BY MR. KUSHAN:

Q And do you remember what the prior art was?

MR. PALYS: Same objections.

A That was months ago. I'm sorry.

BY MR. KUSHAN:

Q Was it the same prior art you considered for this proceeding?

MR. PALYS: Same objections.

A Honestly, I don't recall. That was months ago.

BY MR. KUSHAN:

Q Okay. Now, do you remember, did you notice that the '135 patent had a very similar disclosure to the '697 patent?

A Yes.

Q Now, you've been granted patents, correct?

A I have.

Q Okay. So you've participated in the process where you would write the patent description?

A I have.

Q And then you know what a patent claim is?

A I do.

Q Okay. And the patent claim defines the invention, right?

A And the scope of the invention.

Q And this is based on your own knowledge before you were hired to do work in this case, right?

A Correct.

Q Okay. And when you see a claim in a patent, that's defining the invention, as I just said, right? Let me get a cleaner question. So the claim in the patent defines the invention, correct?

A So the claim defines the scope of the invention in light of the specifications, and I believe how one skilled in the art would have understood those.

Q And --

A Again, not a lawyer.

Q I know, and I'm just asking for your understanding. It's just based on an observation that you've been granted patents.

A Yes.

Q So I'm just --

A Working with lawyers at Lucent Technologies and elsewhere.

Q Great. So when you see a patent claim, that may describe one example of something that's described in the patent, correct?

A I think generally that is correct. Mm-hmm.

Q And it's also correct that when you look at a patent claim, the Patent Office will not grant you that claim unless they believe there's a support for that claim in the description, correct?

MR. PALYS: Objection, form.

A My understanding is that the process is, the PTO office applies -- from my experiences, looking to see whether that is patentable.

BY MR. KUSHAN:

Q Again, so when you see a patent claim that's been issued in the patent, and that defines the invention, you will also see a description, typically in more detail, of what that invention is in the disclosure of the patent?

A You will typically see that.

Q Okay. So if the patent examiner were to

look at your claim that you presented in a patent application and they didn't see that invention in the description, they probably wouldn't give you that patent claim, right?

MR. PALYS: Objection, form, and outside scope of direct.

A So can you repeat your question a little bit more specifically for me, please?

BY MR. KUSHAN:

Q Sure. And we just walked through the description of a patent claim. It may cover a particular embodiment of the invention, right?

A Mm-hmm.

Q And so when you present a patent application with a claim in it, the claim gets examined for compliance with all of the requirements of patentability, right?

A Right.

Q So one of the questions the patent examiner may look at is whether the claim describes something which is described in the patent disclosure, correct?

MR. PALYS: Objection to form. Outside

scope of direct.

A So I think one of the standards that would have been applied at that time by the examiner is interpreting the scope of the claims in light of the broadest reasonable interpretation that should be assigned. So think more broadly about what is said here, and, you know, the broadest reasonable interpretation as one of ordinary skill would have viewed this. So...

BY MR. KUSHAN:

Q Sure. And so if the patent examiner doesn't see the invention that you've claimed that's described in your -- sorry -- that the patent examiner does not see in your disclosure a description of the invention as it's been defined in your patent claim, they won't grant you that patent claim, right?

MR. PALYS: Objection to form, and outside scope of direct testimony.

A I don't know.

BY MR. KUSHAN:

Q You don't know?

A No. I mean...

Q But just generally, your patent claim has to be described in your patent disclosure, right?

MR. PALYS: Objection, form. Outside scope of direct testimony.

A Patent claim...

BY MR. KUSHAN:

Q And I don't want to make this more complicated than --

A I'm just -- the claims are supported by the -- you know, what's expressed in the specification of the patent.

Q Right. If I see a claim and it says perform steps A, B, and C, I go into the patent disclosure, I'm going to see probably in more detail a description of a process where you perform steps A, B, and C, correct?

MR. PALYS: Objection, form.

A Correct. I might be making this harder than it is. I just want to be on the same page with you legally here.

BY MR. KUSHAN:

Q I appreciate that.

A I'm not a lawyer.

Q And you're doing a good job of telling me to give you better questions. Don't hesitate to do that as we go through the day. All right. Let's go into your declaration. I want you to just pick up the 237 declaration. If you could turn to the very back, this is a description -- this is a CV that you've included.

A Okay.

Q Just a couple of initial questions. Does your CV as you've presented it in Exhibit 2025 contain an accurate list of all of your publications?

A This seems reasonably up-to-date.

Q Okay. Just on the list of the publications, and you can direct me, if you could, are there any of the publications that you've authored before 2001, do any of those publications deal with VPN or secure communications systems?

A 2001?

MR. PALYS: I object to the form.

A So I see several publications here that

dealt with, you know, some form of secure communications within the field of computer and network security.

BY MR. KUSHAN:

Q Which ones are those? And I think you have them numbered.

A Yes, I'm going to -- unfortunately, it's not exactly in reverse chronological order. So let's see. So part of my thesis work, which is embodied by P-53, has to do with security authentication.

Q And is that the "Design and analysis of graphical passwords"?

A Correct. So the line of work that had to do with -- so take P-50 as an example. That's 2001, correct? Yes. So the line of work on cryptographic key generation from various biometrics. This one is "Cryptographic key generation from voice or using voice to generate cryptographic keys." That would be an example, another example of work that had to do with secure communications.

There are probably others, if you want me to go through.

Q This is helpful. You can just give me that kind of a description if there's any others before 2001.

A I guess P-56 is in the same vein. Again, it's about computer security authentication. It might have applications to things in that sense. Let me just see if there's anything else here. A lot of this is a very long time ago.

Q Sure.

A And clearly my Ph.D. thesis covers aspects of things that are related here.

Q So these examples you've given me, those are relating to authentication techniques?

A Cryptographic techniques.

Q And just so I'm clear, when the cryptographic techniques are being used to perform authentication purposes, they're for authentication purposes, right, in the examples you just gave me?

A They are used for a multitude of purposes. I would have to go back in each one of these to see how cryptography was being used there.

Q Was the -- and just as you remember them

now, were any of those papers investigating kind of the design of networks to support secure communications?

A And you're asking only about publications, or things that would have touched on those, say, for example, in my internships leading up to I think you said 2001?

Q We'll start with the publications. And if you have other experiences that are in that area, just let me know.

A You're asking me to go way back.

So I would have to look more specifically, but if I recall correctly, you know, some of the applications that are -- that we envisioned say in some of the work on cryptographic key generation from voice had applications to secure communications, how we would use that to better support secure communications.

So that would be in the publications up to that point. Again, I would have to really look back at everything that we said back then to see if I can give you a more direct answer to your question.

Q So those techniques would be relevant because that authentication technique might be a way of enhancing data security that's being transmitted over the network?

MR. PALYS: Objection to form.

A I think -- so these are exposure to cryptographic techniques, and where these cryptographic techniques are appropriate. Is it for authentication as you just mentioned here? Is it for securing a communication -- the contents of a communication? So they're just different aspects. And these are probably touching on different aspects of that, right?

So I think the key here is understanding of these cryptographic techniques, which ones are appropriate to use when, and why.

BY MR. KUSHAN:

Q And I'm just trying to go back into some of your background just so I understand, that type of knowledge you had back before 2000 gave you the ability to express opinions about whether the systems that are the subject of this patent proceeding are

new or obvious, right?

MR. PALYS: Objection, form.

A So I think you asked what background that I had that would have been -- would have made me knowledgeable in the art, the relevant art at the time. Is that --

BY MR. KUSHAN:

Q Sure. We can go with that question.

A Okay. So we've talked about some publications. Let's see. Before 2001. So I'll come back to my thesis work, which obviously touched on -- gave me all that relevant background. But more directly, we can think of my internships, for example, my internship at Bell Communications, Bell Corp., back in 1996 and 1997, which are in two different groups here. So '96, this is the Cryptography and Network Security Research Group. In '97 is the High Availability and Distributed Computer Research Group.

So you can think of the former one more focused heavily on cryptographic techniques and understanding the relevant art for particular -- so

the types of problems that are being considered at that time, solutions to these problems, for things that, for example, might be relevant -- that are relevant here, right?

The same for the internship on the network side, in 1997. Again in 1998, I did more within my internships, looking at, you know, problems that have been proposed. Most of them require full understanding of cryptographic techniques, where these cryptographic techniques were used and why, and the problems they encountered, how they overcame these problems.

And that all involved looking at relevant -- you know, the state of the art at that time when I was doing this work. So I hope that's answering your question.

Q Sure. So those internships where you would get some practical experience of -- you know, with the techniques and the systems that would be relevant to establishing secure communications, right?

A They were not the only experience.

Q But the knowledge that you picked up by

doing those internships, that work experience, was giving you some better insights that you were using to, say, give you insights into secure communications systems back then?

A So I think a better way to think about it, which is the primary purpose of some of these internships, was the experience through the internship helped solidify the academic teachings that you get throughout -- you know, mostly in your post-bachelor's, for me that was during my master's, which is in 1996, on the way to my Ph.D.

And so you're -- along this way, you have the educational components, they're giving you teachings. You get more of a deeper understanding of some -- of how to apply some of these teachings through the internships, which kind of dovetails with what you've learned, right?

So the success in these -- the success for your advisor during these internships is really closely tied to how well-prepared you were through your graduate studies so that you can take -- see a problem in those settings, get a better sense of the

prior art, how to evaluate the prior art, how to put pieces together.

So I think the two dovetail pretty closely, right? So I probably -- yes, I think they dovetail very closely.

Q So just to make it -- and I'm taking away from your explanation that each of those experiences, both your academic experience and your work experience, contributed to your knowledge that you had back in 2000 of secure communications systems?

A I agree.

Q Okay. And some of those experiences you gained, I think you just mentioned a few of them, these research assistant positions, starting like in 1994, and then in 1995 --

A '94?

Q You have a listing of a research assistant over the summer.

A Oh, research assistant. Mm-hmm.

Q That goes through it looks like about 1998; is that right? And then you had a position at Bell Labs starting in July of 1999?

A Yes. The way to think about these research assistantships, through your graduate career, you're focusing on research, most likely it's the research that's a part of your Ph.D. thesis. That's how you should view those research assistantships, which are different than research internships. So there's research internships as we see listed here all within the computer science department at NYU, right?

So typically, you think of this as going on together with your courses, and hopefully, again, through the process of creativity in those research internships, you can leverage your academic teachings there. What you point to in 19 -- yes, after I graduated, back in 1999, I was a member of the technical staff at Bell Labs.

And there, a member of technical staff, you're considered a research scientist then. So slightly different than what it says here as a research assistant and how you should be seeing those.

Q Right. So if you looked back over your time, both your work experience and your educational

training, what technologies do you think are relevant to the field of virtual networking?

MR. PALYS: Objection, form.

A Broadly speaking?

BY MR. KUSHAN:

Q Just, you know, a catalogue of the types of technologies you think are relevant to virtual private networking.

MR. PALYS: Objection to form.

A So we have to be clear here, right? So virtual private networks is a subject, a term and a subject of the proceeding. So you mean specifically in light of the teachings of '697, or more broadly?

BY MR. KUSHAN:

Q Well, you understand this invention exists within a larger environment of technology, right?

A Yes.

Q Okay. So I'm trying to understand, when you looked at the particular instance of an example in the '697 patent, secure communications link or VPN, you were seeing that that was a type of VPN that was within the broader field of VPN technology,

right?

MR. PALYS: Objection to form.

A That was a very loaded question. So can you be a little bit more precise for me?

BY MR. KUSHAN:

Q Sure. I'm just trying to make sure that we're on the same foundation.

A I understand. So just --

Q So when you look at the '697 patent, and we've just mentioned that there are secure communication links and VPNs mentioned and claims in it, right?

A Mm-hmm.

Q You understand those terms, "secure communication link" and "VPN," to relate to different technologies that existed back in 2000, right?

MR. PALYS: Objection, form.

A So secure -- you're saying a secure communication link, which again, I think is a construed term here, as a technology. So I think -- I think I see what you're asking in a broader sense.

BY MR. KUSHAN:

Q I'll try to make it a simpler question.
A Okay.
Q So is data encryption something that's relevant to the secure communication links that are discussed in the '697 patent?
A Most definitely.
Q And authentication techniques would be similarly relevant to the invention that's in the '697 patent?
A Definitely.
Q Okay. Are you familiar with IPSEC?
A I am.
Q Is IPSEC a standard that would be relevant to the virtual private networks and the secure communication links of the '697 patent?
MR. PALYS: Objection to form.
A So IPSEC is more broadly related in terms of your original question, right? So the technologies that are relevant for secure communication, IPSEC is one just example.
BY MR. KUSHAN:
Q Okay. Were you familiar with IPSEC before

2000?

A 2000? You're trying to ask me what I knew at an exact point in time.

Q Yes.

A Let's see. What did I know before 2000? So let me try an easier way. So I would -- I'm pretty sure that in at least one of the internships, 1996 more probably -- again, which one of those it was -- but given it was in the cryptography network security group, we did a lot with respect to, again, understanding and giving assessments of different technologies, including understanding what IPSEC is and how it works.

I definitely got exposure to that as well during coursework in my graduate studies. If you ask me what year I took that class, I can't tell you.

Q If you were in that internship back in the '98, '99 time frame, and someone said I want you to give me an example how we would deploy this with IPSEC, you would presumably go to the RFC that defined the IPSEC standard and understand it from that, and then develop the instance of that example

that you were asked to work on?

MR. PALYS: Objection to form and outside the scope of direct testimony.

A So are you asking if you gave me a problem -- no, let me just see if I understand what you just said. You gave me a problem and said I want you to solve that problem only by using IPSEC?

BY MR. KUSHAN:

Q If you were in your project and they said can you deploy this with IPSEC, maybe this is a particular network design, and you're asked, can you see if you can deploy this with IPSEC.

A Okay.

Q That's the hypothetical I'm dealing with.

A Okay.

Q If you didn't know IPSEC details at that time, you would just go to the RFC that defined the standard for IPSEC, right?

MR. PALYS: Objection, form. Outside scope of direct testimony.

A So I think it would be very hard to do that, to just go looking at the specification for

IPSEC by itself.

BY MR. KUSHAN:

Q What else would you need to look at?

MR. PALYS: Objection to form. Outside the scope of direct testimony.

A So in my experience, I think you would have to -- so you said IPSEC. To just go to the specifications, so the RFC, you have to understand the techniques that are being relied on in that RFC. So that means -- so it's heavily -- IPSEC talks about -- I'll give you an example, asymmetric/symmetric keys and asymmetric and symmetric cryptography and how these parts are being used.

An understanding of what that means, how that works, is necessary to be able to say whether or not I see something in a specification in IPSEC and I can apply it to some context that's given to me. So you have to know exactly what you're trying to solve, what's the context, the boundaries of the solution, whether or not IPSEC and what's taught in IPSEC can be used in this sense.

But just referring to IPSEC -- I mean, I think there is -- you know, that experiences you get, referring back to something like an RFC, really is built on an understanding of what's the underpinnings of that RFC, in my experience.

BY MR. KUSHAN:

Q Sure. So if you were going through that process and you encountered some technique that you didn't understand, you would then just look up the relevant technique and understand that by perhaps looking at other RFCs or other textbooks or whatever they may be? Say, for example, in your asymmetric encryption, you might look at Mr. Snyder's textbook and say, all right, that's the textbook that talks about cryptographic techniques. If I didn't understand something that was mentioned in IPSEC, I could perhaps consult another reference to learn about it, right?

MR. PALYS: Objection to form. Outside the scope of direct.

BY MR. KUSHAN:

Q I'm not trying to make this more

complicated.

MR. PALYS: Same objection.

A Yeah, I mean -- if I'm trying to gain knowledge in something specific, my experience, I put my head down and try to understand the underpinnings of that as best as possible. And that may require that I look more specifically at one thing that I believe is in the context and was originally inspired that I looked at that based on the first reference that I looked at.

BY MR. KUSHAN:

Q Throughout this time when you're in your academic career, and this is between the time of your bachelor's and your master's and then your Ph.D., throughout that period, you would -- where -- I'm sorry, during that period of your education, you would consult these technical resources to learn how the different standards or techniques might be -- might work or how they might operate?

MR. PALYS: Objection to form. Outside scope of direct.

BY MR. KUSHAN:

Q Let me give you a better question. So you've offered an opinion in your declaration where you suggest that a person of skill would have a master's degree, correct?

A Okay.

Q Right? Is that right?

A I think I said something slightly different. Let me...

Q If you want to go to paragraph 12.

A Right. So stated here, I said based on my review of the technology, the education level of active workers in the field, and drawing, as we discussed, on my own experience, I believe a person of ordinary skill in the art at the time would have had a master's degree in computer science or engineering, as well as two years' experience in computer and network, with some accompanying exposure to network security.

I think that's kind of what we discussed so far and is in keeping with what I said here.

Q So is it your view that a person without a master's degree could not learn the information that

the person with the master's degree had in this example you just gave?

A So I'm saying based on my experience, I think the level of education beyond your bachelor's is important, because in my experience, that's where you get exposure and better understanding of some of the technologies that are relevant here.

Q So if I was -- let's say I don't have a master's degree, but then I go to work for Lucent, and 20 years later, let's say I started in 1980 at Lucent, in the year 2000, after 20 years of working at Lucent, building and deploying and conducting research in these systems, do you think that person would have the same amount of knowledge that a person with a master's degree would have?

MR. PALYS: Objection, form.

A That's so many things, so many what-ifs here. I mean, it really depends on the types of things they were doing during that period. You know, so -- so if they were doing things that are really relevant to understanding what the state of the art is, and they were getting all that necessary

exposure, going through the technologies very closely, understanding the problems, the solutions, etc., I think it's conceivable.

As I said, just gauging on, as a proffer, and my own experience and folks that I've interacted with throughout the academic career, throughout my internships, this is my opinion on what I think would be necessary to understand the relevant art at the time. There could be others.

BY MR. KUSHAN:

Q Okay. So it's fair to say that one way to get the knowledge that a person of skill would have would be to get a master's degree and work for two years in computer networking and computer security?

A So that's my opinion, what one of ordinary skill in the time would have had, need to have.

Q Okay.

A Is that -- does that answer your question?

Q Yes, thank you. So if you can go to page 10 of your 237 declaration. And that's the same page we were just looking at.

A Uh-huh.

Q You have a footnote on there, and you say, "I was asked to opine only with respect to certain issues that are discussed in this declaration."

Can you tell me what the issues are that you were asked to discuss in the declaration? Well, let me ask it more generally.

A Yes.

Q Basically when you started working to prepare this declaration, you were told by counsel to address certain issues; is that correct?

A So I was provided with -- as I go through this process, I have, you know, the petition, the testimony, the declaration from the petitioner's expert. So I'll look at what's being opined by that expert on specific issues, whether it has to do with some understanding of how one would have interpreted a phrase, understanding of some specific claim in the patent, and whether or not those specific ones are in keeping of my understanding of that.

There could have been other opinions that, you know, weren't specific to these proceedings, and I didn't comment on them here in my declaration.

Q So then it's fair to say that the things you chose to then address in your declaration are the ones that you felt were relevant to the proceedings?

A Correct.

Q Okay. And to the extent that you formed other opinions and didn't write or address them in the declaration, those were issues that you -- did you have no opinion about them, or you just felt they were not relevant to issues in the proceeding?

MR. PALYS: Objection, form.

A So I'm sure at some point statements were made. Let's say, for example, on some fictitious embodiment that maybe I did not agree with at the time, it's not relevant to what I've been asked to opine on here, and they're not here, right? So these all -- as I'm sure you're well aware, these are a lot of documents, a lot of things to go through.

So I've had opinions on stuff. I've expressed in this declaration my opinions on things that are relevant to this proceeding.

BY MR. KUSHAN:

Q So one of the things you looked at was a

declaration from Mike Fratto?

A I did.

Q And in that declaration, Mr. Fratto had made a number of observations about the technology or systems, and you chose to address a subset of his comments in this declaration, right?

A Correct.

Q Okay. And so for the other observations he made in his declaration, you're not offering any opinion in this proceeding?

A That is correct.

Q Okay.

MR. PALYS: Take a break? It's been an hour.

MR. KUSHAN: I think we can break in a second. Let me just check.

Let me ask just two quick questions on some of the background, and then we'll take a break, if that's okay.

MR. PALYS: Sure.

A Sure, go ahead.

BY MR. KUSHAN:

Q So were there topics that you identified in your review of the materials in the proceeding that you had intended to review but chose not to in your declaration?

A Topics?

MR. PALYS: Objection to form.

A I believe anything that is relevant to these proceedings, that I thought was relevant, I reviewed.

BY MR. KUSHAN:

Q And then you addressed the relevant issues that you saw in the documents in this declaration?

A Correct.

Q And what I want to know is, were there any topics you proposed to address in your declaration that counsel told you not to address in the declaration?

MR. PALYS: Hold on. I instruct you not to answer that question on the basis of privileged information.

A So these -- to be clear --

MR. PALYS: Please. I instruct you not to

answer the question.
BY MR. KUSHAN:
Q Can you tell me how much you've been paid by VirnetX for the work you've done in this proceeding?
A I think I can give you a better answer with respect to since July of last year, because saying what is specifically for these proceedings versus other things, I think that the compensation would be somewhere around $75,000 over those 15 months.
Q So just -- I think when you told me when you started working for VirnetX earlier, you said it was July 2014. And it sounds like it was July 2013; is that right?
A We're in 2014. Sorry. 15 months ago.
Q Okay. Just to make sure my math isn't off.
A Sorry. My bad.
Q And do you own any stock in VirnetX?
A I do not.
Q Is any part of your compensation in any way contingent on how the proceeding turns out?
A No.

Q Okay. Do you know any of the named inventors of the VirnetX patent? If you can look at Exhibit 1001.

A Sorry. You gave it to me separately.

Q It's this one.

A I do not.

Q And then while you have the patent, do you see this thing under -- about in the left column, about halfway down, under "Related US application data"?

A I'm sorry. Repeat that again.

Q There's a paragraph 63 in the left column.

A Mm-hmm.

Q And right next to it is a long stream, a very long sentence.

A I see that.

Q And do you understand that this is identifying earlier applications which the '697 patent is related to?

A I do understand that.

Q Okay.

A Mm-hmm.

Q And if you want to go about midway through that paragraph, there's a word that -- you see all these words, "continuation," "continuation," "continuation," and there's one that says, "Continuation in part of application number 09/504,783 filed on February 15, 2000."

Do you see that?

A And then patent number '135, which is -- yes.

Q And that's the '135 patent you mentioned earlier today?

A Yes, I believe so.

Q And do you understand that when you're measuring these patent claims against the prior art, you're using the date of February 15, 2000 to see whether they're new and inventive?

A I do.

MR. KUSHAN: Why don't we take the break now.

(Recess.)

BY MR. KUSHAN:

Q Dr. Monrose, did you have any conversations

with counsel during the break we just took?

A Yes.

Q And what did you discuss?

A Cycling and allergies, I guess.

Q Did you discuss any of the testimony you provided earlier today?

A No.

Q Did you have discussions where he, Mr. -- any of your counsel, gave you guidance as to how you are answering my questions?

A No.

Q And you know you're under oath?

A I do.

Q All right. Now, if you could pick up Exhibit 2025 of the 237 proceeding, you have a section of this declaration where you're addressing some of the meanings of the patent claim terms, right?

A Mm-hmm. That's correct.

Q And then in the 238 proceeding, in your declaration in that, you have the same section addressing those claim terms?

A Correct.

Q So there's a one common part of your declaration and then there's a back end which is talking about a different reference in each, right?

A Correct.

Q So when I ask you questions about the 237 proceeding and the claim construction verification, it's also going to be the same answer for the other proceeding, the other declaration you provided in the 238 proceeding?

A On the claim construction -- yes.

Q Okay. So we don't have to do it twice.

A Yes.

Q All right. Now, what's your understanding of how the patent claims -- the standard that the PTAB uses to construe patent claims?

A So that the -- I think my understanding is the standard that they apply has to do with interpreting the scope of the claim in light of the specification by viewing this in terms of the broadest reasonable interpretation that one of ordinary skill in the art would have understood those

terms and scope at the time of the invention.

Q And so that answer, under that answer, do you understand that if an interpretation of a claim is offered which doesn't make sense in view of the patent disclosure, that's not a reasonable construction of the claim?

MR. PALYS: Objection to form.

A Can you repeat more specifically, sir?

BY MR. KUSHAN:

Q Sure. So you made a reference to the broadest reasonable construction standard being something where you take the claim and you read it in light of the specification, right?

A Right.

Q And the reason you're doing that is to make sure that a reading or an interpretation that's proposed for the claim is consistent with the description in the patent disclosure, right?

MR. PALYS: Objection to form.

A So consistent with. So -- so it's -- as I understand it, in light of the specifications, and -- terms can only be construed if they're not in light

of what is taught in the specifications. If that's how you want me to...

BY MR. KUSHAN:

Q I just want to make sure we're on the same page for how you see the relationship between the claim and what we might say it covers and what is in the specification under the PTAB standard.

A Right.

Q Okay.

A So the PTAB we just discussed.

Q Yes. So I'll give you an example.

A Mm-hmm.

Q And I'll make it not about this case, just so we can understand the understanding of the standard. You can imagine a word in a claim that says "widget."

A Mm-hmm.

Q And in the patent specification, it says "A widget can be A, B, or C, but not D." So that's my hypothetical.

A So we have a widget in the claims?

Q In the claim.

A Yes.

Q And in the patent it says "A widget is A, B, or C, but not D." Right? That's my hypothetical.

A Okay.

Q So under the Board standard, the Board would not read the claim "widget" to cover D, because the patent specification says a widget is not D, right?

MR. PALYS: Objection, outside the scope of the direct testimony.

A I guess it depends on how different D is from the rest of A, B, and C.

BY MR. KUSHAN:

Q I'm just using this very simplistic example where the patent disclosure says widget is not D.

MR. PALYS: Same objection. And form.

A So you're asking -- so let's just be a little bit more precise in what you are trying to get me to help you with an answer. So one more time. So the patent -- go ahead. Can you...

BY MR. KUSHAN:

Q So the patent claim says "a widget."

A Yes.

Q And the Board now says, let's do a construction of "widget" in light of the specification. Correct?

A Correct.

Q So the Patent Board goes into the patent specification and they see a sentence that says "A widget is A, B, or C, but not D." Okay? And so what I'm asking you is, under the Board's broadest reasonable construction standard, the Board wouldn't read "widget" to mean something that includes D, because the specification says a widget is not D?

MR. PALYS: Objection, form. Outside scope of direct.

A That's my understanding.

BY MR. KUSHAN:

Q Okay. And you understand that in a patent document, a patent applicant can give special definitions to words and to claims, right?

A Yes.

Q So that's typically done where there's an explicit statement saying, when I say this word, it

means this thing, right? Some kind of a sentence that conveys the point that a word is being given a special meaning, right?

MR. PALYS: Objection to form.

A So I think that special meaning can be conveyed in reading the specifications, so it might not be as explicit as you just stated.

BY MR. KUSHAN:

Q So it could be something where you look at all of the examples and you say, based on the specification and all the examples, this is the meaning of this phrase?

MR. PALYS: Same objection.

A I think the context of the invention will help frame that, not only the examples.

BY MR. KUSHAN:

Q When you did your analysis of the '697 patent disclosure, did you see an explicit definition of what a virtual private network is?

A So I believe at some point -- so you said "virtual private network"? So that's not a term that is being debated here in 237 or 238. "VPN

communication link" is. So I didn't opine on whether or not "VPN" as a term is explicitly stated in 237 or 238, because it's not a claim term.

But I do recall at some point talking about some of the characteristics one of ordinary skill in the art would have assumed that a virtual private network would have.

Q And when you say you recall talking about some of these characteristics of VPNs, that's not something you addressed in your declaration? Or were you speaking of something in your declaration?

A So in this -- in the declaration for this proceeding, I was not asked to opine on the term that you just said, "virtual private network."

Q What terms were you asked to opine on?

A There were certain claim terms here. "Secure communication link," because that is -- that term is relevant in several of the independent claims.

Q And why don't I just pause you on that for a minute. Did you see an explicit definition of what a secure communication link is in the '697 patent?

A So if I recall correctly, there were -- that term was proposed differently by both VirnetX, Apple, and also different in the decisions construction.

Q Okay. And so I'm just asking a slightly different question, which is, when you looked at the '697 patent, you didn't see a passage which just set out a certain definition for the word "secure communication link," right?

A So I think that term, viewed in light of the broadest reasonable interpretations, based on the teaching of '697, was fairly -- was clear.

Q But it wasn't explicitly defined?

A Again, if we look at the context of which secure communication link is brought up, then the teachings of '697 make it clear to one of ordinary skill what that means.

Q And you understand there's a difference between the two things we're discussing, right? There's one thing, which I've been asking you about, which is did the patent take and set forth an explicit definition where they just said "a secure

communication link is," and then just explicitly defined it, and then the thing you've been discussing, which is, when you read the entirety of the patent, you come to the conclusion it may have a certain meaning?

Do you see the difference between those two?

A Yes.

Q Okay.

A Mm-hmm.

Q So I'm just asking you about the first one. And there's no passage in the '697 patent that gave "secure communication link" an explicit definition, right?

A I believe -- if my memory serves me correctly, there are opposing views on what that means.

Q Right. So that goes to the second thing I mentioned, which is interpreting the patent and coming to a conclusion, right? There's differences you're saying that exist between the Board and Apple and VirnetX about the meaning, right?

A Yes.

Q Okay. So you would agree with me that there is no explicit definition of the term "secure communication link" in the '697 patent?

A So I think we're agreeing here, as we said before, the broadest reasonable interpretation in light of these teachings, as we said earlier, the standard that's been applied, does it require encryption, as we've discussed. You said whether or not that term says secure communication link equals encryption explicitly, I don't recall if that's the case.

Q Okay. Now, in your opinion, you are disagreeing with some of the interpretations that the Board reached for a number of terms, and one of them is "secure communication link"; is that right?

A That's correct.

Q So if the Board does not agree with your interpretation of "secure communication link," then your opinions that are based on your interpretation would not be relevant to the Board's conclusions about whether the claims are anticipated or obvious,

right?

A So I opined on whether or not the interpretation of the claim terms by the Board made sense. And I gave my opinion on why I believe certain aspects of that did not.

Q Right. And then you took in your mind the correct understanding of the meaning and then you compared that definition to the prior art to show that the Board had made a mistake, right?

A I also considered the interpretation that the Board gave as well.

Q But you didn't use it to reach your conclusions about whether the claims of the '697 patent were anticipated or obvious; you used your interpretation of, for example, "secure communication link," right?

A So whether -- so in this anticipation, in light of the specification, what I interpreted that term to mean in light of the specification is what is used in the evaluation.

Q Okay. So, for example, in the Beser patent, one of the reasons you believe Beser does not

anticipate the claims is that you believe Beser does not show use of encryption in the communication links and therefore the Beser communication links are not secure communication links; is that right?

MR. PALYS: Objection, form.

A Again, we're talking about the claim term and where that claim term is being used. I want to be -- are we being very specific to -- being very specific to Bes -- when you say "Beezer," I said "Besser," it threw me off -- how Beser anticipates the specifics of elements of a claim?

BY MR. KUSHAN:

Q Right. So for example, in your opinion, Beser does not show a secure communication link because you've concluded that a secure communication link requires encryption; is that right?

A So my understanding of a secure communication link, which I think is in keeping with one of ordinary skill in the art at the time of the invention, is that it requires encryption. So under that understanding, then I don't believe that Beser meets this requirement.

Q Okay. So if the Board disagrees with you and says that the term "secure communication link" does not require encryption, then it could conclude that the systems in Beser would show a secure communication link; is that right?

MR. PALYS: Objection, form.

A I haven't thought about what -- what this means, if, you know, the Board goes with its decision. I've been asked to provide my understanding of what that term means. And that's what I did here, right? So I respectfully disagree with how the Board interpreted that term. And I gave my opinion on why that's the case.

BY MR. KUSHAN:

Q And that would be true for both the Beser patent and for the Wesinger patent and your analyses of those two?

A When terms are given specific meaning in the decision, trying to -- yes.

Q So if you could go to paragraph 14 of your declaration. This is, I'm sorry, in the 237 proceeding.

A Thank you.

Q Now, in paragraph 14, you quote a passage from the '697 patent. And this is the second half of paragraph 14. You say, "This patent specification teaches that 'data security is usually tackled using some form of data encryption.'"

Do you see that quote?

A I do.

Q And you point out that the '697 patent repeatedly discusses using encryption in various embodiments, right?

A Mm-hmm.

Q Okay. So on the quote that you provide, you're reading the word "data security is usually tackled by using some form of data encryption" to mean that it is always tackled by using some form of data encryption in the '697 patent; is that right?

A I'm interpreting how I said here, it's usually tackled using some form of data encryption.

Q Right. So the word "usually" means not always, right?

A Correct.

Q All right. And so when you read the sentence that says "Data security is usually tackled using some form of data encryption," would the natural meaning be that data security may sometimes be tackled with using some form of data encryption and other times without data encryption?

A So in light of what is being -- of the invention, it's clear that data security is -- is tackled through encryption. So it may say that in some other context. You can interpret this in some other context depending on what you're trying to do, but this statement is data security was tackled in some other way.

But in light of '697, as I've provided several examples, I go back and say, this is why you need -- in this context, you're trying to -- you're trying to conceal the contents of a communication, which is why we're building this communication link, then encryption is the way to do that.

Q Do you understand that the '697 claims require the concealing of the content of the communication?

MR. PALYS: Objection, form.

A Can you be -- let's try and be more specific. What do you mean here?

BY MR. KUSHAN:

Q Sure.

A So we're discussing secure communication links.

Q Right. So as you understand "secure communication link," that term would not cover a situation where data would be sent through a communication link other than in encrypted form?

A So in light of the teachings of '697, I see data security being enabled primarily through encryption.

Q Okay. Primarily?

A Through encryption.

Q There's no situation where it would not be covered or implemented without encryption?

A In the entirety of '697?

Q Right.

A As far as I recall, the teachings continually refer to the use of encryption to provide

that data security. And even in any context where things happen in the clear, so not encrypted, there's also a suggestion very clearly that some form of cryptographic technique should be used to protect this.

Q And so is it possible that the cryptographic technique used to protect the data in that latter example you gave would be a cryptographic technique such as one used in authentication?

A So authentication is not used and cannot be used to protect the content of a communication.

Q But you can enhance data security using authentication techniques, right?

A You can.

Q And you can also enhance data security with obfuscation techniques like IP address hopping?

A What do you mean by "enhance" here?

Q Make it more secure than in the absence of use of the technique.

A Absent -- so no. So if you're saying that I can use address hopping, as you just said, or I can use authentication without using encryption, that

that does not provide the properties we need to secure that communication.

Q So can you secure a communication between two entities, origination and destination, by using IP address hopping schemes?

MR. PALYS: Objection, form.

A So address hopping would tell you nothing -- at best will only conceal maybe who is talking to whom, but does nothing to conceal the communication.

BY MR. KUSHAN:

Q So in the scenario where you needed to know the origination and destination to provide context for the data being transmitted, in that scenario, the IP address hopping scheme would add to the security of that communication, right?

MR. PALYS: Objection, form.

A If it is done in addition to encryption.

BY MR. KUSHAN:

Q Let's just take an example. I'm just trying to make sure we understand what improves data security and what doesn't. If the Pentagon and the

CIA send each other a message and they have a code word which the CIA knows means launch drone strike, and the code word is "red," you would need the context of the communication coming from the Pentagon to the CIA to see the significance and meaning of the word "red" in a data packet, right?

MR. PALYS: Objection to form, and outside the scope of direct testimony.

A I don't see what that has to do with address hopping.

Q So all I'm trying to do is --

MR. PALYS: Hold on. I just want to make sure he got my objections.

THE REPORTER: Yes.

MR. PALYS: Thank you.

BY MR. KUSHAN:

Q Before 2000, people used obfuscation techniques to improve data security, right?

A People used obfuscation techniques for a number of different reasons.

Q Okay. And in the patent, the '697 patent, they describe a scheme called TARP routing.

A That's correct.

Q And TARP routing is an obfuscation technique, isn't it?

A It includes the ability to hop, which is a form of obfuscation.

Q And they are portraying as part of their invention that makes data communications more secure that you will use these obfuscation techniques, right?

MR. PALYS: Objection, form.

A In isolation?

BY MR. KUSHAN:

Q As part of the invention.

MR. PALYS: Same objection.

A So if my memory serves me correctly, in '697, address hopping is considered as a way to help enhance the security of the communication but not by itself. It's in combination with encryption.

BY MR. KUSHAN:

Q So in the '697 patent, it's the combination of the TARP routing technique and encryption that gives that invention the additional security and data

communications that it says it's providing?

A So there is a lot in '697, for one. Let's see. Let me take a look at this.

Q If you want to go -- are you looking at the patent?

A Yes.

Q It's right here. If you want to go to column 3, around line 15, there's a section called "Summary of the invention."

A Okay.

Q So as it's describing here, there's two elements of the invention. One is the encryption technique that I think you've addressed, where you take an encrypted packet and you put it inside an unencrypted packet and transmit that, right?

A So you said something about encryption, without encryption? I don't think that's what I said.

Q So if you go to line 22, column 3, "The IP packets exchanged between TARP terminals via TARP routers are actually encrypted packets whose true destination address is concealed except to TARP

routers and servers," right? "The normal, clear, or outside IP header attached to the TARP IP packets contains only the address of the next hop router or destination server," right?

A Mm-hmm.

Q So what that's describing is a scheme where you have the packet, the true packet which has been encrypted, and then put inside of another data packet where the header information is not encrypted, right?

A Correct.

Q And then the TARP routers use the unencrypted header information to route the traffic via these TARP routers, right?

A So the packets exchanged between the terminals are actually encrypted packets whose true destination is concealed except to TARP routers and servers, which I believe is what you said.

Q So the invention that's being described combines -- and TARP routing is an IP hopping scheme, right?

MR. PALYS: Objection, form.

A So it's a hopping scheme. And there are

several -- again, in '697, there are a lot of twists of how that hopping scheme is envisioned.

BY MR. KUSHAN:

Q So when I say "hopping scheme," basically we understand the same thing, that it's a way of routing the traffic to try to prevent people from understanding what the true origination or true destination is, right, of a communication from point A to point B?

A Yes. To conceal the true origination and destination. That's the way you can look at it, correct.

Q And so the invention of the '697 patent is combining this hopping technique with the -- and using encryption of the true data packet from A to B inside of these other packets that are moving it through a route to the ultimate destination, B; is that right?

A That's not all it does.

Q And what else does it do?

A I mean, there's a lot -- it's not only encrypting the -- encryption is not only used to

conceal who is talking to whom.

Q What else is it used for in the '697 patent?

A To protect the content of the communication.

Q So it's using the encryption for -- it's using the scheme, an IP hopping scheme to improve the security of the overall transmission of data from point A to point B, right?

A Yes. So improving the overall -- when it's clear that by "overall," you mean the parts of which we're -- the communication is encrypted?

Q Right.

A Mm-hmm.

Q So the way that the '697 is describing a "secure communication link," in your view, it would use this scheme to provide that secure communication link; is that right?

A So we switched back now to a claim term?

Q Yes.

A Right? And so for the -- for a secure communication link, it's very clear that '697 teaches

that encryption is used to provide data security.

Q Right. And it's also teaching that it's using an IP hopping scheme in conjunction with the encryption, right, to provide a secure communication link?

A That one could be used.

Q So as you read the disclosure of the '697 patent, you see the part that they indicate that it can use an IP hopping scheme as being optional, but then you see the part where it's using encryption as mandatory for a secure communication link?

A Correct.

Q Does the '697 patent have a passage in here that says that this IP hopping scheme is optional?

A I have to go back and look.

Q You didn't express an opinion about this in your declaration, did you?

A So I expressed an opinion that the patent specification clearly teaches that data security is tackled by a data encryption.

Q And as we've just discussed, it also says that the data encryption technique is part of another

scheme which also includes this IP hopping through TARP routers, right?

A It's not a part of, right? So when IP hopping is used, it's used in conjunction with -- can be used in conjunction with encryption.

Q So then let's just go back to the column 3 section we were discussing a minute ago. Do you want to look at column 3, line 35? It says, "Each TARP packet's true destination is concealed behind a layer of encryption generated using a link key."

Do you see that?

A I'm trying to get to where you are.

Q Column 3, line 35, 36. There's a new paragraph right there?

A Yes.

Q And so a TARP packet is a packet that's being sent via this IP hopping scheme that the patent calls TARP routing, right?

A Correct.

Q And so was this the passage of the '697 patent, one of the passages that you relied on to form your opinion that encryption is required for a

secure communication link according to the '697 patent?

A There -- you know, there are many such examples, some of which I point to in the declaration.

Q But this was one of them, right?

A So the entire context of that discussion, which is referred to here, it says, "But the address hopping embodiments in the '697 patent also use encryption and it is the encryption that provides security while moving from address to address."

So here I point to the entire, you know, column 3, starting on line 16, going to column 4. So the context of that.

Q And as we just discussed, that context is describing the use of encryption in this TARP routing scheme, right?

A Yes.

Q Okay. Could you go to column 10 of the patent. And you quote in paragraph 14 lines 26 to 27 of column 10.

A I'm sorry. You threw a lot of numbers

there. You're going back to my declaration?

Q To the patent. And go to column 10. And you see lines 26 to 27?

A So yes, I see.

Q So in this -- you mentioned this as one of the embodiments that you say shows -- is one of the repeated examples of an embodiment using encryption. And I just want to confirm, that embodiment is also the TARP packet scenario we just discussed, where it's the TARP packet data being encrypted, right?

A So it says, "The link key is the encryption key used for encrypted communications between the endpoints of a single link in the chain of hops connecting the originating TARP terminal element 100 and the destination TARP terminal element 110."

Q So this is a TARP packet example again, right?

A So it's saying that the TARP packet, and the parts of the TARP packet we're talking about, can be encrypted using the encryption key that is currently being used for encrypted communications between those points.

Q Right. So I'm just -- your testimony in paragraph 14 says, it repeatedly -- the '697 patent repeatedly discussing using encryption in various embodiments. And I'm just trying to confirm that --

A That is one of the embodiments.

Q -- this is the TARP embodiment, again, that's being mentioned?

A Yes.

Q Could you go to column 11, line 42. This is a section you quote, again, line 42 to line 49. So this is an example, another embodiment that you mentioned in showing use of encryption, right?

A Give me a second.

Yes, it's another example that teaches encryption should be used.

Q Well, let me ask you, can you see at line 46, that sentence that begins "Any of a variety of other mechanisms for securing data to ensure that only authorized computers can have access to the private information in the TARP packets may be used."

Do you see that?

A I do.

Q Okay. And so, first, again, this passage at 42 to 49 is talking about the TARP packet embodiment again, right?

A Which says that -- it says -- I interpret that this means that that is protected by encryption, and additionally that other mechanisms for securing the data to ensure that only -- so now we're talking about authorized parties who can access this content.

Q So it's saying an alternative to the encryption techniques that it mentions in the first two sentences would be other mechanisms that would be authorization mechanisms, right?

A That's what the words say.

Q And that's literally what it says, right?

A That's what it says.

Q And again, this passage is still talking about the TARP embodiment of the invention, right?

A So this is referring to the entire context of the teachings of '697 that's basically saying that communication may be made private using these link and session keys, these encryption keys which in turn may be shared and used according to any desired

method.

Q Right. And then the next sentence says, "Any of a variety of other mechanisms for securing data to ensure that only authorized computers can have access to the private information in the TARP packets 140 may be used as desired."

So the section that we've just been talking about is discussing this embodiment that has the TARP packet scenario, right?

A In this embodiment.

Q Just so I'm clear, the second sentence says, "For example, a public key or symmetric keys may be communicated." Those are the two general classes of encryption techniques, right, public key and symmetric key encryption, right?

A Cryptography, yes. These are the keys used. Yes, that's fine.

Q Is it correct for --

A That's fine.

Q Two schemes, one is the public key and the other is the symmetric key model?

A Mm-hmm.

Q Could you go to column 34 at lines 38 and 39. And that --

A One second. Column 34?

Q 34, lines 38 and 39. This is a simple question.

A I'm just looking at what you said. 38. Sorry. 34. I'm looking at the right --

Q Column 34, lines 38 and 39.

A Mm-hmm.

Q That's the sentence that says, "the following describes various improvements and features that can be applied to the embodiments described above," right?

A Yes.

Q So that sentence doesn't say anything about encryption, right?

A That sentence in isolation does not say the word "encryption."

Q So if you go to paragraph 16 of your declaration, of the 287 proceeding -- I'm sorry, 237 proceeding. Now, in paragraph 16, you say in your opinion, "Authentication merely ensures the recipient

that a message originated from the expected sender," I guess "is from the expected sender, which is consistent with the definition of authentication in a dictionary the '697 patent incorporates by reference."

And then you go with a parenthetical quote to Exhibit 2004. So let me, if I could, direct you to the patent again at column 39, lines 65 to 67. And let me know when you're there.

A Could you repeat the column?

Q Yes, 39, lines 65 to 67. So I had a couple of questions. If you want to keep your paragraph 16 there.

A Mm-hmm.

Q My first question is, you said that the patent provided a dictionary, right, a definition in a dictionary that the patent, '697 patent incorporates by reference. And it refers to this FreeS/WAN project in your parenthetical. I just want to confirm, when you read this line down here at column 39, 65 to 67, which is the only place the word "FreeS/WAN project" appears in the '697 patent,

that's why you found that to be an indication that it's a dictionary that was incorporated by reference into the '697 patent.

A That particular point, I don't remember if I went specifically to that because it was referenced there. But to understand the scope of what has been discussed there, I probably went back to 2535 and looked at what was mentioned here. I found it relevant.

Q I'm going to ask you about the FreeS/WAN in a minute, but just to understand why you picked this phrase, you said a dictionary, the '697 patent incorporates by reference, it seems to be based on the fact that it mentions here this FreeS/WAN project as giving a dictionary definition of the word "authentication," right?

A I think it's just one of many that gives a -- one of many that talks about a definition for "authentication." And so this one was mentioned here, and looking at what it says, it's consistent with what was said there.

Q Like I said, I'm going to ask you about the

FreeS/WAN project in a minute.

A Sure.

Q But the reason you picked this FreeS/WAN glossary or dictionary was because you saw this passage as being kind of a dictionary type of reference that was incorporated into the '697 patent?

A Incorporated? It's a reference that is mentioned in the patent.

Q And you said in your paragraph 16, it says, "In a dictionary that the '697 patent incorporates by reference," which I understood that to mean, you saw this phrase and you said, this '697 patent is using that FreeS/WAN reference to incorporate the definitions that you would see in the FreeS/WAN project documents, right?

A No. It says -- you know, if you look at that dictionary, you know, the definition given there is consistent, like definitions given elsewhere, with respect to authentication.

Q But I'm trying to understand why you picked the FreeS/WAN project dictionary terms. Is it because the '697 patent mentions it as an example

here?

A As to the exact reason and what was my thinking of why I just jumped there, it's an obvious reference in here. It's one of those that I was trying to see if that at the time of the invention, is that an appropriate reference, is it in keeping with my understanding. That's one of the reasons why it's here.

Q Okay. So if you go over to column 40, the next sentence, it says, "The conventional scheme suffers from certain drawbacks. For example, any user can perform a DNS request. Moreover, DNS requests resolve to the same value for all users."

Do you see that?

A I do.

Q That's the sentence that immediately follows the previous paragraph that had that FreeS/WAN comment in it. If you want go back to column 39, at line 59, it says, "One conventional scheme that provides secure private networks."

Do you see that sentence?

A Yes.

Q So this passage starts at line 39 -- I'm sorry, column 39, line 59, that runs over to column 40, line 3, is saying that the FreeS/WAN project is one implementation that's a conventional scheme, using or providing secure private networks using DNS servers and public keys, right?

A So it's saying that that's a way to do it that's different than the specifications that's taught in '697 and the -- in particular is different than the terms of the claims.

Q So I think we're in agreement that this is basically saying this is the older technology or conventional technology; it's not the invention that's the subject of the '697 patent, right?

MR. PALYS: Objection, form.

A What do you mean by an old way that's not related to '697?

BY MR. KUSHAN:

Q I'm just saying, when you read this passage, it's saying this is a conventional scheme, not what the invention of the '697 patent is, right?

MR. PALYS: Objection, form.

A In my view, it says this is one way of trying to achieve some property. And these properties are different than what is expressed in '697. It says, "According to certain aspects of the invention" -- so let me go back. It starts talking about different drawbacks. And that's all in context of that scheme and why it is not in keeping with what we discussed in '697.

BY MR. KUSHAN:

Q Sure. So the FreeS/WAN project is the older conventional scheme, which is different than the scheme that's being described as being the invention in the '697 patent?

MR. PALYS: Objection, form.

A It says what -- I think it's clear what it says here. It says -- as you said, one conventional scheme that provides secure virtual private networks over the Internet provides a DNS server with public keys of the machine that the DNS server has an address for. So it's about -- you can think about it in terms of finding the public keys of the machines that the DNS server has addresses for.

One way -- go ahead.

BY MR. KUSHAN:

Q Right, but -- no, if you want to finish your answer.

A That's it.

Q So it's just, when you read this as a person of skill, you appreciate that the invention that's the subject of the '697 patent is not the FreeS/WAN project, right?

A Yes.

Q Okay. Could you -- you cited in paragraph 16 of your declaration Exhibit 2004.

(VirnetX Exhibit 2004 was previously marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q And this is a glossary for the Linux FreeS/WAN project, right? That's the title of the document.

A Correct. Mm-hmm.

Q If you go to page 1 of the document, and you see there's a date listed on the document of --

this is about -- on this first page, it's two-thirds or three-quarters of the way down under the HTTP line. And this has a date of February 21st, 2002, right?

A I'm trying to see where you're reading. Sorry.

Q So I'll point it out to you. This line.

A Yes.

Q It's the footer of the document. If you want to go to the next page, you'll see the same footer. And that has a date of February 21st, 2002, right?

A Yes.

Q So this document was created on February 21st, 2002?

A Yes.

Q Okay. And that's after the day that the '697 patent specification was written, right, which was back in 2000?

A That's correct.

Q All right.

A But that's just one of many references for

the term.

Q But they could not have used this document as literally the document they had in mind when they wrote the patent back in 2000, right, because this only was created in 2002?

MR. PALYS: Objection to form.

A So I don't recall offhand if the earlier versions of this document, which, you know, clearly could have preceded 2002, that you said here, because it says FreeS/WAN 1-3 document, included or did not include that specific term we're talking about. Could have.

BY MR. KUSHAN:

Q Okay. I'm going to introduce a previously marked exhibit, which is -- I'm sorry, it's a new exhibit, 1082.

(Petitioner Apple Inc. Exhibit 1082 was marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q Do you recognize this document? Well, I can make it easier. It's an RFC, right?

A Mm-hmm.
Q And what's the RFC number of this document?
A 2535.
Q Could you go to the patent, and go to line -- the very last line of column 39.
A Mm-hmm.
Q You see the parenthetical reference, after FreeS/WAN project, is RFC 2535?
A Yes.
Q That's this document, right?
A Mm-hmm.
Q So this is a document about domain name security extensions, right?
A That's correct.
Q And this is not the glossary of the FreeS/WAN project that you cited in your declaration, right? I think my question was pretty simply. It's just not the same document you cited in your declaration, right?
A Yes, that's correct.
Q All right. So I have a different question. If you go to the front page of RFC 2535, do you see

the abstract on that? It's on the bottom half of the first page. And in the abstract, it's describing what this domain name system security extension standard is all about, right? It's a scheme for providing data integrity and authentication to security-aware resolvers in applications through the use of cryptographic digital signatures.

(Simultaneous speaking.)

MR. PALYS: Objection to form.

A That's what it stated.

MR. PALYS: Outside the scope of direct.

(The reporter asked for clarification.)

THE WITNESS: He read something in the abstract of the document that -- I haven't looked at the specifics of that in a long time.

A So just giving you opinions on something that is, you know, a fairly large RFC, I think it's outside -- for me, I need to go back and take a look more carefully what -- any specifics of this document.

BY MR. KUSHAN:

Q Well, let me ask you a simpler question.

If you go back to the patent.

A Sure.

Q You see that sentence that refers to RFC 2535 in it, column 39, line 66, 67.

A I do.

Q So as you read this, the patent is directing you to RFC 2535 for the additional information it's referring to here, right?

MR. PALYS: Objection to form.

A If you mean it's included in it, I don't think so. It says -- you know, there is a reference, and I've -- you know, you can look at that reference for more information, for some of the...

BY MR. KUSHAN:

Q So it's a pointer, it's pointing you to the RFC 2535 for more information about what it's discussing here, right?

A It's pointing you to that RFC. You can go look at that RFC.

Q And do you know what the RFC 2535 is? Do you know that standard?

A I've seen the standard before.

Q All right. And you're familiar with cryptographic digital signatures, right?

A Yes.

Q And those are used in authentication protocols, right?

MR. PALYS: Objection, form. Outside the scope of direct.

A So cryptographic techniques can be used for different -- for in authentication -- for in authentication for specific purposes in the context. You have to know the context in which the cryptographic technique is being used.

BY MR. KUSHAN:

Q So in this context of RFC 2535, they're using digital signatures in the context of providing authentication, right? It says -- look at the second paragraph of the abstract. It says, "The extensions provide for the storage of authenticated public keys in the DNS," right?

MR. PALYS: Objection, form. Outside the scope of direct.

A I have to go back and look very carefully

at the specifics of this to be able to give you an answer and how to interpret, you know, a sentence in isolation.

BY MR. KUSHAN:

Q So you don't have any current memory about what the domain name security extension standard or protocol is?

MR. PALYS: Objection, outside the scope of direct.

A It's a large standard.

BY MR. KUSHAN:

Q Well, so I'm asking, as you sit here today, do you know what it is?

MR. PALYS: Objection, outside the scope of direct.

A I do.

BY MR. KUSHAN:

Q Okay. And is this the domain name security extension standard directed toward an authentication technique that can be used with DNS servers?

MR. PALYS: Objection to form. Outside the scope of direct.

A So again, the specifics of how cryptography is and isn't used in this extension, I'll need to go back and look very carefully at the document to give you a direct answer to your question that you're posing.

BY MR. KUSHAN:

Q So when you reviewed the '697 patent, and you noticed this FreeS/WAN project reference, you didn't review RFC 2535?

A I looked at the RFC 25 at the time to see exactly what it is being done for in this case, as you said, authentication for a message, DNS.

Q That's generally what 2535 is being cited for, which is authentication of the message in the DNS context?

A As far as I recall, there is no encryption of the message.

Q So at least in RFC 2535, they're using an authentication to provide data integrity through this extension to the domain name server system?

MR. PALYS: Objection, form. Outside the scope of direct.

A Providing integrity of the message. They're using cryptographic technique to provide integrity of the message. Not secrecy, concealing the message.

Q By providing integrity of the message, you're enhancing data security in some level, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q You know it won't be fake as origination, for example?

MR. PALYS: Objection to form. Outside the scope of direct.

A So authentication technique can be used to verify -- to convince the recipient that the message is from the intended sender.

BY MR. KUSHAN:

Q Or from the sender who's represented as being the sender, right?

MR. PALYS: Same objections.

BY MR. KUSHAN:

Q So the authentication is making sure that the person or the source is authentic, right?

MR. PALYS: Objection, outside the scope of direct. Form.

A The source...

BY MR. KUSHAN:

Q Of the message.

A Of the message in some way is authentic.

Q Okay. Now, when you expressed the view that a secure communication link according to the '697 patent claims requires encryption, is that belief based on your understanding that encryption will ensure that the communications between the origin and the destination are anonymous?

MR. PALYS: Objection to form.

A You've mixed two things here.

BY MR. KUSHAN:

Q Okay. Can you clarify?

A So you said the encryption being used for anonymous communications only. So encryption is used to create -- to keep the conversation private, confidential.

Q And that's different from being an anonymous conversation?

A It is different from having anonymous conversation.

Q So you can achieve anonymity by, for example, an IP hopping scheme, right, because IP hopping scheme would conceal the source and destination of a message, right?

MR. PALYS: Objection to form.

A Depends on the specifics of what that hopping scheme is.

BY MR. KUSHAN:

Q And let's say by that do you mean that the IP hopping scheme has to be effective? Right?

MR. PALYS: Objection to form.

A This is hypothetical. So --

BY MR. KUSHAN:

Q Sure. Just as based on your background of skill in the art.

A So your hypothetical question, can you repeat it?

Q Yes. So can you achieve anonymity in a communication or in a message from point A to point B by using an IP hopping scheme?

MR. PALYS: Objection to form. Goes beyond the scope of direct.

A Anonymity can be achieved by an IP hopping scheme. The context of exactly how that's done I think needs an examination of the specifications of what they are trying to do.

BY MR. KUSHAN:

Q So let's go back to the patent claim and some of your experience with that. If you want to look at the patent, '697 patent, and back to the very back of the document. Do you understand the difference between a dependent patent claim and an independent patent claim? This is starting around line 56 -- or column 56. Just generally, do you know what a dependent claim and an independent claim is?

A Yes.

Q And a dependent claim narrows the scope of the independent claim from which it depends, right?

A It reads off the independent claim.

Q So you can go back to my example of A, B, C, where you say a widget can be A, B, or C, and your dependent claim says wherein the widget is A, that's

narrowing the claim to one of the things covered by the independent claim, right?

A That's my understanding.

Q And then the claim 1 still covers more things than what's listed in the dependent claim, right?

MR. PALYS: Objection to form.

A So the dependent claim and the independent claim -- so if you say that -- so you have the independent claim stands on its own. The independent claim relies on -- sorry. The dependent claim relies on the independent claim, which means that all the specifics of the claim for the independent claim still apply.

BY MR. KUSHAN:

Q Right. But they typically narrow the scope of the independent claim to be narrower in its breadth compared to the dependent claim, right?

MR. PALYS: Objection, form.

BY MR. KUSHAN:

Q Maybe I'll say it simpler. So if you have a dependent claim that says wherein, and then it

lists the property, that's taking away what might be available as an option in the independent claim because it's now making it an explicit requirement in the dependent claim, right?

MR. PALYS: Objection to form. Outside the scope of direct testimony.

A It can be limited in some way.

Q All right. So if you could look at claim 2 of the patent, the '697 patent. That's a dependent claim, right?

A Yes. So it's dependent on the method of claim 1.

Q Correct. And it adds a requirement, right?

A Correct.

Q And that requirement that it's adding is that the video data and the audio data is encrypted over the secure communication link, right?

A Correct.

Q So this is making an additional requirement compared to claim 1 from which it depends, right?

A That's my understanding.

Q Okay. If you go to your declaration at

paragraph 15. So this is where you're saying that -- identifying another reason why you believe the decision of the Board in construing "secure communication link" is technically incorrect. Do you see that?

A I do.

Q All right. And so you make a reference in the last sentence of this paragraph to "The other techniques alone," meaning I think other than encryption, "do not provide the claimed security," right?

A Of restricting access to data.

Q So when you read the word "security" in the context of a secured communication link, that requires the claim to be limited to protecting or restricting access to data, right?

A The decision construed this as restricting access to data addresses and other information on a path, that's fine, generally using obfuscation methods, including but not limited to one of authentication, encryption, and address hopping.

And I'm opining here, saying that of -- in

order to -- based on the definition, which is technically incorrect, restricting access to data addresses or other information on the path, that's only achieved here by encryption.

Q All right. And in your opinion, that derives from the passages we talked about earlier today, where it's a TARP scheme and they're encrypting the data packets; is that right?

A It derives from several passages in the '697.

Q And those are the ones you identified in your declaration?

A Some of them.

Q So you didn't identify other passages in your declaration that you believe support your opinion?

A I gave some examples. Encryption is used in several places in '697.

Q So go back to paragraph 17 of your declaration, if you could. And in that very first sentence you say, "Address hopping alone does not provide security." And again, you're referring to

data security here?

A In the context, yes, of restricting access.

Q You're not -- so when you use the word "security" here in the claim term "secure communications," you're not addressing security of the addresses of the parties to the communications, right?

MR. PALYS: Objection to form.

A I'm addressing what is construed in the decision, which it says "A transition path that restricts access to data addresses or other information on the path." So it's restricting access to that. And here it says address hopping alone does not provide that.

BY MR. KUSHAN:

Q So address hopping would provide protection against disclosure of the addresses of the parties to a communication, right?

MR. PALYS: Objection, form.

A Address hopping may hide who is talking to whom.

BY MR. KUSHAN:

Q And so that's enhancing the security of the communication between those two parties, because you cannot determine who is speaking to whom, right?

MR. PALYS: Objection, form.

A You may not be able to determine in isolation who is speaking to whom.

BY MR. KUSHAN:

Q And that provides some amount of security for that communication between the two parties we've discussed, right?

MR. PALYS: Objection to form.

A Sure.

BY MR. KUSHAN:

Q Can you go to the '697 patent.

A In this broader context.

Q Right. So if you go to the '697 patent, at column 3, and down to line 53 to 63.

A Can you repeat where? I'm sorry.

Q It's starting around line 53.

A Sorry, the column?

Q I'm sorry. Column 3.

A Column 3. Mm-hmm.

Q Around line 53 and through to the end of the paragraph at 63. This is discussing something in the patent called agile routing. And that's an IP hopping scheme, right?

MR. PALYS: Objection to form.

A So what's your question?

BY MR. KUSHAN:

Q So what I want to do is, what this is saying is this is a technique where it takes a message and chops it up into pieces and routes each piece through a different route, right?

A This passage is saying that you can change the -- so you move from one to the next. It's just not you jump from A to B to C, right? So let's think of it as the identities of A and B and C are changing.

Q Right.

A Okay? And it also says that the associated advantages have to do with an inner layer of an encryption, which is discussed later. And then it also mentions the padding that you just -- the breaking things up into blocks. And if you read the

entire disclosure of '697, it tells you why this breaking things up in blocks, for example, is included, the padding.

Q So it's breaking it up into blocks and then each piece of the original message is sent by a different path, right?

A Not necessarily.

Q Well, let's just go through this. It says it takes -- "as each TARP packet makes random trips among a number of geographically disparate routers before reaching its destination. Each trip is highly likely to be different for each packet composing a given message because each trip is independently randomly determined," right?

A In this passage, yes.

Q And that's all I'm talking about right now.

A In that passage.

Q So in this technique, in addition to the encryption of every packet, inside of each packet that's got that encrypted bit, the individual packets that are together, making up the whole message, are being routed by different paths, right?

MR. PALYS: Objection, form.

A So as stated here, there are two things.

BY MR. KUSHAN:

Q Right.

A In this context right here, there's the separation -- the hopping, and the separation of the packets into equal size chunks that take different routes.

Q Right. And then it says that "the fact that the different packets take different routes provides distinct advantages by making it difficult for an interloper to obtain all the packets forming an entire multi-packet message," right?

A That's what it says.

Q So it's identifying a benefit to the security of the transmission of the message that is derived from the IP hopping that's being used to transfer the message, correct?

A It's identifying the fact that you broke up packets and you sent them across multiple different routes, would make it more difficult for an adversary to combine them.

Q Right. And as the patent is saying, that's a distinct advantage for the security of the transmission of that communication?

A It's an advantage, yes.

Q Okay.

MR. PALYS: It's almost noon. We've been going an hour and a half.

MR. KUSHAN: Let me ask like one or two more questions, then we can do a lunch break.

MR. PALYS: Are you okay?

THE WITNESS: Yes, I'm fine.

MR. PALYS: Okay.

THE WITNESS: I need a break soon.

MR. KUSHAN: Why don't we shoot for five to ten more minutes, is that all right?

THE WITNESS: We'll see how I feel.

MR. KUSHAN: Do you want to take a break now or do you want to go for another five or ten minutes?

THE WITNESS: Five minutes is fine.

BY MR. KUSHAN:

Q All right. If you can go to paragraph 19

of your declaration. So in 19, you say, in the very end of your paragraph 19, "For signals traveling the distances contemplated by the '697 patent and particularly where those distances include third-party controlled network hardware, encryption is the only viable mechanism for security over those physically unsecured portions of the network."

A Mm-hmm.

Q Now, if you could, go to the patent, and go to the claims. This is at the very end of the patent, in column 56, I think. We'll just go with claim 1 for now. So claim 1 states, "A method for connecting a first network device and a second network device."

Do you see that?

A I do.

Q Now, do you understand claim -- do you see anything in claim 1 that specifies the distance that is required to be -- sorry. Do you see anything in claim 1 which says that there's a minimum distance that the message from the first network device to the second network device has to be? Is there some

minimum distance between those two network devices?

A If you look at claim 1 in isolation, the words there's a distance here do not appear. But if you look at the context of the specification, which is talking about transmission over public networks, there's an implied distance. It's not -- I'm not sitting across the table from you. This is a significant distance away, over mediums that I don't have physical access to protect them.

Q So let's say we're implementing the method of the '697 patent. And I'm sitting here and you're sitting there. And we're attached to the same Wi-Fi router. Are you saying that a transmission from a device I have here to a transmission that might be of a device in your pocket would not be covered by claim 1 of the '697 patent?

MR. PALYS: Objection, form, and outside the scope of direct testimony.

A I did not say that.

BY MR. KUSHAN:

Q Okay. So I'm trying to understand, you're attaching -- you're making a comment in paragraph 19

of your declaration that suggests that there's a minimum amount of distance that the message from the first network device has to travel to get to the second network device, right?

MR. PALYS: Objection, form.

A I'm only making an opinion that says in light of the context of '697, that techniques that may require onsite, physical locking the doors, etc., don't apply in this -- don't necessarily apply in this context.

BY MR. KUSHAN:

Q All right. So this comment that you're making about the distance of the message that -- I'm sorry. This comment that you're making in paragraph 19 in your declaration about the distance a message might have to travel from the first device to a second device, you're only talking about physical security of a building or something?

I'm not understanding.

A No.

Q So I'm trying to understand, you don't think the claims have a minimum distance requirement

for the message to go from a first network device to the second network device, right?

MR. PALYS: Objection to form.

A The claims do not say anything about a minimum distance.

BY MR. KUSHAN:

Q All right. And so when you say "for signals traveling the distances contemplated by the '697 patent," that's not talking about claim 1, is it?

A Claim 1 is within the scope of what's disclosed by the patents.

Q But it's not -- so this comment you're making is about something which might be covered by the claim 1, but there are other things that may not be the same that's covered by claim 1 of the patent?

MR. PALYS: Objection to form. Also outside the scope of direct.

A My declaration is only saying that if we consider the settings in which '697 is built or is proposed for, then providing security of those communications without these other methods,

authentication alone, for example, do not provide the necessary protections.

BY MR. KUSHAN:

Q So just as you've stated it, you're saying that encryption is the only viable mechanism for security over physically unsecured portions of the network when the signal from the first device to the second device has to travel a significant distance? That's the point you're making in the last sentence of paragraph 19, right?

MR. PALYS: Objection to form.

A I'm saying in cases where the distance varies from a few hundred feet to thousands of miles, then encryption is the only viable form for protecting that communication. It's going over, in the settings here, public networks that I don't have physical access to, I don't have access to.

So in those settings, encryption is the viable form.

BY MR. KUSHAN:

Q So in situations where you don't have that distance requirement, then something other than

encryption would be a viable technique?

A I don't say that.

Q Isn't that the logical conclusion of the scenario you've just described?

MR. PALYS: Objection to form.

A It doesn't say it's precluded to only cases where the distance is great.

BY MR. KUSHAN:

Q Just literally what you said, is that when the distances are of a certain significance, then the only viable way of protecting the data in your own mind is through encryption, right?

MR. PALYS: Objection to form.

A Yes.

BY MR. KUSHAN:

Q And you're not offering an opinion in this paragraph about the other scenario that's implicated by that statement, which is when the communications are occurring at a shorter distance from that threshold you've identified.

MR. PALYS: Objection to form.

A So even -- my opinion is even in shorter

distances, if you're trying to protect the security of the data communication, you need encryption.

BY MR. KUSHAN:

Q So this is incorrect, what you've stated here in paragraph 19?

MR. PALYS: Objection to form.

A I don't see how it's incorrect.

BY MR. KUSHAN:

Q Well, it's changing what you're saying, right? So you're deleting the first clause of your statement. You're saying -- what your last explanation was is that the words "for signals traveling the distances contemplated by the '697 and particularly when those distances include third-party controlled network hardware," you're deleting that part now, right?

MR. PALYS: Objection, form.

A I'm not deleting.

BY MR. KUSHAN:

Q Your last statement said encryption is required in addition to this scenario where you've said signals traveling the distances and also

third-party controlled network hardware, encryption is required as being the only viable mechanism, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q So you're changing your opinion in paragraph 19 to say encryption is required even if the distances are not as contemplated by the '697 patent and even in situations where it's not third-party controlled hardware?

MR. PALYS: Objection to form.

A I'm giving -- I'm saying what's said directly here. So again, we're looking in the context of '697. So the transmission of an encrypted digital signal consisting of -- we're talking about the signals that may be carried over great lengths. My opinion is in those situations, like '697, encryption is required.

BY MR. KUSHAN:

Q And you're not expressing an opinion then in this passage, we're in paragraph 19, about the other situations that are not covered by your

scenario of signals traveling distances contemplated by the '697 patent, and particularly where those distances include third-party controlled network hardware, right?

MR. PALYS: Objection to form.

A I didn't opine on anything that's outside of the scope of '697.

BY MR. KUSHAN:

Q Or the scenario that is in the last sentence of your paragraph 19, right?

MR. PALYS: Objection to form.

A I think it's pretty clear what I said here, right? Signals traveling the distance contemplated by the '697 patent, the scope of the '697, where these distances include third-party controlled network hardware, encryption is the only viable mechanism for security over those physically unsecured portions of the network.

MR. KUSHAN: All right. We're willing to break, but how long do you want to go?

MR. PALYS: Do you want to stop for lunch? It's 12:00.

THE WITNESS: Stopping for lunch is good.

MR. KUSHAN: Should we shoot for --

MR. PALYS: Oh, how long? Sorry.

MR. KUSHAN: 30 minutes?

MR. PALYS: 30 minutes, 34 minutes. Is that good?

MR. KUSHAN: All right.

(Whereupon, at 12:06 p.m., a lunch recess was taken.)

AFTERNOON SESSION

(12:44 p.m.)

BY MR. KUSHAN:

Q So a couple of quick questions. Did you speak to counsel during the break?

A I did.

Q And what did you discuss?

A Where do you want to go for lunch.

Q Did you discuss any of your testimony that you gave this morning during lunch?

A I did not.

Q Did you discuss how you are answering questions?

A I did not.

Q All right. If you could do me a favor and grab the patent, which is Exhibit 1001, '697 patent. If you go to column 56, where claim 1 starts. So --

A One second, please.

Q Let me know when you're ready. By the way, that book you've got, is that your own copy of the exhibits?

A Yes.

Q And did you make any annotations in any of those documents?

A No.

Q Okay.

A Mm-hmm.

Q All right. So you see claim 1 defines a method, and it has one, two, three -- three steps. Do you see that? It says it's a got three steps, and the last clause is a wherein clause.

A I see them.

Q So in the first step, that's an intercepting step, right?

A That's an intercepting step, right.

Q And what it says is that a request to look up -- what it's intercepting is a request, right?

A A request to look up an IP address of the second network device, etc. Mm-hmm.

Q And it says, "Request to look up an Internet protocol IP address of the second network device based on a domain name associated with the second network device." Do you see that?

A I do.

Q So that's referring to a conventional DNS lookup that returns the IP address of the domain name?

MR. PALYS: Objection, form.

A So it's what it says there, right? So "intercepting from the first network device a request to look up the IP address of the second network device based on the domain associated with the second network device."

BY MR. KUSHAN:

Q And that step of returning the IP address of the network device associated -- I'm sorry. Let me say that again. That step of looking up the IP address of the second network device based on the domain name, that's the conventional domain name resolution process where it returns the IP address of the domain name, right?

MR. PALYS: Objection to form.

A It doesn't say anything that's specific to conventional DNS.

BY MR. KUSHAN:

Q Do you know that's a different kind of DNS

lookup?

A No. So interpreting the intercepting phrase here, it's in the context of the domain name system. No other annotation before and after that.

Q And just so I understand, so the domain name lookup is a process that returns the IP address that the domain name system has recorded for the domain name, right?

MR. PALYS: Objection to form.

A So abstractly speaking, the domain name system is returning an IP address or network address, in this case an IP address, for the name that is requested.

BY MR. KUSHAN:

Q All right. And so a DNS request is when a computer sends to a DNS server a domain name which will return the IP address of that domain name to the requesting computer, right?

MR. PALYS: Objection to form.

A The request is what is received by the DNS server.

BY MR. KUSHAN:

Q And then it returns the IP address of the domain in the request, right?

A As a response.

Q As a response.

MR. PALYS: Same objection.

BY MR. KUSHAN:

Q Right?

A As a response, correct.

Q Okay. And so that DNS request is the thing that's being intercepted here in the first step of claim 1, right?

MR. PALYS: Objection to form.

A If we go back to -- we're talking about the intercepting phrase that I've been asked to opine on?

BY MR. KUSHAN:

Q Correct.

A Can you continue with your question?

Q So the intercepting phrase, it's intercepting a DNS request, right?

MR. PALYS: Objection to form.

A The request, it says here, "a request to look up an IP protocol address."

BY MR. KUSHAN:

Q And that's the DNS request you just talked about?

MR. PALYS: Same objections.

A Talked about in what context?

BY MR. KUSHAN:

Q In the domain name system. We just walked through kind of --

A Yes.

Q So that's the thing that is being intercepted?

A Correct.

Q If you could go to the next clause, it says "Determining." And I want you to go to paragraph -- put that on one side and go to, if you could, your declaration at paragraph 24.

Now, in paragraph 24, you have a number of things that the DNS proxy 2610 may be doing, it says, "Determine whether access to a secure site has been requested, determine whether the user has sufficient security privileges to access the site, and/or transmit a message to a gatekeeper 2603 requesting

that a virtual private network be created between 40 user computer 2601 and secure target site 2604."

So you're listing a number of determining type actions that are performed by the process of the '697 patent, right?

A Yes.

Q All right. Now, if you look at the second clause, it says "Determining in response to the request whether the second network is available for secure communication service," those examples that you have listed in 24 seem to be the determining -- examples of determining steps that are in the second step of clause 2 of the claim 1, right?

A So there are three examples supported here in my declaration. One is determining whether access to a secure site has been requested, in the context of '697 that's like, you know, example dot S com, determine whether user has sufficient security privileges to access the site.

Q Just on that one, would that be done by, for example, making a query to a firewall or something to check the credentials of the user making

the request, to see if they are authorized to then make a secure connection?

A So in the context of '697, it teaches several ways in which the security -- so determine whether the user has the prerequisite privileges. That includes what credentials does the user have, and whether or not they can access the site being requested.

Q Okay.

A All right?

Q And then the third example, can you tell me something about what that is?

A So once these factors have been determined, there's an additional step in '697 which requests that the virtual private network be created between element 40 and the user's computer, element 2601.

Q And that's the third step, the initiating step?

MR. PALYS: Objection, form.

A So we're talking about what I consider here to be the additional evaluation that's done as context for this interpreting step.

BY MR. KUSHAN:

Q Right. So in the second step, where you're making the determining step, that's when you're performing these evaluations. And then in the third step, you -- based on the outcome of those determinations, you initiate the secure communication link, right?

MR. PALYS: Objection to form.

A If I understand that you're reading directly from the claim language, that's what the claim language says.

BY MR. KUSHAN:

Q Right. And what I want to make sure is these examples of determining steps that are in paragraph 24 are the determining steps that are in 22, which is the second clause that says determining in response to request whether the second device is available for a secure communication service.

MR. PALYS: Objection to form.

A So you're asking about in light of how the PTAB's decision construed this, or not?

BY MR. KUSHAN:

Q I'm asking actually a simpler question, which is, you gave me these examples of things which are determining steps. And I'm looking at those examples, and I'm asking you to confirm that those are examples of the determining step, which is the second step listed in claim 1, right?

A Just for context, which examples are you referring to?

Q So you say in paragraph 24, you say, "For example, a DNS proxy may intercept the request and determine whether access to a secure site has been requested, determine whether the user has sufficient security privileges, and/or transmit a message." And all three of those examples are things which correlate to the determining step in step 2 of claim 1, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q To be one, two, or three of those.

MR. PALYS: Same objection.

A So I provided these examples in reference to what the "intercepting" phrase in the request is.

BY MR. KUSHAN:

Q We just had a -- so -- sorry.

A Go ahead.

Q So this first step of intercepting, that's where it's intercepting the DNS request we talked about before, right?

MR. PALYS: Objection to form.

A The request to look up an IP address of the second network device.

BY MR. KUSHAN:

Q So that's -- go ahead.

A As said here, based on the domain name associated with that device.

Q So that DNS lookup that we talked about before?

MR. PALYS: Objection to form.

A Correct.

BY MR. KUSHAN:

Q And then is your testimony that there is some other determination in addition to that which occurs which isn't listed in the claim, and that's what you're referring to with these examples in

paragraph 24 of your declaration? Or are these examples of the determining step that is the next step?

MR. PALYS: Objection to form.

A Normally we're saying the same thing. So in the context of '697, this interception here, the DNS request, is providing this additional evaluation, of which some of them are to determine whether the access to a secure site has been requested.

BY MR. KUSHAN:

Q Okay. So in addition to this conventional DNS lookup, it's also going to perform during the intercepting step one or two or all three of these examples you've given in 24; is that what you're saying?

MR. PALYS: Objection to form.

A So on the DNS request, these are some of the examples of additional evaluation that will be performed on that DNS request.

BY MR. KUSHAN:

Q All right. So that's all happening during this intercepting step, the conventional DNS lookup

plus then evaluations, these examples, determine whether access to secure site has been requested, determine whether these are sufficient security privileges, and transmit message, that's all happening in the intercepting step?

MR. PALYS: Objection to form.

A On the request.

BY MR. KUSHAN:

Q Right. And then, so then the next question I've got is, what is the determining step that's the next step? What is that performing?

MR. PALYS: Objection to form.

A So I think, again, the claim language to me is clear. "Determine in response to the request whether the second network device is available for secure communication service."

So what you requested, example, dot S com, that second network device is available for secure communication service, which is also defined in the declaration, discussed in the declaration.

BY MR. KUSHAN:

Q So it's your understanding that in the

determining step of claim 1, it's not performing any of the three examples you list in 24, which is "the DNS proxy will determine whether access to a secured site has been requested or determine whether a user has sufficient security privileges to access the site, and/or transmit a message to gatekeeper 2603 requesting that a virtual private network be created between 40 user, computer 2601, and secure target site 2604."

So none of those steps are happening under the determining step in claim 1?

A So the intercepting step is on the DNS request. It's performing additional evaluation. And some of this additional evaluation is to determine whether in response to that request the device is available for secure communications. I don't think I can say it any other way.

Q Right. And I'm just asking you to confirm that you think that all these determining steps that you list in paragraph 24 are part of that intercepting step sequence where you get the conventional DNS resolution, and then one or more of

these additional steps performed, right?

MR. PALYS: Objection to form.

A So I'm saying these are examples of the additional evaluation. You intercept the request, in this case we have the context of DNS, and you perform this additional evaluation.

BY MR. KUSHAN:

Q Right. So let's go into the second step and make sure we understand what can be an example of that determining step. If you could, if you go to paragraph 29 of your declaration. So paragraph 29, you're talking about the determining step now, right, in claim 1?

A That's correct.

Q All right. And you say, "Passages" -- of the '697 patent, cited in the decision, "disclose an example in which a determination is made that a target computer is available for secure communication service without determining whether the device is listed with the public Internet address, and if so allocating a private network address for the second network device."

So then you cite this passage which is a pretty big chunk of the patent, column 41, lines 6 to 64. Can you go to that column of the patent, please, '697, column 41. And let me actually give you a question while you're reading that section so you can look for it.

What I would like you to do is identify something in this passage that you think is an example of the determining step that is the step of claim 1, okay? And just so we're clear, in your declaration, you didn't cite any examples of what would be this determining step in claim 1, right, an example of how that would be done.

MR. PALYS: Objection to form.

A In the -- I opined on what the Board's decision points to as examples of this.

BY MR. KUSHAN:

Q Right.

A And that's not limited to these examples in '697.

Q Right. And so as I understood your declaration, you're saying you're disagreeing that

the passages the Board cited are legitimate examples of what is being done in the determining step of claim 1, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q So we're clear, the first question here is confirming that in paragraphs 27 to 30 of your declaration, you're pointing out why you disagree with what the Board has identified as being examples of the determining step of claim 1. That's my first question.

And the second question is --

A Let's take one question at a time, please.

BY MR. KUSHAN:

Q Sure. Of course. So is that an accurate statement, that what you're saying in paragraphs 27 to 30, these are the reasons why you are disagreeing with what the Board identified as being examples of the determining step in claim 2, right?

A So the decision, as I stated here, gave their own views of what they thought the determining step meant, which is whether the device is listed

with the public Internet address, and if so, allocating a private address for the second network device. And then some indication of the relative permission level of security of the requester of the second device.

And so here I opine on that, whether -- whether or not these are meeting the determining in response to a request to look up.

Q And you're saying none of those are examples that meet the determining step of claim 2, right?

A Whether the private device is listed with a public Internet address does not. Allocating a private address for the second network device in this fashion does not. And indication of the relative security level of the requester is not what we -- is limited in the specifications for -- and the claims for '697.

Q And so we're very clear about this, you're saying that none of those things are going to be the determining step that's listed in claim 2 -- step 2 of -- let me be precise.

So those examples you just gave me, your testimony is that none of those examples are an example of determining in response to the request whether the second network device is available for a secure communication service; is that your testimony?

A None of those specific cases, the cases of looking for -- deciding if the device is listed with a public Internet address, or the specific one cited by -- in the Board's decision? So you want me to look at which passage here?

Q So you walked through your -- in paragraphs 27 to 30, and you expressed your disagreement with the Board that certain passages or examples from the '697 patent are examples of determining in response to the request whether the second network device is available for a secure communication service in claim 1, right?

MR. PALYS: Objection to form.

A With respect to the availability, whether the second network device is available for the secure communication.

BY MR. KUSHAN:

Q So none of these examples meet the determining step of claim 1, in your view?

MR. PALYS: Objection to form.

A The examples I give here in my declaration support that view.

BY MR. KUSHAN:

Q Okay. I just want to -- I'm just trying to get to the next question, which is, I want to know what you see in the patent that is an example of determining in response to a request whether the second network device is available for secure communication services, okay?

So first, this line of questions I just finished, we end with the examples the Board pointed to, you believe are not examples of determining in response to the request whether the second network device is available for a secure communication service, right?

MR. PALYS: Objection to form.

A I think you're just repeating what we said earlier.

BY MR. KUSHAN:

Q So that's yes, right?

A Correct.

Q So now, can you go to your declaration. I'm reading this, and I don't see you telling me what is an example of determining in response to the request whether the second network device is available for secure communication service.

A I stated in the declaration, on page 19, one such example would be as determined, for example, by a domain name extension. So let me go back. If access to a secure site has been requested, and we discussed in the context of '697, it's clear what that means, as determined, for example, by the domain name extension, so something like example dot S com, the second network device, is an indication that the second network device is available for secure communication.

I think that's -- if I understand your question, that's one example of that.

Q Is there any other example you identified in the '697 patent?

A I would have to go back and look.

Q You didn't identify in your declaration any others, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q Maybe I could focus your attention, if I could direct your attention to column 41 of the '697 patent. Now, you reference this section, line 6 to line 64 of that column in paragraph 29 of your declaration, right? And what you're saying is that these examples that are found in column 41, is it your testimony that none of those examples, none of those scenarios or descriptions are examples of the determining step in claim 1?

MR. PALYS: Objection to form.

A To be clear, this is determining in response to the request whether the second network device is available for secure communication service. So my answer is with respect to determining in response to the request whether the second network device is available.

BY MR. KUSHAN:

Q Right.

So let me know when you're ready.

A Just one second.

Q Okay.

A As you said, it's a big paragraph. I'm going back through it.

Q Sure.

A Sir, I've stated here in the declaration, the passage it's referring to says, "These examples don't fit the interpretation here that it means whether the device is listed with a public Internet address, any determining step thereof, allocating the private address for the second network device, or some indication of the relative permission level of the requester."

Q Are you reading from paragraph 24? Which paragraph were you just reading from?

A We're going back to the reference to 41, column 41, 6 to 64.

Q Right. That's in 29, right?

A That's in 29. And what this is in reference to. That's what you asked me.

Q So those examples you just read were in 27?

Your paragraph 27, right?

A My paragraph 27.

Q Right.

A Is with reference to what the decision's interpretation of this means. So it gave some conditions here. The device is listed with a public Internet address, etc., some indication of the relative permission level of security privilege of the requester.

And so I'm saying that, one, this is not limited in any way to that in the patent; and two, that they are again pointing to cases where this determination has nothing to do with the fact that it's listed with a public Internet address, as claimed in part 1 of their interpretation, or allocating a private address for the second network device.

Q All right. So you did give me an example before about the S com example, that would be an example of an indication that the second network device -- I'm sorry. I'll get the right claim language. That was an example of something that

would be where the second network device is available for a secure communication service, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q That's what -- you gave me that example before as something that would fit into that determining step of claim 1, right?

MR. PALYS: Objection to form.

A So the S com here is in reference to the second network -- the second network device.

BY MR. KUSHAN:

Q Okay. And so the S com, the designation of S com, that string, is the thing that is giving the indication that it's available for a secure communication service, right?

MR. PALYS: Objection to form.

A It's not -- let's go back to...

BY MR. KUSHAN:

Q So I'm going to ask you to take a look at column 40, around line 30 --

A That's where I am right now.

Q 32 or so. Do you see that sentence says,

"If access to a secure site has been requested," and it says, "as determined, for example, by a domain name extension." Do you see that?

A I do.

Q So that's your S com example, right?

MR. PALYS: Objection to form.

A So this is an example in that it is a site that has -- has the capability of participating in a secure communication link.

BY MR. KUSHAN:

Q Right. And so that example of the domain name extension is one example of a way to determine if access to a secure site has been requested, right?

MR. PALYS: Objection to form.

A So the fact that that nonstandard name like dot S dot-com has been requested is what's meant here, as determined, for example, by the domain name extension. And you're asking -- and the examples are spread through '697, so give me a second.

BY MR. KUSHAN:

Q Well, I mean, I can just make it simple, because I'm just -- you gave me one example of a way

that the determination of claim 1, step 2 is made, right? That was the determination of determining in response to the request whether the second network device is available for a secure communication service.

And one example you gave me was dot S com.

A For the nonstandard name that can't be resolved by conventional DNS.

Q Right. And then, if I go back to column 40, that's the example that's the domain name extension in line 35, right?

A If access to secure site has been requested, you know, for that nonstandard domain name example I gave you.

Q That's one way of determining?

A That's one way of determining.

Q Right. So if you keep reading, it says, another way there is, "or by reference to an internal table of such sites." Do you see that?

A I do.

Q So that would be as an alternative to that domain name extension example you gave me, another

way of determining if access to a secure site, secure second network device has been requested, is by looking up that second network device name on an internal table, right?

MR. PALYS: Objection to form.

A So this table is not in isolation, right? This is a table, for example, as taught in the teachings of '697, is the table that is used to determine whether or not that -- that nonstandard lookup is mapped to something that requires a secure domain name service access.

BY MR. KUSHAN:

Q Well, let me just -- so just as the patent is stating it here, it says, "If access to a secure site has been requested," right, "as determined, for example, by a domain name extension," that's one option of determining if access to a secure site has been requested, right?

A You can read it that way.

Q And then the other way of determining if access to a secure site has been requested is by reference to an internal table of such sites, right?

A So I think if you wanted to just take the text out of context, that's what it reads here. If you take it out of context.

Q And when you say "out of context," you're saying that a system that would use -- look up in an internal table of sites a name that it has received to see if it's in that internal table could not be used to determine, according to claim 1, whether the second network device is available for a secure communication service; is that what you're saying?

MR. PALYS: Objection to form.

A So I didn't -- I wasn't asked to opine on that. I'm opining on something very -- that says, given the view taken in this decision, in light of -- in respect to the characteristics that are pointed to here, do these meet the determining steps.

And I'm saying that they do not. I don't say anything else beyond that.

BY MR. KUSHAN:

Q So you understand that, for example, when you're making a determination of whether a claim is anticipated by something in the prior art, you have

to first understand what is covered by the claim, and then you have to determine if that claim actually covers what's described in the prior art, right?

MR. PALYS: Objection to form.

A My understanding for this anticipation step that you mention is that there is a single reference that covers each and every element of a claim. And if that's correct, if that's the case, then that claim is invalid. I'm not a lawyer. That's my understanding of what that means.

BY MR. KUSHAN:

Q Sure. When we look at the phrase, "determining in response to the request whether the second network device is available for a secure communication service," is it fair then to look into the patent, the '697 patent, and find an example or multiple examples of actions that may constitute determining whether the second network device is available for a secure communication service? That's proper, right?

MR. PALYS: Objection to form.

A So I think if you interpret this in the

context of the specifications, then that's where you end up.

BY MR. KUSHAN:

Q And so when we do that, and we go to column 40, line 33 through line 36, it says, "One way of determining if access to a secure site has been requested is by reference to an internal table of such sites," right? Do you see that?

A So I think, as you said, if you take this paragraph, this line out of context here, and focus only on reference to internal table of sites, then that's what it says.

Q All right. Just go up a couple of lines. Just to clarify, the internal table is one that's internal to the DNS proxy 2610, right? So if you want to look at -- the part I was looking at was column 40, line 31. And it says, "According to one embodiment, DNS proxy 2610 intercepts all DNS lookup functions from client 2605 and determines whether access to a secure site has been requested," right?

That corresponds to the claim, intercepting step of claim 1?

MR. PALYS: Objection to form.

A So in response to the request, the -- if you look at the embodiment here, 2610, 2603, this combination is making this determination.

BY MR. KUSHAN:

Q And it can do that by reference to the internal table it maintains?

A Correct.

Q Okay. Let's look at Beser. This is Exhibit 1009.

(Petitioner Apple Inc. Exhibit 1009 was previously marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q Now, you've reviewed Beser before you prepared your declaration; is that right?

A I have.

Q And based on your review of Beser, would you agree that Beser is describing techniques for establishing IP tunnels between two network devices?

A It's techniques for initiating a tunnel association between an originating and a terminating

end, which you said network devices, I'm just looking, that's different than the network devices pointed to here, 14 and 16. So --

Q So that could be a scenario where you have two routers that have access to the Internet, and then there are devices connected to internal networks that each router is maintaining, right?

A Be more specific.

Q Sure. If you want to look at figure 1. So this is an illustration where the items marked 14 and 16 would be things like edge routers, right?

A It's a network device that's receiving a request from the originating or terminating end.

Q Right. And then the devices 24 and 26 are internal network devices, they're on the network that the devices 14 and 16 are participating in, they're private network devices, right?

MR. PALYS: Objection to form.

A I think you're asking -- so device 24 in this picture sits behind device 14. So device -- in the context of Beser, device 24 is accessed via device 14.

BY MR. KUSHAN:

Q And device 24 has got a private IP address, right? Because it's on a private network?

A Correct.

Q Okay. Now, you would agree, at least in some of the embodiments, that Beser has described the IP tunnels used to transfer Voice over IP data, right? That's like one example?

A It's an example which is referenced in Beser, VoIP.

Q Beser shows it can also be used to transfer other kinds of data, right, other than Voice over IP data? And I can help you, if you want to look at column 4. Go down to line 53 to -- 52 to 55. Or that whole paragraph, if you wish, that starts with 43.

A Could you repeat the column, please, and the line?

Q Yes. Column 4, line 43 to it looks like 54. It's talking about a data flow. It gives examples of data flow between devices. And you see they're giving a number of different examples that

are not VoIP devices, correct?

A Yes, that's the reference to that in passing.

Q So as Beser is describing the system, it can be used for a VoIP application, but it can also be used for other applications that may not involve the same volume of data that's being transferred between the devices over the network?

MR. PALYS: Objection to form.

A So Beser doesn't specifically teach any applications that are in keeping or not in keeping with its system. It primarily refers to some examples with VoIP more than anything else.

BY MR. KUSHAN:

Q But what it's saying right here, it says, "The ends of the data flow may be other types of network devices and the present invention is not restricted to telephony or multimedia devices," right?

A That's what it says.

Q And you would agree that at least in some of the embodiments that Beser is describing, they use

a unique identifier which is sent to a trusted third-party device; you're familiar with that description, right?

A In Beser, there is an identifier sent to -- to refer to the figure 14, the network device here, that informs -- as an informed message. That is forwarded onto this trusted third party over the public Internet.

Q And in that message, in one example, it can contain a domain name, right?

A The identifier -- that identifier...

Q If you want to go to column 10. I don't know if you're there.

A Yes. I believe you were asking only about an identifier in Beser?

Q Yes. I just wanted to confirm that in one example, Beser is showing that the unique identifier can include a domain name.

A Where is that?

Q Can you go to column 10. If you look at line 38. It says, "In another exemplary preferred embodiment of the present invention, the unique

identifier is any of a dial-up number, an electronic mail address" --

A I'm sorry. Wait a second.

Q I'm sorry. It's farther back.

A I'll just listen to the --

Q If you want, you can use --

A Yes, I'll probably go back there.

Q Just column 10.

A I'm there.

Q All right. Line 38. Do you see that? It says, and this is speaking of the request, "includes a unique identifier for the terminating telephony device," right?

A Sure.

Q And "In another exemplary preferred embodiment of the present invention, the unique identifier is any of a dial-up number, an electronic mail address, or a domain name."

Do you see that?

A Yes, I do.

Q So you would agree with me that in the Beser scheme, the request that emanates out of the

first network device would include a domain name?

A So Beser doesn't teach anything that's different if that identifier is a domain name. It says -- in passing, it says it could be a domain name. But none of the teachings of Beser show that anything different happens if this is a domain name versus anything else.

Q Okay. That's a different question.

A Yes.

Q I'm just confirming -- we're taking one step at a time, okay?

A Sure.

Q So in Beser, a unique identifier can be a domain name, right?

A It says that in passing.

Q Okay. And it says it's a preferred embodiment, right?

A Correct.

Q All right. Now, the trusted third-party network device can be a DNS server or have a DNS server in it, right?

A I think that's the only mention of DNS

really in Beser. It could be a DNS server, conventional DNS.

Q It's in a trusted third-party network device, right?

A It's a TTP, as they call it.

Q And a DNS service can be like a service running on a computer that has other capabilities, right?

A It can.

Q And that's not unusual, is it, for like a server to run multiple services?

A No.

MR. PALYS: Objection to form. Outside the scope of direct testimony.

BY MR. KUSHAN:

Q So, now in your view -- and if you want to go to paragraph 41 of your declaration. What you're saying in paragraph 41 is that the trusted third-party network device does not perform any translation into an IP address of the domain name of the terminating device 26 or otherwise treat the request to initiate the VoIP tunnel as a request to

look up an IP address, right? That's your conclusion on your analysis of Beser?

A No request to look up an IP address.

Q So in your view, where the TTP, the trusted third-party network device, has been configured to receive a domain name in the request as the unique identifier and is a -- has a DNS service in it, it's not going to do anything with the domain name; is that your testimony?

A Beser does not teach or does anything specific with that. It mentions DNS in passing as DNS may reside on the TTP. It also mentions in passing that that identifier could be a domain name.

Q So in this example which they label their preferred embodiment, you're saying that the domain name in the unique identifier isn't used in any way by the trusted third-party network device?

A It could be used to get information about the -- conceivably somehow used conventional DNS to find the public address of network device 16.

Q So in that instance, the trusted third-party network device would use the domain name

and get from it the IP address of the network device 16, right? That's what you just said?

A Not the end device.

Q But your view is it would at least get you to device 16?

A Beser doesn't teach that. It says that -- I'll give you the words.

Q And just because I don't want to run out of time today, you seem to be taking a lot of -- I mean, I want to give you the freedom to look at whatever you need to look at to answer my questions, but it's taking a bit of time. So I want to direct your attention to a section, if that's all right.

A You asked a question. I don't want to rush. I'm going to go through my declaration and respond to your question, if that's okay with you.

Q Sure. But we do have a time constraint.

A I'll keep that in mind.

MR. PALYS: How long have we been going?

THE REPORTER: It was 12:44, so an hour and 12 minutes.

A So as I said in my declaration, the

purported use of conventional DNS is not taught in the invention and how that would be used. DNS here is mentioned in passing as could be residing on the TTP.

BY MR. KUSHAN:

Q So in the scenario where the unique identifier is a domain name, that's sent to the trusted third-party network device, and this is in a request where the domain name is associated with the network device 16, you would agree that the trusted third-party device will take that network device -- I'm sorry, that domain name and use it to determine the IP address of device 16, right?

A I don't, because that's never taught in Beser. It says that you have an identifier. That identifier serves a number of different purposes, which is an informed message and identifier. And in those cases, it says what that identifier is used for. In the other abstract cases, like it could be a DNS name and it could use conventional DNS, Beser doesn't teach how that works.

Q So if you go to column 11, line 25, or 26,

do you see it says, "A public IP address 58 for a second network device 16 is associated with a unique identifier for the terminating telephony device" --

A You're reading too quickly. Sorry.

Q Column 11. Line 26. Do you see that sentence, starting there?

A Mm-hmm.

Q So then that's an association of the unique identifier with the terminating telephony device 26, that's for 16, right?

A So it's a public IP address retrieved somehow, so public IP address, element 58, for the second network device 16.

Q And one way to obtain the public IP address of a device is by performing a DNS lookup of the domain name, right?

MR. PALYS: Objection, form. Outside the scope of direct.

A So in Beser, it doesn't teach how this is resolved. You can use conventional DNS to get the public address of a device.

BY MR. KUSHAN:

Q So even though Beser says put the domain name in the unique identifier and send it to a trusted third-party device which has a DNS service in it, you're saying that's unreasonable to read Beser as suggesting it would use the domain name and resolve it to get the IP address of the network device 16?

MR. PALYS: Objection to form.

A I'm saying that the identifier, in this case, if it is a domain name, purportedly can be used to find information about device 16. It has nothing to do with the end device 26. It's a public IP address for 16.

BY MR. KUSHAN:

Q All right. If you look at line 30 of column 11, this says, "The association of the public IP address 58 for the second network device 16 with the unique identifier is made on the trusted third-party device 30."

Do you see that?

A I see that.

Q So that's actually saying that the

association of a public IP address for the second network device with the unique identifier is made on the trusted third-party network device?

A It's stored on there, but the IP addresses are negotiated directly from 14 and 16.

Q Right. But before that negotiation happens, the trusted third-party device is determining the IP address of the network device 16 with the information in the unique identifier, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q That's literally what it says?

A That's what it says.

Q All right. So if you want -- I know you've mentioned you want a break. Let's take a break now, if that's okay.

A That would be good.

(Recess.)

BY MR. KUSHAN:

Q If you could, could you to the '697 patent and have that available. I want you to have the claim available while I ask you a question about

Beser. Just have it so you can see claim 1.

A Mm-hmm.

Q So we were talking before about Beser. There was a discussion where we were looking into Beser and the trusted third-party device using the domain name to locate the device, the second network device 16, right? So one scenario was the domain name pointed to the device 16 in the Beser scheme, right?

A That the identifier, we said, stated there could be a domain name.

Q Right.

A Mm-hmm.

Q And that domain name would resolve to the IP address of the second network device 16, right?

A That's correct.

Q All right. And then so your view is that the '697 claims wouldn't cover the Beser scheme because the trusted third-party device is resolving and returning the IP address of the network device 16 and not the ultimate destination, which is the terminating telephony device 26, right?

MR. PALYS: Objection to form.

A For which part of the claim? Which element of the claim?

BY MR. KUSHAN:

Q Any part. I mean, I think you were trying to draw a distinction in your declaration about the claims not covering the scenario in Beser where --

A For the -- for what's pointed to in the decision?

Q Right.

A Mm-hmm.

Q Right. So I just want to make sure I understand that one of the points you were making was that the '697 claims don't cover the scenario where the trusted third-party device in Beser resolves the IP address of the second network device 16 instead of the terminating telephony device 26?

MR. PALYS: Objection to form.

A Very compound question. Let's go one more time.

BY MR. KUSHAN:

Q Sure. Sure. So you drew a distinction

between Beser in the claims by saying that in the Beser scheme, the trusted third-party network device returns -- uses that domain name, unique identifier, to identify the IP address of the second network device, right?

A Could.

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q Could.

A Mm-hmm.

Q And it's not resolving the network address of the terminating telephony device 26, right?

MR. PALYS: Objection to form.

A The TTP resolution, Beser doesn't teach that has anything to do with the terminating device.

BY MR. KUSHAN:

Q Okay. And that was one of the reasons why you thought that Beser does not anticipate claim 1 of the '697 patent, right?

MR. PALYS: Objection to form.

A With respect to a specific element of that claim?

BY MR. KUSHAN:

Q You were making this point to draw a distinction from the claims for your anticipation explanation.

A I did. And that's with respect to what message -- where -- what was pointed to as being a resolution of IP address for the second network device.

Q Right.

A Okay.

Q So the point you were making is that Beser's scheme does not anticipate claim 1 because the Beser scheme has the trusted third-party network device resolving the domain name to return the second network device IP address and not the terminating telephony device 26 IP address?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q Right?

A So to be clear, Beser does not teach anything beyond there is a resolution, it says in passing, that could happen on the trusted third party

to get a public address of device 16.

Q And that means Beser does not anticipate the '697 patent claims?

MR. PALYS: Objection to form.

A With request -- with respect to lookup of the Internet protocol address of the second network device based on a domain name.

BY MR. KUSHAN:

Q And so the trusted third-party network device -- I'm sorry. The terminating telephony device 26 in the Beser scheme in your understanding is not the second network device; is that right?

A Repeat your question.

Q Yes. So in your understanding relative to the '697 claims, in the Beser scheme, the terminating telephony device 26 is not the second network device, correct?

A In Beser, there is no resolution of an IP address for that device.

Q And that's why it doesn't meet that element of the '697 claims where it's speaking of resolving the IP address of the second network device?

MR. PALYS: Objection to form.

A Those IP addresses that -- the IP address for 26 or 24 is chosen by 26 or 24 through 16 and 14 respectively.

BY MR. KUSHAN:

Q Right. So when Beser goes through his process and resolves the domain name and the unique identifier, that IP address is the device 16 in the Beser scheme, right?

A The public IP address?

Q The public IP address.

A Correct.

Q And so that's why in your analysis of the '697 claims, that second network device 16 is not the second network device that's referred to in claim 1 of the '697 patent, right?

MR. PALYS: Objection to form.

A With respect to what was said in the decision. I was asked to opine on my -- give my opinions relative to what was said in the decision.

BY MR. KUSHAN:

Q I'm trying to make sure we -- you're saying

ultimately the point of your declaration is that your view is that Beser does not anticipate claim 1, right?

A Yes.

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q And I'm just trying to make sure I understand which part of Beser does not anticipate claim 1. So what you've described to me is a scenario where the terminating telephony device 26 in your view would be the second network device that's being referred to in claim 1, right?

MR. PALYS: Objection to form.

A So as I said before, my understanding of anticipation is that each and every element of a claim, so I'm looking at each and every element of the claim and giving my opinion here.

BY MR. KUSHAN:

Q Correct. And I'm just parsing your opinion. So the element -- so which elements does Beser not show in claim 1?

A I gave my opinion on two aspects of claim

1, as in the declaration, not meeting intercepting a address to look up an IP address for the second network device, and the rationale is there in the declaration; and determining in response to the request whether the second network device is available for secure communication.

Q So what in paragraph were you referring to your first point?

A So if we look at paragraph 38, where it starts on page 24.

Q Okay. And as I was explaining, I think what you're saying in paragraph 38 and 39 is that the resolution in Beser by the trusted third-party network device is of the IP address of network device 14, right?

MR. PALYS: Objection to form.

A You mean 16?

BY MR. KUSHAN:

Q So --

A You said 14.

Q Yes. Yes. Let me make sure I have the right picture. Sorry. Yes. 16. I'm sorry.

A 16 in figure 1.

Q Exactly. And so if I were trying to map Beser's scheme into the claim, your view is when the trusted third-party network device resolves the unique identifier domain name scenario, it's giving me the IP address of the device 16 and not the terminating device 26, right? And that does not meet the intercepting step requirement of claim 1?

MR. PALYS: Objection to form.

A With respect to the second network device, correct.

BY MR. KUSHAN:

Q Okay. And that "second network device" is the claim term "second network device," there's a little bit of confusion, because Beser also calls it the "second network device."

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q Just to be clear, when we take the '697 phrase "second network device," that should have been "terminating telephony device 26," right?

A Correct.

Q Okay. And then in Beser, its "second network device 16" is not that element in claim 26 --

A Correct.

Q Claim 1 of '697.

A That is correct, with respect to figure 1.

Q Could you go to the Beser patent at column 11 and go to lines 26 to 36. We were looking at this before.

A Column where, sir?

Q Column 11, line 26. Do you see that in line 26, "The public IP address of the second network device in Beser is associated with the unique identifier for the terminating telephony device 26."

Do you see that?

A I do.

Q So one way that could be done is you have some kind of a table that just has a row with the IP address of the second network device 16 in the same row as the terminating device 26, its IP address. So that's just correlating those two addresses, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A So all Beser discloses here is that this second network device is mapped somehow. So let's go back, device 26 is mapped at the TTP. That mapping for that IP address is completely determined without the TTP. They decide on what that mapping is, and the TTP may in the end store that mapping.

BY MR. KUSHAN:

Q So the TTP could store that mapping like in a table, that's a conventional way of storing a mapping of that kind between two IP addresses?

MR. PALYS: Objection to form. Outside the scope of direct.

A So Beser doesn't teach what that mapping would be and how it's used in the embodiment. But a table is a way to map two elements.

BY MR. KUSHAN:

Q So the way we're just describing this, you could imagine that the TTP has a table that has the IP address of the second network device 16 associated with the terminating device 26's IP address?

MR. PALYS: Objection to form. Outside the scope of direct.

A So my understanding, as is stated in paragraph 41 of my declaration, on that issue is that -- so there's -- in terms of the lookup, you were calling it, the trusted third network device does not perform the translation into an IP address of the domain name of this terminating device 26 as we're talking about. Otherwise treat the request to initiate the VoIP as a request to look up an IP address.

So it gets informed, it's associated with an identifier to the terminating device, with the public IP address of the second network device, the first and second network devices as explained in Beser, 14 and 16, then negotiate the private IP addresses themselves through the public network without the trusted third-party network.

So here the trusted third-party network basically served as a passthrough.

BY MR. KUSHAN:

Q Just let me pause you on that explanation.

A Okay.

Q So basically -- so you were pointing out,

and this is in paragraph 41, the trusted third-party network device could store in this table the correlation of the domain name of the terminating device 26 with public IP address of the second network device 16, right?

MR. PALYS: Objection to form.

A That it could store the public IP address for device 16.

BY MR. KUSHAN:

Q With the -- as being associated with terminating device 26? This is what you were pointing out in paragraph 41, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q You say, "After being informed of the request, trusted third-party network device 30 associates an identifier, e.g. a domain name of terminating device 26 with a public IP address of a second network device 16."

So this association is the domain name of the endpoint, the terminating device 26, with the public IP address of the second network device 16,

right?

A To be clear, that third-party network device is acting here simply in a passthrough role. It's not performing any translation.

Q So it's made that -- it's got a table that has that -- it could have a table to implement that association that you just described in paragraph 41, though, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A It could have a table, but that's not a request to look up an IP address as claimed.

BY MR. KUSHAN:

Q So if we go back to the Beser patent at column 11. So it says that -- now, you told me earlier that the association between the unique identifier of the terminating device 26 and the public IP address of second network device 16 is made at the second network device working with the telephony device 26?

A Sorry. Let me pull the figures back again to make sure we're on the same page.

Q That's fine.
A It's right in front of me.
Q There's multiple instances of Beser. So what I wanted to know, you told me earlier that the association that exists between terminating device -- terminating telephony device 26 and network device 16 is made by those two devices with no role in that association by the trusted third-party network device; is that right?
A That the IP -- the IP address that should be used for device 26 was negotiated -- and 24 were negotiated by devices 14 and 16. And it's only doing this as a passthrough using the trusted third party.
Q So did I misunderstand you, not in your last answer but in an earlier answer, because it seemed to me you were suggesting the trusted third-party network device doesn't associate the terminating telephony device 26 domain name and the second network device public IP address.
Was that what you had explained earlier?
MR. PALYS: Objection to form.
A I'm trying to -- we're going very fast

here. Hang on a second.

Yes, I'm saying the request we've been speaking of is a request to look up -- is not a request to look up the IP address of end device 26 in figure 1, but more maps to device 16.

BY MR. KUSHAN:

Q And then when you're discussing the passthrough role of the trusted third-party network device, you're basically saying that the lookup that's needed to find the terminating device 26 is not being done by the trusted third-party device, right?

A Correct.

Q All right. And then you said -- all right. So just at that point, can you look at column 11 of Beser, at line 30 to 32, do you see that? It says that "the association of the public IP address for the second network device 16 with the unique identifier is made on the trusted third-party network device 30," right?

So that's actually saying there is this connection being made by the trusted third-party

device of the domain name of the terminating telephony device 26 and the public IP address of the second network device 16, right?

MR. PALYS: Objection to form.

A Purportedly after the devices 14 and 16 has done some negotiation of addresses.

BY MR. KUSHAN:

Q Let's look at the -- and so I understand, your view is that the trusted third-party network device will never in the Beser scheme participate in the negotiation between the terminating telephony device 16 and the originating telephony device 24; is that right?

A With respect to looking up an IP address. It's just passing through IP addresses that were selected by those devices.

Q Now, did you understand Beser to describe the trusted third-party network device as not participating in that negotiation between the originating and terminating telephony devices at all? There's no examples of that?

A The examples were, it makes it clear that

it's acting only as a passthrough, and that's from my recollection. And let me go back to the examples I gave here.

Q And just when you do that, can you give me the paragraph number?

A I will.

So if we refer to paragraph 41 of the declaration, it's pointing to examples of where the trusted third party is simply being used as a passthrough.

Q Okay. Could you turn to column 9 of the Beser patent and look at line 26. It's the beginning of a paragraph.

A Yes.

Q So this is talking about this negotiation of first private network address and a second private network address. And that's between the private network addresses of these terminating telephony devices, right?

A Correct.

Q All right. So then Beser is saying, "In one exemplary preferred embodiment," this is at line

29, "One exemplary preferred embodiment, the negotiation is carried out through the trusted third-party network device, although it should be understood that the negotiation may occur without the involvement of the trusted third-party network device and that the present invention is not limited by negotiation through the trusted third-party network device."

So this is stating pretty clearly that there are in the Beser scheme scenarios, two scenarios, one where the trusted third-party network device is participating in conducting that negotiation to get the IP addresses of the terminating device, and the other example is where it's not participating in that, right?

A Sure.

Q So that's being described in Beser?

A It's mentioned in Beser, but I don't see it being taught in Beser and how that's...

Q How much more do you need than this explanation?

A So there is a method, and you said to use

the method, you can do it this way or you can do it that way. You focus on one way, and the second way is the way we're discussing right now, which one of ordinary skill in the art would not see how to use Beser to do that. It never discloses that, as far as I can see.

Q So do you think it's impossible to make Beser have the trusted third-party network device locate the terminating telephony device's IP address in the Beser scheme?

MR. PALYS: Objection to form. Outside the scope of direct.

A So I have not considered whether that's impossible to do that. To consider that aspect, you would have to see if there is anything else in Beser that makes that not possible. But I have not considered is there anything that makes it impossible. I'm sorry.

BY MR. KUSHAN:

Q So when the trusted third-party network device receives that request coming from the originating terminating device, the telephony, and it

has the table that has the domain name of the terminating telephony device 26 and the IP address of the second network device, the trusted third-party network device could simply evaluate the domain name and know where to route the message in order to enable the communication tunnelling to be established, right?

MR. PALYS: Objection to form.

A So I don't know what the evaluation is here. But hypothetically, the -- that trusted third party is getting its IP address of that end device and passing it through. It's still not doing -- Beser doesn't teach how that resolution would be made at the TTP.

It says there's -- other devices do it through the TTP, and that's the extent that it's done. You asked a different question, is it impossible to do it any other way. And I honestly haven't thought about that with respect to Beser. I said, let's see what Beser teaches. My understanding of what '697 teaches and whether or not it meets each and every element of the claim.

You were asking -- it mentions another possible embodiment not taught there, and is it impossible? I can't give you an answer on that without now taking that assumption into place, looking at the rest of the specifications for Beser, and seeing if it's impossible.

BY MR. KUSHAN:

Q So we would at least agree that Beser is identifying that there are two options in this role for the trusted third-party network device, one where it is participating in this negotiation to identify the IP addresses of the terminating devices, and the other scenario is where it's not, right?

A I agree the text in Beser specifies there are two possible situations; whether -- I disagree that it teaches how to use both.

Q All right. Now, if you go back to paragraph 40 of your declaration. I just want to understand the rationale you're using to make this opinion.

You're basically saying in paragraph 40 that the request that's being described in Beser is a

request for initiating an IP tunnel, but that the claims are specifying that the request is to look up an IP address of a second network device, and that because the reason why these steps are being performed are different, that means that the Beser process isn't really matching or meeting the requirements of the claim requirements.

MR. PALYS: I object to the form.

BY MR. KUSHAN:

Q Did I understand that correctly?

A So paragraph 40, I'm not disputing there is a request in Beser. I'm saying that that request in Beser is a request to initiate a tunnel connection, right? So -- which is different than the embodiment which is a claimed request to look up an IP address of the second network device, because what's referred to at that point is simply the informed request device 14 might tell the TTP.

So it's not a request to look up an IP address. That's the rationale behind what's here in 40.

Q So you found it significant that the reason

why this IP lookup was being requested or being performed is different in the Beser patent as compared to the claims?

MR. PALYS: Objection to form.

A So I found that the purported request here is a request to initiate the IP tunnel, which in my view is different from a request to look up an IP address. And that formed my thinking on that matter.

BY MR. KUSHAN:

Q And so the point you're making is that the reason why Beser is doing these steps is to establish an IP tunnel, right?

MR. PALYS: Objection to form.

A So its ultimate goal is to create this association between 24 and 26. That's not done, as I explain here, with request to a lookup of an IP address. What's mentioned here is on the informed message, which I see these things as being fundamentally different.

BY MR. KUSHAN:

Q So I know that you made an observation that you believe Beser does not show use of encryption in

setting up these IP tunnels, right?

A Setting up? So --

Q I'll be more precise. I think you've suggested in your statements that the IP tunnels that get established in Beser are not secure communication links, right?

A As I understand them.

Q And the reason for that is that those tunnels are not encrypting the traffic between the devices?

A Between 24 and 26, Beser doesn't teach any use of encryption there. I think Beser only teaches that -- its role is fundamentally different, right? Beser is arguing against using encryption, for one. But its only role of using encryption is to hide this identifier that was just spoke of earlier.

There's no teaching of use of encryption between devices 24 and 26, which is the ultimate tunnel we're talking about.

Q So this tunnel goes from terminating -- originating telephony device -- so it goes 24 all the way to 26? That's the secure communication link,

right?

MR. PALYS: Objection to form.

A So I don't think there's a secure communication link as defined -- you know, as we've expressed here in the declaration between 24 and 26. I'm saying that -- you asked about where encryption is being used. And encryption is only being used, as far as I can tell, to conceal the identifier. And that's it.

BY MR. KUSHAN:

Q Okay. I just want to break it apart a bit.

A Okay.

Q And ask you a couple of questions. So one reason that you're saying Beser doesn't show a secure communication link is that the traffic that originates at device 24 and then proceeds all the way to device 26 is not encrypted, right?

A So I'll be a little bit more specific. So you recall earlier in the day we talked about what that secure communication link would have been in my view versus what the Board construed, what Apple thought it to be. And my opinion is that this again

refers to this transmission path that it restricts access to the data through encryption.

We had I think differences of opinion on that. So if I look at --

Q I'm sorry. Can I just pause you on that?

A Uh-huh.

Q So just this one point was that you believe the entire path has to be encrypted traffic, right? So it would be the path from 24 all the way to 26, that whole path of traffic needs to have the traffic be encrypted, right, according to the claims for this secure communication link?

A So the communication that happens over insecure networks, which is, for example, what the element 12 in figure 1 would be, so it's from 24 to 26, should be encrypted.

Q Does the claim require that to be encrypted, the whole path?

MR. PALYS: Objection to form.

A So secure communication links, as we discussed, implies a transmission path restricting access to data. It's via encryption. And if you

think about the broader context in which this is, so if we're talking about virtual private networks, these are over -- will have a network of computers, you can think of it that way, the characteristics, that are communicating securely in the presence of public networks.

So from that point of view, I don't think that Beser meets that requirement.

BY MR. KUSHAN:

Q So in one of the examples in Beser, the network devices 14 and 16 are edge routers, right?

A Yes, I think that's the case. Yes.

Q And you know what an edge router is, right?

A I do.

Q An edge router is a device that handles the traffic kind of between the public ends of the communication path, right? Is that fair?

A Correct. That's fair.

Q And there are many edge routers that will automatically encrypt the traffic between the two edge routers, right?

MR. PALYS: Objection to form. Outside the

scope of direct.

A So that depends on the specifics of that end router. Is that an edge router that's built to have this encryption functionality or not?

BY MR. KUSHAN:

Q Let's take the scenario where it is. Maybe it's a very expensive edge route.

A So hypothetically, we have an edge router that does some form of encryption.

Q So if I have that implementation of Beser, where I have these encrypting edge routers on either ends of that image in figure 1, your view is that would not be enough to make the secure communication link in the claim because the other links that remain between the edge routers in 24 and 26 aren't carrying encrypted traffic?

MR. PALYS: Objection to form. Outside the scope of direct.

A So I only opine on whether or not I believe that what's taught in Beser meets secure communication as we've been discussing. So because Beser explicitly does not teach to use encryption for

securing the transmission of any data or information, it only teaches to use encryption to hide the identity of a device.

BY MR. KUSHAN:

Q Right. So what I'm asking now is if I were to modify Beser -- and you appreciate that when the Board considered its analysis, it did consider the possibility of modifying what is one possible reading of Beser, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A Their understanding. Mm-hmm.

BY MR. KUSHAN:

Q So I just want to kind of follow that logic of the Board's decision. And my first question was let's just take the scenario where the two edge routers have -- you've configured them to encrypt the traffic between those two points. Is it your view if that was the implementation in Beser, that would not establish a secure communication link, according to the claims?

MR. PALYS: Objection, outside the scope of

direct. Form.

A I haven't thought about that.

BY MR. KUSHAN:

Q So you can't offer an opinion one way or the other?

MR. PALYS: Same objection.

A I have to take into consideration this new embodiment of Beser and how it's integrated to be able to give you an answer on that.

BY MR. KUSHAN:

Q So you can't do that as we sit here today?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q I mean, so there's two different questions I'm going to be asking you about. One is whether you need to have the entire path encrypted as a requirement in the claims, that's the first question. The second one is going to be what's the implication of encrypting only part of the patent.

So just on the first question, as you understand the claims, and you did your analysis, does the entire path from 24 to 26 have to carry

encrypted traffic?

MR. PALYS: Objection to form.

A You're asking me to think about something that's outside of the scope of '697 and Beser, what I looked at. So let me think about --

BY MR. KUSHAN:

Q No, no. Sorry. I want to make sure I'm clear about this. The secure communication link that we've been talking about is the language of the claim. And I'm trying to understand, as a first step, whether that language requires that the entire path, from the embodiment of Beser, the path from 24 all the way through to 26.

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q And you understand my question?

A I do. So if we're not protecting the entire path, the understanding that you're protecting the communication is not there, right?

Q So then if you don't encrypt the entire path, then it wouldn't be a secure communication link?

MR. PALYS: Objection to form.

A I think I need to think about that more in respect to the teachings of '697.

BY MR. KUSHAN:

Q So -- all right. The next question I wanted to probe, again, you've expressed the opinion that a person of skill would not have encrypted the traffic that's being sent in the Beser scheme based on your analysis of Beser, right?

A I said something different. I said Beser's invention proposes an alternative way to provide this tunnel. And in this alternative way, it specifically teaches away from using encryption.

Q And why is it doing that? It's because of the volume of data that has to be encrypted?

A In different passages, and I can point you to some, it not only talks about the volume of data. The computational overhead is one of the things that Beser speaks of.

Q So I understand, the computational overhead impact is because it has to encrypt a lot of data, right?

A In the context of what Beser is stating.

Q So one way of solving that problem would be to have a more powerful computer that's doing the encrypting of the traffic, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A That's one possible way.

BY MR. KUSHAN:

Q And another way is that you could perhaps use a less granular capture of the data so you're not capturing as much data to represent -- say it's like a voice signal, if you went to a lower resolution, you would capture less data for the signal, right?

MR. PALYS: Objection to form, outside the scope of direct. Go ahead and answer.

BY MR. KUSHAN:

Q So the VoIP scenario, you're going to capture, you're going to digitize a voice that's somebody speaking into a phone, right?

A Mm-hmm.

Q And if you capture that at a very high resolution, you're going to capture more data to

represent the voice signal, right?

A Could be the case. Mm-hmm.

Q And if you used a lower resolution or lower quality recording or digitization, you would use less data to represent the same voice?

A That's conceivable.

MR. PALYS: Objection, outside the scope of direct.

BY MR. KUSHAN:

Q And I'm asking about the scenario where I use, as a solution to the volume of data that needs to be encrypted, I could configure the capturing of the voice signal to have a lower resolution and require less data, right?

MR. PALYS: Objection, outside the scope of direct. Please wait, people. Thank you. I appreciate it.

A So you're speaking about a hypothetical embodiment that's not expressed in Beser?

BY MR. KUSHAN:

Q We're talking about an issue you flagged in your declaration, which is this computational burden

that you've seen Beser identifying as a problem.

A Beser directly points to that as a problem. I didn't identify it. Beser says, this is a problem, and in -- one of ordinary skill in the art reading Beser's invention would not have looked, in my opinion, to use an encryption because Beser explicitly gives reasons why in light of his invention, you shouldn't be using encryption. He offers an alternative.

Q So under your analysis of that, this problem that prompts Beser to say that is this computational burden that's put on the devices that would have to encrypt the traffic, correct?

A Beser himself gives reasons, of which he attempts to discredit the use of encryption. Volume is one. Computational overhead is another. Aiding of so-called hackers in his context, because you claim to have to buffer the packets, are all other reasons that are given by Beser about why encryption shouldn't be used in his context or will push you away from trying to make any obvious connection between using encryption in the context of Beser.

Q Right. And so I want to make sure I'm clear about a point you just made, which is, you mentioned two things, which is the computational burden -- well, you mentioned there's a volume of data that needs to be transferred, and then there's a computational burden that is associated with encrypting that volume of data, right? That's the problem that Beser is pointing to that you're referring to?

A That's two problems that Beser points to.

Q And they actually are one problem, right, because the issue you're flagging, to encrypt a large volume of data will impose a computational burden that's excessive?

A I'm pointing to the fact that Beser says that embodiments that encrypt the data offer too high a computational load to be considered for the types of associations Beser is trying to build.

Q Right. And so this computational burden is driven by the volume of data that has to be encrypted, right? The problem isn't that -- if I had a small volume of data in the Beser system, then

presumably the system doesn't have a problem, because that doesn't present the computational burden of encrypting that small volume of data?

MR. PALYS: Objection to form.

A That doesn't -- that's not necessarily the case. So we talked about encryption of -- the computational burden that Beser is pointing to here and alluding to here has more to do with the expense of the operations that are needed to perform this encryption.

And that could be irrespective of the size of the packets we're looking at. It could be influenced by that, but it could be irrespective of that.

BY MR. KUSHAN:

Q Again, if I'm looking at this as a problem in 2000, I could tackle that problem in a couple of different ways, right? I could buy higher powered devices that are able to accommodate the encryption of that volume of data, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A To solve the computational burden problem, that's one feasible direction you could take.

BY MR. KUSHAN:

Q And then another way of solving that would be to capture less data for the particular application so that I have less data to encrypt, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A The context is needed here, why the volume, reducing or increasing the volume would have an impact on the encryption. Especially the computational burden. Hypothetically, it could have an impact. What that impact is and how we need to view that in light of Beser is two different questions.

BY MR. KUSHAN:

Q Now, you had -- earlier today we talked about IPSEC. And you're familiar with IPSEC?

A I am.

Q Beser mentions IPSEC in the context of using it in IP tunnels, right?

A Beser mentions IPSEC as one of the things that could be done, but later points to -- all the problems that he's talking about with encryption is with respect to the IPSEC as well.

Q So if you look at column 1, at around --

A Column 1 of? Sorry.

Q Beser. And you look down at around row 54, there's a paragraph that starts there.

A One second.

Q Sure.

A Yes.

Q And that's the IPSEC we've been talking about, right? IP security is called IPSEC?

A That's correct.

Q And so it says, "Of course, the sender may encrypt the information inside the IP packets before transmission, e.g. with IP security," right?

A That's what it says.

Q And so what Beser is saying is that it's conventional prior to Beser's invention to use IPSEC to encrypt the packets that are transmitted in an IP tunnel?

A In isolation here.

Q That's what he's saying, right?

A He said that in that sentence. If you read the entire -- the rest of it, it says that you don't want to do that.

Q So he's saying it's not that there's a problem of using encryption to do IP tunnels generally; he's now identifying an issue of using IP tunnels with encryption in his particular application that he's describing?

A Sir, he's attempting to explicitly differentiate the two approaches.

Q Now, and so but he's saying the technology exists prior to his invention where people had incorporated IPSEC into IP tunnelling schemes in order to encrypt the traffic that's being sent over the IP tunnel, right? This is just a fair reading of what he's trying to describe here.

MR. PALYS: Objection to form.

A That IPSEC existed.

BY MR. KUSHAN:

Q I think he's saying more than that, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q He's saying you could use it for IP tunnels.

MR. PALYS: Objection to form.

A That are different from the tunnels that are being built by Beser.

BY MR. KUSHAN:

Q And so if a person of skill was looking at Beser and read this passage, in your mind, that person would see two things: First, that IPSEC is conventionally used in IP tunnelling before Beser's invention; and second, in your opinion, Beser is suggesting that you shouldn't use IPSEC in the Beser tunnelling scheme. Is that your testimony?

A So let me make sure we don't interpret this any different than I said. I'm going to go back, so we have no confusion, I said, Beser acknowledges the existence of the IP tunnel protocol, we just discussed that, but then recognizes its problems for video and audio, which is in some of the examples given in Beser.

So if I were looking at Beser, in light of the independent claims, then I think it would lead one of ordinary skill in the art away from this particular RFC to come up with this proposed combination of Beser and 241 for this to have been an obvious combination to achieve all the elements of the claims.

Q And so, as you've expressed that view, we talked before about -- you focus in on the video and audio data as being sent over the tunnel, the IP tunnel, and that's the focus of Beser, the problem with that kind of data; is that right?

A So I said that it teaches -- it would -- for one of ordinary skill in the art, it will teach away from using this combination, generally on VoIP tunnels, which is what Beser is promoting. I didn't say it's impossible. I said using the combination is not an obvious combination, given that Beser is explicitly contrasting the two approaches and giving one the impression that that over there is not a good choice to combine with what I've presented here.

That's all the passage is saying.

Q So in the IPSEC protocol, you actually have the ability to regulate or modulate different aspects of that scheme depending on what you're transmitting? I'll be a little bit more hopefully clear about this. You can vary a number of the parameters of the IPSEC protocol to impose less of a computational burden to encrypt traffic that's being sent via that IPSEC technique; is that a fair statement?

MR. PALYS: Objection to form. Outside the scope of direct.

A I would have to go back and look at IPSEC in its entirety. It's a huge RFC that's all based on negotiation of different parameters. To say sitting here there's one parameter to do this and another parameter to do this that you can combine in some magical way, I need, you know, more specifics to be able to see whether or not this combination would be able to work.

All I'm saying here is that if you'll -- to me, in my opinion, it's not an obvious combination of going to IPSEC and combining with Beser.

BY MR. KUSHAN:

Q Do you know just from your familiarity with IPSEC, one variable that I was referring to was the key size that's used in encryption.

A Yes.

Q If you use a smaller key, that takes less computational power to encrypt the data than using a long key, like a 1024 bit key would impose a greater computational burden than using like a 128 bit key?

MR. PALYS: Objection to form. Outside the scope of direct.

A It depends on the specifics of the cryptographic algorithm that's being used.

BY MR. KUSHAN:

Q And IPSEC says that you can use different cryptographic algorithms, right?

A IPSEC, in my recollection, allows you to negotiate what you want to use.

Q So basically, the design of IPSEC is one which allows you to vary the parameters such as key size, encryption algorithm, in the course of establishing the secure connection between these two points, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A IPSEC lets you negotiate a number of parameters. It came out of a committee. It's a recommendation. You have, you know, you can change -- turn these knobs this way and that way.

BY MR. KUSHAN:

Q So if I was concerned about the computational burden and the volume of data that's being sent over an IP tunnel with encryption in IPSEC, I could essentially choose parameters of the encryption element of IPSEC to reduce the computational burden on encrypting the traffic; is that a fair statement?

A So one possible way of addressing potentially some of the limitations expressly pointed to by Beser might be to figure out how to adapt various parameters.

Q And that would have the effect of decreasing the computational burden of encrypting the traffic that's being sent through the IP tunnel, right?

MR. PALYS: Objection to form.

A It depends on the choice of parameters.

BY MR. KUSHAN:

Q All right. So why don't we take a break.

A Okay. I think that's good.

MR. KUSHAN: Maybe ten minutes.

(Recess.)

BY MR. KUSHAN:

Q Can you go to the '697 patent and go to claim 1 again, if you have it accessible.

A Yes.

Q Do you have that?

A I do.

Q Okay. And we've been talking through a number of issues with Beser. If you look at claim 1 in the intercepting step, do you understand that step to be requiring that there be a single IP address that's associated with the domain name of the second network device so that there's a one-to-one relationship of the domain name to the IP address?

A There's no one-to-one -- in the sense meaning that at any point in time, there's just one

association?

Q Well, no. I'm wondering if the scenario that's described in the intercepting step is one where the domain name is not unique to the IP address, so you could have, for example, multiple domain names all pointing to one IP address. Is that possible in the meaning of claim 1?

MR. PALYS: Objection, scope.

A You're asking if multiple domain names can map to the same IP address?

BY MR. KUSHAN:

Q Correct. In the meaning of claim 1.

MR. PALYS: Same objection. Form.

A I have not considered anything that would limit multiple domain names having map to an IP address in this context.

BY MR. KUSHAN:

Q So in the Beser scheme, it's giving you an illustration of one terminating telephony device attached to the network device 16, right?

A It says -- yes, there's a network device 16, and behind that, you have some other device.

Q So it's not uncommon that there would be more than one terminating device that's going to be connected to the second network device 16, right?

MR. PALYS: Objection, outside the scope of direct.

A I don't recall if Beser says this is common or not common. But in general, I think you can assume that. There might be a multitude of devices behind 26. It's not something that's specifically laid out in my recollection in Beser.

BY MR. KUSHAN:

Q So in Beser's scheme, you have a number of -- let's say a number of instances of device 26, and that's the scenario I want you to think about for a minute, in the Beser scheme, each device 26 of the multiple that's connected to that second network device 16 would have a unique domain name, right?

MR. PALYS: Objection, outside the scope of direct.

A I haven't considered if that's -- that scenario. I mean, you could have -- on the opposite, you could have the IP map, the different IPs map to

that domain name.
BY MR. KUSHAN:
Q You could have -- I'm sorry. So you could have multiple public IP addresses mapping to the single domain name of item 26?
MR. PALYS: Objection, outside the scope of direct.
A No, I'm saying in this new hypothetical situation you asked me to consider, either one of those could exist.
BY MR. KUSHAN:
Q Just so I'm clear, in the scenario where multiple device 26s are on that image, if you just add another one, let's say you have two device 26s which are communicating with second network device 16, that wouldn't be an uncommon thing, right? You have a router 16 which is going to support two devices on the -- communicating to it, right?
MR. PALYS: Objection, outside the scope of direct. Form.
A So different from the embodiments, you're asking if we have multiple devices -- consider we

have multiple devices behind 16, okay?

BY MR. KUSHAN:

Q Right. And so in the Beser scheme, remember we had that discussion where the trusted third-party device could store a table with the names mapped to the IP address of device 16, right? We talked about that before.

A So you could store the public address of device 16?

Q Right.

A Mm-hmm.

Q So in Beser, if you had another device 26 with a different name, it might have in a second row the same IP address as the first device 26 in that table we were talking about?

MR. PALYS: Objection to form. Outside the scope of direct.

A Beser doesn't disclose this, but it's -- you know, something we can think about.

BY MR. KUSHAN:

Q But it's reasonable to imagine that scenario?

MR. PALYS: Objection, outside the scope of direct.

A Again, a hypothetical where there are -- there is a table that contains entries that says A maps to B, if that's what you're asking.

BY MR. KUSHAN:

Q Right.

A Okay?

Q Well, A maps to B, A prime also maps to B, and B is item 16.

MR. PALYS: Objection to form.

A So again, I haven't considered that in the -- in what Beser teaches.

BY MR. KUSHAN:

Q So in forming your opinion, I think you expressed the view that the scheme in Beser, because it identifies the IP address of the network device 16, that it can't identify the address or the address associated which might be a private network address, of item 26, right?

A So I said it's not a request to identify the IP address of 26.

Q So if you go over to claim 1 of the '697 patent, when it's speaking of "a request to look up an Internet protocol IP address of the second network device based on the domain name associated with the second network device."

A Sorry. Which claim?

Q In claim 1, in the first clause under "Intercepting." This language, "a request to look up an Internet protocol IP address of the second network device based on a domain name associated with the second network device." So that lookup that's being specified --

A I think we might be looking -- looking at different things.

Q '697.

A '697, claim 1.

Q I'm focusing you on --

A I'm with you. And then you said something else. The intercepting clause?

Q Right.

A Okay.

Q The intercepting clause. It's specifying

that this lookup that's happening under that clause is of an IP address associated -- I'm sorry, "IP address of the second network device based on a domain name associated with the second network device," right?

A Yes.

Q All right. So what I was wondering was in that claim, does that mean that there is a one-to-one relationship of the domain name of the second network device and its IP address, or can there be multiple domain names that all map to the same Internet protocol IP address?

A In '697?

Q Yes.

A I have to think about this twist a little bit more, but I don't recall any direct mapping between -- that excludes anything -- that excludes the situation -- the fact that you have multiple -- you're asking in this new situation whether or not I can have multiple secured domain names which map to the same secure network address.

Q So -- yes, I'm asking that question, but

more tied to the language of the claim. And it says -- first of all, you mentioned secure network IP address. It says "Internet protocol IP address," so is it required in the claim that the domain name resolve into an IP address, or some other kind of -- an Internet address, or can it resolve into like a private Internet address?

MR. PALYS: Objection to form.

A It's a request to look up an IP address.

BY MR. KUSHAN:

Q So that would be a public IP address?

A Of the second network device.

Q Yes. So then if it's a public IP address, then is the scenario that's being -- or does the claim require that the domain name have a one-to-one relationship to that public IP address in order to individually identify the second network device?

A I would have to go back and look for anything in the specification that specifically addresses that.

Q But based on our other discussions, that would be fairly logical because this is pointing to a

specific second network device, right? Like in our Beser scenario, it's the terminating device?

A Where that second network device has only one association for it? I'm trying to figure out this new embodiment I should be thinking about.

Q If the point of the interception step is to find a particular second network device such as the terminal telephony device in Beser, then that terminal telephony device would have to have essentially a one-to-one relationship of its name to an IP address, right?

A In Beser? So in Beser, the -- that address in one embodiment is selected from a pool that's done on device -- through device 16 and 14.

Q And so that makes it different than what is being required by claim 1 of the '697 patent?

A I'm trying to -- the what?

Q In the intercepting step here. So in the intercepting step, you just mentioned this pool of addresses in the Beser example. And I'm trying to just clarify whether you're looking at that scenario of device 26 being one of a pool of IP addresses

associated with the public IP address at device 16, if that is a point of distinction you see from Beser's model and claim 1 and its intercepting step involving the request to look up an Internet protocol address of the second network device.

MR. PALYS: Objection to form.

A So I think it has more to do with looking up the IP of the device through how one with skill in the art at the time of the invention would have thought about looking up rather than some automatic assignment from 16 -- between 16 and 14.

Q And so does that -- is what you're saying that -- well, I'm not sure I understood your answer. So do you think that the claim 1 intercepting step of the '697 patent isn't performing the lookup that's occurring in the Beser scheme of the terminating telephony device 26?

MR. PALYS: Objection to form.

A But there isn't a lookup of the -- the request is not a lookup for device 26.

BY MR. KUSHAN:

Q So when they go through the exercise in the

Beser patent of associating the domain name of the terminating telephony device 26 with the IP address of the terminating second network device, that's not the kind of lookup that's occurring or required to occur in the '697 claim 1 step where you're intercepting the request?

A Yes, I just view that as not -- the two -- you know, the devices negotiate what that IP address would be rather than a lookup of that that comes back.

Q Okay. So earlier today, we talked a bit about the sequence of the steps that Beser is performing. Could you go to figure 5 of the Beser patent.

A Mm-hmm.

Q Let's just walk through, this is a flow chart of steps that are performed, and it's indicating the sequence in which these steps are performed, right?

A Figure 5 is a flow chart, mm-hmm.

Q And so first step, receive a request to initiate a VoIP association on a first network

device, right?

A Yes. I just want to make sure I have the same --

Q Just when you reviewed Beser, did you review figure 5?

A Yes, I reviewed all of the drawings. Lots of drawings in each one of these.

Q Right. Okay. So this is describing this flow of steps that we've been talking about for a while.

A Mm-hmm.

Q So the first step is receive a request to initiate a VoIP association on a first network device, right?

A Yes.

Q And then it goes in and forms a trusted third-party network device of the request on a public network. So that's -- and you're looking at your figure. It's going over to the trusted third-party network device.

A Mm-hmm.

Q So the next step is associate a public IP

address for a second network device on the trusted third-party network device, right? So this is that discussion we had before about association of second device, second network device 16, right, with the information in the request, which is the domain name in that one scenario.

A For associating the public address. Okay.

Q Right. So after the association has occurred, then the negotiation happens. "Negotiate a first private IP address on the first network device and the second private IP address on the second network device through the public network." So at least in this sequence, the association occurs before there's a negotiation of the private IP addresses, right?

A So IP address for 26, it says, there is, as I read this, an association that's being made on the TTP for 16 that eventually 16 and 14 can negotiate what IP addresses are. So first just say to get to 26, somehow you're interacting with element 16. Elements 14 and 16 do their negotiation. And that's passed through the TTP.

Q But the negotiation at least is happening after that association step on 16?

A After the public address of 16 has been associated.

Q And so we talked before that Beser has the scenario where this negotiation can either not involve the TTP or involve the TTP, right?

A We talked before about a passage in Beser that says you can use either embodiment.

Q Okay. Let me hand you another patent. This is Exhibit 1008 to Wesinger.

(Petitioner Apple Inc. Exhibit 1008 was previously marked for identification and attached to the deposition transcript.)

BY MR. KUSHAN:

Q And you reviewed Exhibit 1008 before today?

A I have.

Q Let's, if we can, switch to your other declaration in the 238 proceeding. So in Exhibit 1008, this is US patent 5,898,830 to Wesinger. In the Wesinger scheme, this is describing generally a technique where two devices, a first and second

computer, are going to be communicating with each other, and there's an involvement through an intermediary to enable that communication to occur.

I'm just introducing it. Is that a fair introductory comment?

A Where your intermediaries here are files?

Q Yes.

A That's fine.

Q So if we could, let's go to claim 1 of the Wesinger patent. This is at the very end of the patent. It's column 17, is where it starts. And what I want to do is just kind of walk through, this is the process that Wesinger has been granted a patent on, and I wanted to just walk through the steps to make sure we understand what this process is.

So the first part of the claim is describing a method of establishing a connection between a first computer and a second remote computer along a route from the first computer to the second computer through a first intermediate system having a first interface to a first computer network and a

second interface to a second computer network, without requiring the user to know of the intermediate system, all right?

That's tracking what we just discussed, it's two devices, and an intermediary device that's going to mediate the communications between the two, right?

A Mm-hmm.

Q So then the first step that happens in this process is that it configures the first intermediate system as a number, a plurality, and just this is patentese, "plurality" means two or more, right? So "plurality of virtual hosts with each host being responsive to a network address used on one of the first and second computer networks," right?

A Correct.

Q So this is the step where it's going to configure the virtual host so they have some information associated with each virtual host, right?

A Right.

MR. PALYS: Objection to form.

A On the firewall.

BY MR. KUSHAN:

Q Okay. So the next step is there's a mapping step where they take the name of a second computer and they map it to a network address of one of the virtual hosts on the first intermediate system where that virtual host is being associated with the first interface. So this is a mapping step where they take the name of the second computer and they map it to the IP address or the network address of one of these virtual hosts, right?

A So the mapping is -- so to be clear, so we have two different processes, right? The first mapping we're talking about is to set up in the terms of Wesinger this envoy across the firewalls, so he says request to initiate an envoy connection between C and D, you have that mapping created across those firewalls and the virtual hosts on those firewalls.

Q And so these virtual hosts get -- these are basically instantiations of a process, right, when they create the virtual host?

A You can think of that that way.

Q So they make the virtual host as it needs

to be created; is that a fair way of describing what's going on?

A So the virtual host is instantiated based on different criteria.

Q Okay. And that's happening in these first couple of steps, right? It's creating some virtual hosts at this point?

MR. PALYS: Objection to form.

A The virtual hosts that are created in this step is in response to a connection request, which is here using -- in the term -- in the language and specifications of Wesinger, conventional DNS to do this mapping across these firewalls.

BY MR. KUSHAN:

Q So let's go to the next step. So this says, "Issuing a request for a connection from the first computer to the second computer by specifying the name of the second computer."

Do you see that? So this is a connection request, right?

A Connection request. So I want to set up an envoy from here to there.

Q All right. And so what's in the connection request is the name of the second computer, right?

A That it's trying to connect to. That's separate. Right now I want to set up -- set up a connection across these multiple firewalls, create that virtual connection among the firewalls for me.

Q Okay. So the connection request originates on the first computer and it has the name of the second computer in the name of the connection request, right?

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q According to this step.

MR. PALYS: Same objection.

A It has an identifier that it's trying to connect to.

BY MR. KUSHAN:

Q And that identifier is the name of the second computer, according to the claim, right?

A In the claim.

Q So at least what they've described here in their claim, the connection request has the domain

name or the name of the second computer that the first computer wants to set up the connection to, right?

MR. PALYS: Objection to form.

A For setting up the envoy.

BY MR. KUSHAN:

Q Right. So then the next step is, receiving that connection request at the first interface and routing the request to one of the virtual hosts in accordance with the mapping that occurred earlier in the claim, I think it's the second step of the claim, right?

A The mappings that exist on the firewalls of how to go from one firewall to the next.

Q And this is the -- so it's acting on this connection request with the name of the second computer in it, right, at this point?

MR. PALYS: Objection to form.

A So the connection request kicked off this creation of a mapping on the virtual hosts for the firewalls.

BY MR. KUSHAN:

Q So let me just make sure I understand. Under the claim process, it looked like the virtual hosts were created before the connection request was issued by the first computer, right?

MR. PALYS: Objection to form.

A So we have the virtual hosts that are receiving the DNS -- that's doing this -- using conventional DNS to do the resolution across the firewalls.

BY MR. KUSHAN:

Q Is that -- which step is that? So is that step -- I just asked you about the receiving -- in the claim 1, receiving the request at the first interface and routing the request to said one of the virtual hosts in accordance with said mapping, right?

So what's happening in this step is that there's a -- it looks like there's a preexisting virtual host that is going to get or have routed to it the connection request with the name of the first computer that was issued -- I'm sorry, the name of the second computer that was issued by the first computer, right?

MR. PALYS: Objection to form.

A I don't understand your question.

BY MR. KUSHAN:

Q So it says "Receiving the request at the first interface," which in that request reference, there's a connection request that has the name of the second computer in it, right?

MR. PALYS: Same objection.

A So I interpret this, again -- I think we're on two separate pages, there's two separate processes that are happening here. So the first is on the connection request, where that connection request is happening to -- at a -- on the firewall for one of these what you call the dedicated virtual hosts. It says, I'm receiving the DNS request there.

And that's the transparent process we're talking about right now of going through and creating a mapping across the different firewalls for how to get to D.

BY MR. KUSHAN:

Q Right. So just -- I'm just working with the claim language for now. And then let's kind of

work through that, and then compare it to what's in the disclosure in a minute. As it's laid out here, it says, "Receiving the request at the first interface and routing the request to said one of the virtual hosts in accordance with said mapping."

So first thing, this is a situation where the virtual host exists before it gets this request, right, because it's routing it to the virtual host that was created in the first step of claim 1, right?

MR. PALYS: Objection to form.

A So there are several virtual hosts here. There are the virtual hosts for the -- for the -- that's receiving the DNS. And there's the virtual hosts that's created for the ensuing connection.

BY MR. KUSHAN:

Q So I'm just working from what's in the claim right now. Let's talk through that, and then dig into it a little bit deeper. In this receiving step in Wesinger's claim 1, it says it's receiving it and sending it to one of the virtual hosts in accordance with said mapping.

So as I read the claim, the configuring and

mapping steps have already occurred by the time it receives the request, right, at the --

MR. PALYS: Objection to form.

BY MR. KUSHAN:

Q So the first element of the claim says "configuring the first intermediate system as a plurality of virtual hosts"; do you see that? That was my configuring step that I was referring to. The step is performed, it's configured a set of virtual hosts, and then the next step in the claim is it's mapped the name of the second computer to one of the virtual hosts of the first intermediate system, right?

A So your reading of that is correct here.

Q So then the connection request is issued by the first computer, right? And then the next step is that connection request is received at the first interface and is routed to one of the virtual hosts in accordance with the mapping that has already been done in the second step of claim 1, right?

MR. PALYS: Objection to form.

A Again, I see two different mappings. It's

creating the virtual hosts on a connection -- on the connection request, it is doing the setup across the firewalls and creating a virtual host to handle the ensuing connections, which are two different things.

BY MR. KUSHAN:

Q And where is that in the claim? I'm just wondering.

MR. PALYS: Objection to form. Outside the scope of direct.

A If you read the claims in light of the specifications, that's how the specifications work.

BY MR. KUSHAN:

Q So you're not -- there's no actual language in the claim that says there's a second virtual host created at this point, right, after the connection request has been received at the first interface.

MR. PALYS: Objection to form. And outside the scope of direct.

A I'm not sure I understand your question. So absent of reading the specification --

BY MR. KUSHAN:

Q No. I'm asking you, you said that, as you

read this claim, you saw another virtual host being created and another process associated with that second virtual host, right?

MR. PALYS: Same objections.

BY MR. KUSHAN:

Q And I'm just wondering what's the language in the claim that you're pointing to that says that.

A So the language as expressed here is tying the virtual host.

Q Right. And so when it says it's "receiving the request," it's referring to the connection request in the preceding step, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A It says it's receiving the request.

BY MR. KUSHAN:

Q So what request is identified in the claim at this point?

MR. PALYS: Objection to form and scope.

A A request for a connection.

BY MR. KUSHAN:

Q Right. So that's the request for the

connection in the third step of claim 1, right?

MR. PALYS: Same objections.

A As expressed in claim 1.

BY MR. KUSHAN:

Q All right. So then the next step is there is a bidirectional connection -- just so we're 100 percent clear, that's that connection request in the issuing step has the name of the second computer in it, right? That's what it says?

A What are you referring to?

Q It says, "issuing a request for a connection from the first computer to the second computer by specifying the name of the second computer."

A Yes.

Q So that's saying that the name of the second computer is in the connection request?

MR. PALYS: Objection to form and scope.

A In the request to initiate the connection.

BY MR. KUSHAN:

Q Right. Right?

A Yes.

Q Okay. So then after the receiving step, the next step is establishing a first bidirectional connection from the first computer to said one of the virtual hosts. And then there's a next step which is establishing a second bidirectional connection from said one of the virtual hosts to the second computer on behalf of the first computer.

So that pair of establishing steps kind of sets the bridge between the first and the second computer via these virtual hosts, right?

A The mappings that the firewall should use.

Q Right. And so that's saying bidirectional communications between the first and second hosts through these virtual hosts, right?

MR. PALYS: Objection to form and scope.

A It's allowing the virtual hosts on the firewall to use different mappings in one direction than in another direction for the communication.

BY MR. KUSHAN:

Q So is it fair to say that it's actually a single mapping because it's saying that it's a bidirectional communication?

MR. PALYS: Objection to form and scope.

BY MR. KUSHAN:

Q There's two mappings in the sense that there's a first computer to the virtual host, and then there's a second mapping which is from the virtual host to the second computer, right?

MR. PALYS: Same objections.

A There are two mappings. One in one direction, how you get from -- you know, in this envoy, how I go from one firewall to another firewall to another firewall, what the path would be if I need to go to D from C, and another mapping from D to C across those firewalls.

BY MR. KUSHAN:

Q So let's just look at the -- it's two establishing steps. It says, "Establishing a first bidirectional connection from the first computer to said one of the virtual hosts," and the next one says, "establishing a second bidirectional connection from said one of the virtual hosts to the second computer on behalf of the first computer."

So as I read that, that seems to suggest

that the two mappings here are first computer to virtual host, and then a second mapping is the virtual host to the second computer, right?

MR. PALYS: Objection to form and scope.

A So again, I don't see the distinction you're making. There is a mapping that goes from -- a virtual host on firewall one to a different virtual host on firewall two, three, four, etc., in one direction, and a mapping in the other direction. For the connection request.

BY MR. KUSHAN:

Q So you're interpreting the step which sets up a connection between the first computer and a virtual host as the first establishing, and the second one being the virtual host to the second computer as setting up two parallel communication routes that are going from first computer to second computer? I'm trying to understand how you're seeing this description.

MR. PALYS: Objection to form and outside the scope of direct.

A Connection from the first computer to one

of the virtual hosts is what we just talked about.

BY MR. KUSHAN:

Q And then the next connection is from the same virtual host to the second computer, right?

MR. PALYS: Objection to form and scope.

A From one virtual host to another virtual host, etc. That's what I see.

BY MR. KUSHAN:

Q But -- so that scenario, you're looking at a figure that has multiple virtual hosts, right?

A Correct.

Q So if you're looking at the claim, that takes it down to a scenario where it's at least one virtual host, right?

MR. PALYS: Objection to form and scope.

A You can interpret it that way.

BY MR. KUSHAN:

Q So in that one virtual host scenario, the first connection would set a bidirectional connection from the first computer to that virtual host, right?

A I think in the restricted view, that might be right. I might have to go back to the specifics

of that to see. But I think that's correct.

Q And that same virtual host will then make a second connection to the second computer, right?

A The mapping of the next firewall could be on that virtual host, in that direction.

Q Right. So the same virtual host then sets up the connection to the second computer, right, in my -- in what's written here in the claim?

MR. PALYS: Objection, form, and outside the scope of direct testimony.

A In what's written in the claim? Actually, I think it's different from the teachings of that. But what's written with the claim, let's go with that.

BY MR. KUSHAN:

Q As far as the claim has been written, then at the time this connection request is received, the virtual host already exists, right?

MR. PALYS: Objection to form. Outside the scope of direct.

A At the time which request is received?

BY MR. KUSHAN:

Q The issuing a request for a connection from the first computer to the second computer by specifying the name of the second computer.

MR. PALYS: Objection to form. Outside the scope of direct testimony.

A Again, so I think these connections that are being imposed here, that are not something that I opined on in my declaration.

BY MR. KUSHAN:

Q But you're familiar with these concepts because you read the patent?

A I am.

Q So as it's laid out here, by the time the issuing a request step occurs, the virtual host has already been created and its mappings established, right?

MR. PALYS: Objection to form.

A At the time a -- so when a request to set up a connection, a virtual host is created for that, and that's where the mapping happens.

BY MR. KUSHAN:

Q So before -- but in the claim, it's saying

that the virtual host gets created before the connection request is issued, right? That's what it says?

A It reads that in the claim.

Q All right. So now, in that scenario, so when the time of the connection request comes, and the connection request is issued by the first computer, at that point, the DNS resolution process --

A Wait. What connection? So there's a request to initiate a connection.

Q Right.

A Which is different from what you just said.

Q I may have misspoken. Let me just make that clear. So at the time that the connection request is issued by the first computer under the claim, there has not been any DNS resolution yet, right?

A That's correct.

Q All right. So after that first connection request has occurred, that will then prompt a DNS lookup?

A On that firewall, that virtual host, to find a path through the network.

Q And that's on the virtual host that already existed before the connection request was issued?

A Which is the virtual host in your case for the DNS, DDNS here.

Q It has the mappings that have been given to it by that second step, right?

A By what second step?

Q In the claim.

A So we say the virtual host -- there's dedicated -- on that first one, there's a dedicated virtual host that's receiving that request to initiate a connection.

Q Okay. So let's do this.

MR. KUSHAN: By the way, I should have asked you before, since we kind of compressed down to one day, I just want to make sure we can go until a time that's reasonable.

MR. PALYS: So we are -- let's go off the record.

(Discussion off the record.)

(Recess.)

BY MR. KUSHAN:

Q If you could, go to page 21 of your declaration in the 238 proceeding. You have a figure there that's repeated or reproduced from the Wesinger patent, figure 1.

A Mm-hmm.

Q And I just want to start a couple of questions about this. So client C that's discussed in Wesinger is shown depicted at the bottom left-ish corner of the figure, right?

A Correct.

Q And that's the client computer that's going to create the connection request, right?

A Correct.

Q And then the destination, ultimate destination is shown on the right of it as item or box D, right?

A Correct.

Q All right. And then the firewall we've been talking about is designated as 155.

A Correct.

Q If you could, could you go to the Wesinger patent and turn to column 9, and look at lines 15 to 25. So this is a paragraph that starts out "When client C tries to initiate a connection to host D using the name of D, DNS operates in the usual manner to propagate a name request to success levels of the network until D is found."

Do you see that sentence?

A To initiate the connection, yes.

Q And what I want to do is I want to go to paragraph 33 of your report. Now, you have reproduced a part of this section of the Wesinger patent that appears in the Wesinger patent at column 9, lines 15 to 24, right?

A And what section are you looking at?

Q So if you look at paragraph 33 of your declaration.

A Yes.

Q There's a block quote that is shown, right?

A Mm-hmm.

Q And so I want to focus on one part of this block quote. What you've done is quoted a portion of

the passage we just talked about and you omitted the phrase "when client C tries to initiate a connection to host D using the name of D," you removed that --

A What line are you looking at?

Q I'm looking in the patent at line it looks like 15 or 16. So the first line and a quarter of the paragraph that starts at around --

A "When client tries to initiate a connection," yes.

Q "Using the name of D," right?

A Yes.

Q So you did not include that first clause in presenting this -- the rest of the paragraph in the block quote in your declaration?

A That's correct.

Q Why did you omit the first clause?

A I thought it was clear from what we were discussing here, C transmits to D a query to its local firewall DNS server, and then it goes on to say what the client is doing.

Q The way you introduce that, you say, "Client C transmits a DNS query to its local firewall

DNS server 115," right? And by that, are you saying the client C transmits a DNS query containing the name of D to its local firewall DNS server 115?

A So the specification says that the client transmits a DNS query to a local DNS server.

Q Right. And so the DNS query that we're talking about is the one that's in that first line from the paragraph that says "When client C tries to initiate a connection to host D," it's going to have the name of D in the query, right?

A Correct. And then DNS operates in its usual manner to propagate that.

Q All right. Now, so this DNS request with the host name D in it is propagated through several firewalls until it reaches a DNS on firewall 155 in the figure, right?

A Correct.

Q And then those multiple firewalls are going to be created by the succession of virtual hosts, right?

A Virtual hosts on these firewalls are created.

Q And it's going to happen kind of as the connection request progresses through the sequence of the different virtual hosts, right?

A So the transparent DNS process is that the -- you can have a dedicated virtual host of DNS, DDNS, identified as 115, element 115, 117, 167, etc., that receives that connection request, and it's that connection request we're talking about that's being propagated across these.

Q And it ends up at firewall 155 through that connection request?

A Correct.

Q So each virtual host in this sequence of virtual hosts will have a firewall and DNS server in the virtual host, right?

A There will be a DNS server in the virtual host. It can be used as a dedicated virtual host for DNS. Mm-hmm.

Q So each virtual host is going to have both, right, firewall and DNS server?

A There's a virtual host that's on the firewall that is receiving the DNS connection

request.

Q So each virtual host is going to use the firewall service that's on the machine; is that what you're saying?

MR. PALYS: Objection to form.

A Can you repeat your question?

BY MR. KUSHAN:

Q So each virtual host, is it going to use the firewall service on the physical device it's on? I'm trying to understand --

A So they're virtual hosts that will use some of the firewall properties. So when you think about what the firewall is doing to screen traffic, etc. The virtual hosts we're talking about here, the virtual hosts that are handling the DNS requests. So you can think of two different virtual host functionalities.

Q So what I'm trying to understand is, first, each virtual host as it's been defined in the Wesinger patent has got a firewall and a DNS server, right?

A So if we think of the -- there is a -- one

of the -- so in this embodiment of the firewall, there is a virtual host which is handling the DNS request. There are other virtual hosts on that firewall that can have -- that will handle other properties. Other functionalities, sorry.

Q So under the description, and I'll go back to the quoted language from the patent in column 9, lines 15 through 24, and this is the same quote you have in your paragraph 33 of your report.

A Correct.

Q So when the next virtual host in the succession is going to get the connection request, first it's going to check to see if the connection is allowed, right?

A No. The virtual -- it says the DNS operations propagates DNS requests in a conventional way.

Q So you're reading the propagation of a DNS query to be different than the propagation of the connection request through different virtual hosts?

A Beser makes it explicit, there is a --

Q Wesinger?

A Sorry. Wesinger makes it explicit, there is a -- the DNS requests use conventional DNS to propagate through the firewalls.

Q And I'm trying to understand, before we go into the details of this, as it's depicted in figure 1, the connection request is going to go through a series of virtual hosts, so it's going to do it in sequence, right, so comes to a virtual host, then it moves on to the next one after the first one, etc., right?

A The DNS virtual host on the firewall.

Q Now --

A Because remember, we're talking about two things. In the separate connection request, if you look at figure 3, it has the other virtual hosts being spawned by a dæmon. And that's the dæmon that receives the ensuing connection request. It spawns different virtual hosts.

Q So you're saying that -- well, isn't it true in the Wesinger scheme that the virtual host is on the firewall?

A But these -- there are two -- they're

virtual hosts with very different functionality. One is the virtual host that's used in DNS in a conventional way. The other is using virtual hosts that are being spawned completely -- by a completely different process which -- and that process is managed by a dæmon. That dæmon will initiate separate virtual hosts based on a different criteria, not the DNS request.

Q So let's, if you could, go to column 15 of the Wesinger patent. And I want you to look at line 24 through line 28. So we talked before --

A Column 24. Okay.

Q So it says that -- and you can read the first part of that paragraph if you wish to. Maybe you can do that and let me know when you're ready.

A Okay.

Q So it's saying that -- first it says that each virtual host is going to have as part of its configuration file an access rules database, right? Do you see that?

A Yes.

Q All right. So every virtual host in this

scheme is going to have an access rule database that it uses, right?

A Every virtual host can pull up an access control database.

Q All right. And what that does is it enables the virtual host to determine, it says here, which connections will be allowed and which connections will be denied, right?

A Yes.

Q So each virtual host has the capacity to not let the connection request proceed through it, right?

A An ensuing connection. Each virtual host can make decisions on that ensuing connection.

Q So each virtual host always has the capacity to make that no or yes determination about letting the connection request pass through it to the next virtual host?

A So these are the virtual hosts that's talked about with respect to those that are spawned by the dæmon, not the virtual hosts, the dedicated virtual host that's used for DNS, as far as I

understand.

Q All right. So it actually says every virtual host under the scheme that's described in Wesinger, right? It's not saying there's two different kinds of virtual hosts?

A But in the specifications -- so again, if you look at figure 3, you know, you have a separate component that is receiving the DNS request. DNS -- that DNS request is propagated in the normal way. You have different functionality from some other virtual hosts that are spawned by this dæmon. That's my understanding.

Q So when you see two different virtual hosts being created, that's based on your kind of overall analysis of the patent; is that right?

MR. PALYS: Objection to form.

A My overall analysis of the patent is that there were two separate functionalities being taught here. As I said before, one is to create this envoy that's based on propagating DNS requests and doing it in this transparent manner. And the second is for an ensuing connection having the ability to do some form

of processing on that connection, which is called the channel process, etc.

BY MR. KUSHAN:

Q So let's kind of parse that a bit. So in the -- so you're saying that the Wesinger patent actually describes two different kinds of virtual hosts being created?

A It describes two different processes. It doesn't link those two processes at all.

Q So if the Wesinger model of using a configuration file to create a virtual host is followed, then each virtual host would have the capacity to perform both functions, right?

MR. PALYS: Objection to form.

A So Wesinger does not teach that that functionality that's provided through the channel processing is applied on the DNS request.

BY MR. KUSHAN:

Q So let's try to look at figure 1 again. And you see these various blocks in the figure that are designated 116, 118, etc.?

A Mm-hmm.

Q Each one of those is presenting that there's going to be a firewall and a DNS/DDNS functionality present on that device, right?

A The virtual host.

Q Right.

A Uh-huh.

Q So every virtual host has both functionalities, right, as it's being depicted?

A Every virtual host -- so as depicted, there are separate functionalities for DNS and virtual hosts spawned to do other things.

Q I understand you're saying that the functionalities you're speaking of are different, right?

A Mm-hmm.

Q But I'm asking whether the virtual hosts that get created have both functionalities.

A So the -- Wesinger teaches that these channel processing properties are applied on the connection request -- sorry, on the ensuing connection. It does not teach that it's on the connection request. And I think this is the

distinction I'm making here.

Q So -- and I'm just trying to understand where in Wesinger there are different kinds of virtual devices created -- I'm sorry, the virtual hosts. There's only really one virtual host type that is described in Wesinger, right?

MR. PALYS: Objection to form.

A So Wesinger describes virtual hosts that perform the traditional conventional DNS, and virtual hosts that can do some additional processing.

BY MR. KUSHAN:

Q But it doesn't depict them as being different virtual hosts. It may be depicting them as the same host, but two functional capabilities?

A It depicts them as providing -- doing different things based on what the virtual host is processing, whether it's processing a DNS request or whether it's processing a connection request. It's explicit that there's two different functionalities.

Q So I think you may be agreeing with me that the things you're referring to are functionalities, but they're not necessarily creating different types

of virtual hosts, the virtual hosts may have both functionalities in their capabilities, and those are defined by the configuration file for the virtual hosts?

MR. PALYS: Objection to form.

A I don't see that in Wesinger. I don't see the DNS -- these virtual host configurations saying that if you're a DNS module, you have the same functionalities as if you're a different module.

BY MR. KUSHAN:

Q Okay. That's not my question. My question is, isn't it fair to say Wesinger is describing a process where virtual hosts will be created, right? We can at least agree on that point?

A In the abstract, yes.

Q And so to do that in the Wesinger file, there's a configuration file which is used to give the virtual host its properties, right?

A Yes.

Q So it's reasonable to read Wesinger as using that configuration file to imbue in the virtual host the capability of performing two different

functions, correct?

A It's also reasonable to view it as the -- explicitly stated, there are two different functionalities that are embodied by the virtual hosts and operate on different types of requests.

Q Right. I'm just trying to make sure we have a clarity in where we're disagreeing. We're not disagreeing that Wesinger teaches a system where a virtual host could be created that has the functional capabilities that you refer to as distinct functional capabilities, the DNS and firewall functions, right?

A Can you repeat your question one more time, slowly?

Q So we're not disagreeing that Wesinger can be read as showing creation of a single type of virtual host that has two functional capabilities within its operational capabilities?

MR. PALYS: Objection to form.

A So Wesinger states that there are virtual hosts for handling DNS, and virtual hosts that do other things. So I think we agree on that.

BY MR. KUSHAN:

Q But it also is showing that there's only one configuration file model that's used to create virtual hosts, right?

A For the virtual hosts that are spawned by the dæmon.

Q Right. So you have one file that creates virtual hosts and that virtual host could do one or both of the functions that we've been discussing, the DNS function and the firewall function, correct?

MR. PALYS: Objection to form.

A I don't think Beser teaches that both of these functions are integrated in any way. It says we have a function -- you know, you have a virtual host, that's a DNS server, and you have this virtual host that is spawned in response to a connection request -- a connection, sorry.

BY MR. KUSHAN:

Q All right. Just so we're on the same page, when you go back to figure 1, and you look at the blocks that are depicted, every single block has got both the firewall and the DNS functionality associated with it, right?

A Yes.

Q All right. So is it reasonable to conclude that given the depiction of every one of these having both functional capabilities in it, that the virtual hosts would also have both functional capabilities when they are created?

A Given the depiction in figure 1, that's reasonable, that what Beser -- sorry, excuse me, what Wesinger teaches -- it's been a long day -- is very different.

Q Well, so that was a somewhat different answer or different question you're answering. All I'm asking is each instance of these blocks that are depicted in figure 1 have both functional properties that we've been discussing, the firewall function and the DNS function, right?

MR. PALYS: Objection to form.

A So in figure 1, the depiction shows that there's a DNS module and there are the virtual hosts on that firewall. That's separate.

BY MR. KUSHAN:

Q So the virtual host is also separate from

the firewall, right, under the depiction you just described?

A No, I'm saying there's this virtual host that's embodied by this DNS module. And there are other virtual hosts on that firewall that are spawned by a different process.

Q All right. So there's no differentiation of the virtual hosts being depicted on this figure, right, between --

A On the figure, right.

Q And just so we're clear, the line depicting the connections, that's the path of communications between the various entities, right? So this vertical line, then it goes horizontal, then it goes eventually to D, it's just one line connecting each one of those blocks, correct?

MR. PALYS: Observation.

A And you're asking if that line represents what?

BY MR. KUSHAN:

Q Is that a bidirectional communication path?

A Correct.

Q So there's not two separate communication paths, right, between the different entities that are depicted?

A There's a connection between firewall 1 -- at a high level, it is depicting that firewall is connected to firewall 2, firewall 3, etc.

Q So when we go through this depiction, even though each firewall has got both functionalities present on it, you don't think that is conveying in any sense something that's relevant to the virtual hosts that are being created on each firewall?

A I'm not saying it's not relevant. I'm saying Wesinger is showing there are two distinct different functionalities in the way they're used. They're not integrated, that's all.

Q That's not based on something Wesinger actually says; that's based on your analysis of how you understand Wesinger; is that fair to say?

MR. PALYS: Objection to form.

A No, it's based on -- it's saying that there is a -- that the virtual hosts for -- the DNS virtual host receives the connection requests, propagates

that in the usual way, and later says there is these ensuing connections that are received by a dæmon, and then spawn a separate virtual host.

And I agree with you, these other virtual hosts have the ability to read a configuration file and do some channel processing.

BY MR. KUSHAN:

Q And I just want to make sure. Where is it that you see in Wesinger, Wesinger saying explicitly that the virtual hosts are acting -- there are two different kinds of virtual hosts that are acting on different types of connection requests?

MR. PALYS: Objection, form.

A So let's go back to paragraph 34 of the declaration. It says, "Separate from the transparent processing of the DNS queries, Wesinger also describes firewall allow/disallow processing and further connection processing of ensuing connection requests. While the DNS query is received on a dedicated virtual host or separate machine serving as the DNS server," points to column 8.

BY MR. KUSHAN:

Q So if you look at the first thing you quoted, column 8, line 58 to 61.

A Mm-hmm.

Q That says, "A domain name server may be a dedicated virtual host on the same physical machine as the firewall. Alternatively, the domain name server may be a separate machine," correct?

A Mm-hmm.

Q Then it says, "A domain name server is provided for each layer in the multi-layer network," right?

A Yes.

Q So that's suggesting that every layer that's going to progress through and handle that connection request will have a domain name service capability.

A Every one of those firewalls that were depicted here, there is a DNS virtual host.

Q And this is not saying that the virtual host cannot have both the DNS function and the firewall function in it, right, this passage you just quoted?

A It's not saying they cannot have it.

Q So let's go to 13, lines 9 to 13. So here it says, this is a quote that you've provided, "Each of the DNS modules of all the machines receive all DNS queries because the machines are all connected in parallel."

Do you see that?

A Yes.

Q All right. So that's suggesting that every machine, all the machines receive DNS queries, and that each of the DNS modules -- I'm sorry. It literally says each of the DNS modules of all the machines receive all DNS queries, right? So every machine that has a DNS module, which is each one of the firewalls, will receive all DNS queries, right?

A No. So if there are multiple DNS virtual machines on that firewall, it says that you can -- for -- the first one to handle it, to respond, handles that request. So this is multiple DNS virtual hosts on that firewall.

Q So you can have multiple virtual hosts on a firewall that will be fielding different connection

requests, right?

A DNS virtual hosts, yes.

Q Right. And so when it's speaking of handling like the first one picking up the first DNS request and then the next one picking up the next DNS request, that's basically scaling up to handle the different connection requests that might be coming to that virtual --

A Correct.

Q So this passage isn't saying that the DNS modules in the virtual machines are in different virtual hosts than the virtual hosts that are functioning as firewalls, right?

A So if you contrast that to what it says later, so let's go again to, when you're speaking specifically about the ensuing -- it clearly says the DNS request can be received by multiple DNS virtual hosts. That's what it says now.

Q Right.

A Then later it says, an ensuing connection, which is different from a -- from the DNS request, is received at a separate dæmon on the firewall. And

that dæmon then waits to receive a connection request, and it goes on.

Q So one way of reading that ensuing connection is that it's not the same connection request that has been propagated through the different virtual hosts. It's a different connection request, maybe from a different machine that originated it, and the ensuing connection request is going to be handed off to a different virtual host because the first virtual host is occupied with the first connection request, right?

MR. PALYS: Objection, form.

A That's a very loaded -- that was a lot.

BY MR. KUSHAN:

Q So you're saying -- you're reading an ensuing connection request is then mapped to a virtual host on the responding least busy machine, right? You quoted that?

A Yes.

Q And what you're suggesting is that an ensuing connection request is the next propagated step of the original connection request; is that how

you're reading it?

A No. The ensuing connection --

Q So it's a different connection request?

A Different connection. It's not a connection request. There's the connection request to set up this process, and then the actual connection is different. So the connection request here we've been talking about is to set up -- is to use DNS to, as you said, to configure the -- the DNS virtual hosts on the firewalls with the correct addresses.

Q So just as I'm looking at the quotes that you have from those -- it's column 13, line 6 through 14, approximately, so it mentions physical firewall machines, but then it doesn't --

A Where are you referring to?

Q So column 13, line 6 and 7.

A Okay.

Q It says, "The configuration of figure 4 further allows the physical firewall machines to share the aggregate processing load of current connections." Right?

A Yes.

Q So you have the physical machines receiving multiple connections that are happening at the same time, right, multiple connection requests?

A Multiple connection requests, correct.

Q And those could be connection requests from computer A and a different connection request from computer Z, right?

A Where the connection request is to resolve -- is to use DNS to set up a path.

Q Right. So these are independent connection requests coming to a single physical firewall?

A Correct.

Q Right. And so then when you go to the back end of that paragraph, it says -- it's talking about the scenario where a first connection request has come in and is being handled, right?

A What do you mean by "the back end of that paragraph"?

Q So the sentence says, "An ensuing connection request is then mapped to a virtual host on the responding least busy machine," right? So in

the scenario, we've got multiple concurrently arriving connection requests from different computers. The first one comes in and may get picked up by one virtual host.

And then the next connection request from a different computer comes in, and that's what's being referred to as the ensuing connection request, which gets picked up --

A No.

Q -- and handled by the responding least busy machine?

A That's not my interpretation.

Q And why -- so you're saying that that reading that I just gave you is not at all logical based on the fact that the front end of that paragraph is referring to the physical firewall machines managing and sharing the aggregate processing load of current connections?

MR. PALYS: Objection to form.

A So my understanding of -- and I think it's in keeping with one of ordinary skill in the art, would have interpreted what's here, in light of the

specifications, it says there are these two separate things, right? One is on the ensuing connection, one is on a DNS query. In that paragraph, when I see it merging the two, then I'm assuming this ensuing connection it's talking about is very different than anything that has to do with the DNS request.

BY MR. KUSHAN:

Q So even though the beginning of the paragraph has said this paragraph is describing how a physical firewall machine is going to manage multiple current connection requests coming to it from different sources, you cannot read that sentence at the very end in any way as saying the ensuing connection request is the next received connection request that has to be acted upon as opposed to being the next connection request after the first one has been resolved, which would be essentially derivative of the first connection request?

MR. PALYS: Objection to form.

A Again, I don't think that's what Wesinger is teaching.

BY MR. KUSHAN:

Q Now, there's no explicit description in Wesinger of a sequential series of steps that are following your description of first connection request gets resolved, and then a new type of connection request is sent in, acted on by a firewall, right?

A So it says there are connection requests that are handled by one process, let's think of it as DNS, and it also says there are ensuing connections that are handled by a dæmon, and that's something else. I see these as two separate things.

Q And so that opinion you articulated is based on this ensuing connection request comment at column 13, lines 12 to 14 or so?

A That comment is in respect to my understanding of what Wesinger teaches. To me, it says there are two different things. I handle DNS request one way, I handle an ensuing connection by talking to a very different process, a dæmon that spawns a different virtual host. That's how I interpret it in light of what I believe Wesinger teaches.

Q All right. Could you go to paragraph 51 of your declaration.

MR. KUSHAN: Could we take a five-minute break? We might be able to wrap up relatively soon.

(Recess.)

BY MR. KUSHAN:

Q Could you go to paragraph 34 of your declaration. And I want you to go to --

MR. KUSHAN: I withdraw the question. Off the record.

(Discussion off the record.)

BY MR. KUSHAN:

Q In paragraph 34, you have -- you indicate that "While the DNS query is received at a dedicated virtual host or separate machine serving as the DNS server, an ensuing connection request is received at a separate dæmon on the firewall," and then you quote two passages -- four passages of the patent. What I want to do is, first, I think we've already talked about 8:58-61, and 13:9-13. That was the DNS discussion that we just went through.

So I wanted to look at column 16, line 20

to 21. You quote language there, the dæmon waits to receive the connection request. Let's go over to the patent. So it says, "In the dæmon mode of operation, a process," and I'm reading from line 15 of column 16, "In the dæmon mode of operation, a process first reads the configuration file before becoming a dæmon," right?

A Hang on. So the line...

Q Line 15 and 16 of column 16.

A Okay.

Q So what it's saying is that the process reads, it looks like one configuration file before becoming a dæmon, right?

A Correct.

Q And that's consistent with the single configuration file comment I made earlier?

MR. PALYS: Objection to form.

A You made that comment with respect to virtual host.

BY MR. KUSHAN:

Q Right.

A So it says the dæmon first reads the

configuration file.

Q So the dæmon will create a virtual host, right?

A Yes.

Q Okay. Now, "The configuration file," it says, "in effect becomes hard coded into the program such that the program no longer has to read it in." That's loading the configuration file parameters into the dæmon, right?

A Yes.

Q All right. And then it says, "The dæmon then waits to receive a connection request," right?

A Yes.

Q Now, you read that as saying that this is saying that the ensuing connection request is received as a separate dæmon on the firewall, and you're using the word "separate." What I want to know is, the quoted language that is listed here doesn't use the word "separate dæmon," right?

A But it's depicted by the drawings and the teachings of the specification.

Q But at least as far as what you're

suggesting, this passage isn't actually saying that the dæmon's got a separate dæmon for the firewall function as compared to the DNS function, right?

A In this particular case, I think this passage should be read that way.

Q All right. So then the next passage says, "When a connection request is received, the dæmon spawns a process to handle the connection request. This process then uses a piece of code referred to herein as an INET Wrapper to check on the local side of the connection and the remote side of the connection to determine, in accordance with the appropriate Allow and Deny databases, whether the connection is to be allowed."

So it's talking about the dæmon itself spawning a process to respond to the connection request, right?

MR. PALYS: Objection to form.

A And that connection request is different from -- than the DNS request we've been talking about before.

BY MR. KUSHAN:

Q And that conclusion is based on your interpretation of the whole patent, not based on the Wesinger patent at column 16, line 21 or so down to 25, saying it's a separate connection, right?

A That is based on my understanding of the teachings where it separates a connection request from a DNS request.

Q And the connection request, it's not saying it's a separate connection request, it just says "a connection request," correct?

A Yes.

Q And you would agree that Wesinger is silent on how the connection request might arise after a DNS query, right?

A I agree.

Q All right. So there's nothing in Wesinger that says overtly after a DNS query is received and resolved, then a new process is created, a new connection request is created, right?

MR. PALYS: Objection to form.

A There's no -- to restate, in Wesinger, there's no direct connection between teachings

between the DNS request and the ensuing connection, which I think is what you've asked.

BY MR. KUSHAN:

Q And I'm just trying to differentiate your interpretation of Wesinger versus what Wesinger actually has in it, as what they actually wrote down.

MR. PALYS: Objection to form.

A So these are one and the same. I'm saying what Wesinger has written down is that -- and my interpretation of that is that is that there's explicitly a connection request and explicitly a DNS request.

BY MR. KUSHAN:

Q But you would agree that Wesinger is silent on how the connection request might arise following the DNS query, right?

A Correct.

Q So if we could just have one last question. I want to just go back briefly to Beser. Sorry. It's only a couple of questions. By the way, you don't know Beser, do you?

A No.

Q "Besser."

A You say "Beezer," I say "Besser." We're back on 237?

Q Yes, please. Figure 1 of Beser, we talked about network device 16 and terminating device number 26 before, right?

A We have, in many different ways.

Q So is the public IP address of network device 16 also an IP address of terminating device 26?

A It's the -- so it's the public address of device 16 and how you reach device 16.

Q But I'm asking is the IP address of device 16 also the IP address of device 26?

A That's used in communicating between 24 and 26?

Q Yes.

A No.

Q Does device 26 also have in any sense the same IP address as device 16?

A The IP address of 26 is negotiated by 16 and -- by 16 and 14, for 24.

Q So the IP address for 26 will be different than the IP address that's possessed by device 16?

A Different than the IP address of device 16, the public IP address of device 16.

Q And so 26 then, you can't get to 26 using the public IP address that's attached to device 16?

A Meaning you can't send a packet directly to 26?

Q If I send a packet to the IP address of device 16, does that get routed or sent to device 26?

A No.

Q No, because device 26 is a different IP address?

A It's a different IP address was negotiated for how to get to device 26.

MR. KUSHAN: All right. No more questions. Thank you.

MR. PALYS: Let's take one minute.

(Recess.)

MR. PALYS: We have no questions for the witness.

(Signature having not been waived, the deposition of FABIAN NEWMAN MONROSE, Ph.D. was concluded at 5:57 p.m.)

ACKNOWLEDGEMENT OF DEPONENT

I, FABIAN NEWMAN MONROSE, 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 SHORTHAND REPORTER-NOTARY PUBLIC

I, Lee Bursten, Registered Merit Reporter, Certified Realtime Reporter, and Notary Public within and for the District of Columbia, do hereby certify:

That FABIAN NEWMAN MONROSE, 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, VIRNETX, INC. AND SCIENCE APPLICATION INTERNATIONAL CORPORATION, was represented by counsel at the deposition.

I further certify that the deposition of FABIAN NEWMAN MONROSE, Ph.D. occurred at the offices of PAUL HASTINGS LLP, 875 15th Street, NW, Washington, DC 20005, on Thursday, October 23, 2014, commencing at 9:00 a.m. to 5:57 p.m.

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 30th day of October, 2014.

My commission expires June 30, 2014.

LEE BURSTEN
NOTARY PUBLIC IN AND FOR
THE DISTRICT OF COLUMBIA

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