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# Transcript of Patrick Gerard Traynor, Ph.D.

**Date:** April 22, 2024

**Case:** Samsung Electronics -v- Headwater Research (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2  
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4  
5 SAMSUNG ELECTRONICS CO. LTD.,

6 Petitioner,

7 v.

8 HEADWATER RESEARCH LLC,

9 Patent Owner.

10  
11 Case No. IPR2023-01226

12 Patent 10,237,773

13 Case No. IPR2023-01157

14 Patent 11,405,224 B2

15  
16 DEPOSITION OF PATRICK GERARD TRAYNOR, PH.D.

17 Conducted Virtually

18 Monday, April 22, 2024

19 9:01 a.m.

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22  
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25 Reported by: Crystal Hereford, RPR, CSR No. 14416

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Headwater Research LLC

Ex. 2008, IPR2023-01226

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P R O C E E D I N G S

THE REPORTER: We will go on the record.

Will counsel please announce your appearance  
and state whom you represent, beginning with the taking  
attorney.

MR. MILKEY: This is James Milkey with the  
law firm of Russ, August & Kabat on behalf of Patent  
Owner.

MR. KHAN: My name is Usman Khan. I'm here  
on behalf of Petitioner Samsung. I'm with  
Fish & Richardson.

THE REPORTER: Thank you.

PATRICK GERARD TRAYNOR, PH.D.  
a witness herein, having been first duly sworn by the  
certified reporter to speak the truth and nothing but  
the truth, was examined and testified as follows:

EXAMINATION

BY MR. MILKEY:

Q. So, Dr. Traynor, good morning. Is this --  
you've been deposed before, correct?

A. Yes. That's correct.

Q. Okay. Approximately how many times?

A. Seven or eight.

Q. So as always with these depositions, if you  
could do your best to wait for me to finish the question

1 before answering, and that will also give your counsel  
2 an opportunity to pose his objections. Is that fair?

3 A. Yes.

4 Q. And then as I ask questions today, if you  
5 have any confusion about the question, need additional  
6 clarification, please just let me know if that's the  
7 case. Is that fair?

8 A. Yes.

9 Q. If you could go to your -- okay. So I guess  
10 before we get started, you've submitted declarations in  
11 each of two proceedings that we're here today to  
12 discuss. Is that your understanding?

13 A. That's correct.

14 Q. Okay. And one of those proceedings  
15 challenges the '224 patent. Is that fair?

16 A. Yes.

17 Q. And the other proceeding challenges the  
18 '773 patent, correct?

19 A. That's correct.

20 Q. Okay. So we'll start with your report  
21 regarding the '223 patent [sic], so if you could pull  
22 that up.

23 A. My apologies. You said "the '223." I assume  
24 you meant '224.

25 Q. Yes, the '224 patent. Thank you.

1 A. I have that document open.

2 Q. Okay. And at the first page of that  
3 document, it references US Patent Number 11,405,224,  
4 correct?

5 A. That's correct.

6 Q. And for the record, this is Exhibit 2000- --  
7 sorry -- this is Exhibit 1003 in that proceeding, as  
8 shown by the footer on the bottom right?

9 A. That's my understanding. Yes.

10 Q. If you could please go to page 95 of that  
11 document, which shows your educational background.

12 A. One moment, please. My apologies. My PDF  
13 program just crashed, so if you'll give me a moment.

14 Q. Absolutely.

15 (Pause in proceedings.)

16 A. And that was page 95. Is that correct?

17 Q. Correct.

18 A. Okay. I'm there.

19 Q. And it shows here that you have a Ph.D. that  
20 you received in 2008 from Pennsylvania State University,  
21 correct?

22 A. That's correct.

23 Q. What was the focus of your Ph.D. research?

24 A. The title of my dissertation was  
25 "Characterizing the Impact of Rigidity on the Security

1 of Cellular Telecommunications Networks." This work  
2 focused on mobile systems and cellular networks and how  
3 the bottlenecks in traditional cellular systems could be  
4 exploited by internet-based adversaries to cause  
5 large-scale outages.

6 Q. Okay. During your Ph.D., did you work on or  
7 research how to schedule activities within mobile  
8 devices?

9 A. Yes.

10 Q. What was the -- can you explain some of the  
11 research that you did in that area?

12 A. Certainly.

13 So the second of three parts of my  
14 dissertation is primarily focused on dealing with  
15 overload conditions in cellular networks, generically  
16 for adversarial overload, but the techniques that I talk  
17 about in that work allow for benign or accidental  
18 overload scenarios to be dealt with as well.

19 I took a series of techniques from  
20 traditional queue management to weighted random early  
21 detection to leaky bucket classical techniques, applied  
22 them, and demonstrated how they could be used to  
23 prioritize certain classes of traffic over others so  
24 that cellular networks could achieve their desired level  
25 of service.

1 Q. Okay. And how were certain classes of  
2 traffic prioritized over others in the solution that you  
3 proposed?

4 A. We looked at multiple different  
5 classifications. In particular, because the first part  
6 of the dissertation focused on overload caused by too  
7 many text messages and that the law requires that up  
8 time in cellular networks, particularly for voice, is  
9 prioritized, we looked at strict prioritization of  
10 voice; then text messages that originate within the  
11 network, that is, by customers of the provider; and then  
12 those that come from the outside world.

13 Q. Okay. And were these prioritizations made at  
14 the network level?

15 A. So these prioritizations were made in network  
16 queues. Although, part of the work that I would go on  
17 to do as a later paper talks about how we could make  
18 mobile phones into responsible devices and to  
19 preemptively drop packets or delay packets to make sure  
20 that malicious behavior didn't make it into the network.

21 Q. Okay. So in terms of influencing mobile  
22 device behavior regarding this research, did you propose  
23 influencing mobile device behavior other than dropping  
24 packets or delaying packets on the mobile device?

25 A. I'd have to think about it. This is a

1 200-page document that I wrote over 15 years ago. But  
2 certainly at a high level, we considered this. My  
3 concern at the time from a security perspective was that  
4 solely relying on such mechanisms would not allow a  
5 provider necessarily to deal with an issue if the device  
6 was fully corrupted, and so the focus was more on the  
7 network side, but certainly it was considered.

8 Q. Okay. Did your research involve scheduling  
9 various application activities on behalf of  
10 applications?

11 A. What does that mean?

12 Q. So you're familiar with the Cole reference  
13 issue in this proceeding, correct?

14 A. Yes. It's one of my primary references.

15 Q. Okay. And the Cole reference -- and I'll --  
16 you can refer to it as needed. I'll also put it into  
17 the chat so that the reporter can see it.

18 But the Cole reference has a scheduler and a  
19 connection manager, correct?

20 A. That's my understanding of the Cole reference  
21 at a high level.

22 Q. And the connection manager and scheduler of  
23 Cole don't relate to dropping packets in particular, do  
24 they?

25 A. What do you mean?

1 Q. Does Cole's connection manager cause packets  
2 to be dropped?

3 A. So my understanding of Cole's connection  
4 manager is that it's used for helping to evaluate  
5 policies that can be executed on applications. In  
6 concert with the other elements in the patent, that can  
7 result in packets potentially being dropped or delayed.

8 Q. Okay. And in your research, did you -- I'll  
9 strike that.

10 Is it your understanding that Cole schedules  
11 when certain activities on behalf of applications will  
12 take place?

13 A. So are you asking me something specific about  
14 my report? Or are you asking me at a high level?

15 Q. At a high level.

16 A. So Cole will find a time when -- for example,  
17 but not limited to, when network conditions may improve  
18 and then delay packets, or background packets could be  
19 potentially retransmitted or sent then.

20 Q. Does Cole make decisions on a packet level?

21 A. So the Cole -- my understanding of the Cole  
22 patent is that it is at the application level. But  
23 packets come out of applications. So as a person of  
24 ordinary skill of the art, I could see how it could be  
25 used for that as well, but Cole makes it clear that it's

1 focused on the application level.

2 Q. Okay. In your research, did you propose  
3 scheduling of network behavior -- strike that. I'll  
4 pose a slightly clearer question.

5 In your research, did you propose scheduling  
6 of network service usage activities at the application  
7 level?

8 A. Yes.

9 Q. And what did that involve?

10 A. Well, in particular, my work was focused at  
11 the network level. And, again, as I mentioned  
12 previously, the application that I was concerned about  
13 was voice versus text messaging versus external text  
14 messaging.

15 Now, that's different than Cole. Cole  
16 happens at the device, and my work was focused, again,  
17 primarily in the network.

18 That said, within the network, I was able to  
19 identify these different classes and then put them into  
20 different queues and service them according to the  
21 priorities we set forth. And then if we had too much  
22 traffic of one class, certainly some would be delayed.  
23 If the queue was filled up, that additional traffic  
24 would be dropped.

25 Q. If you could just give me one second, please.

1           A.     Okay.

2                     (Pause in proceedings.)

3           Q.     All right. Okay. So did your research  
4 involve making any -- strike that.

5                     In your research, did you propose scheduling  
6 of network service usage activities at the application  
7 level on a device?

8           A.     As I mentioned earlier, the primary focus of  
9 my work was mitigation in the network. And, again, it's  
10 over 15 years since I wrote my dissertation. I believe  
11 that I considered that but, given the threat model,  
12 focused on the network. Because from the provider's  
13 perspective, it was the only place that they could be  
14 certain to drop malicious overload.

15          Q.     Okay. Since obtaining your Ph.D., have you  
16 proposed scheduling of network usage activities at the  
17 application level on the device?

18          A.     I've written well over a hundred papers since  
19 that time. If you'll give me a moment, I'll look  
20 through my CV, and just evaluate. I mean, it's a very  
21 high-level, broad request, and so I'd like to just look  
22 through and see before I give you an answer. Is that  
23 okay?

24          Q.     Yes. That's fair.

25          A.     Thank you. I'm just going to put myself on

1       mute for a moment, if that's all right.

2               Q.       Absolutely.

3               A.       Thank you.

4                       (Pause in proceedings.)

5               A.       I've just finished going through my journals.

6                       One that might be of interest -- and, again,  
7       this is more on the network side -- is a paper about  
8       emergency alert services and how those systems can  
9       potentially be overloaded during times of crisis in the  
10      physical world, so think a shooting or a physical  
11      incident on a college campus. That's, again, on the  
12      network side, but that's certainly related.

13                      I'm just going to go into my conference  
14      papers now, if that's okay.

15              Q.       Absolutely.

16                      (Pause in proceedings.)

17              A.       Again, more network level stuff, but I have a  
18      paper in 2009 that's focused on botnets. Are you  
19      familiar with the concept of botnets?

20              Q.       At a high level, yes.

21              A.       Okay. So familiar with -- sorry.

22                      It's, at a high level, talking about if we  
23      have a large number of mobile phones infected with  
24      malware, what large-scale attacks on the core would look  
25      like, how they could be mitigated. These are distinct

1 from what I talked to you about earlier.

2 I'm about two-thirds of the way through. If  
3 you'll just give me another two or three minutes. I'm  
4 trying to do this as quickly as possible.

5 Q. Absolutely. And I -- never say never, but I  
6 would be surprised if we ended up taking the whole seven  
7 hours today, so...

8 A. No problem.

9 (Pause in proceedings.)

10 A. Okay. I've finished that.

11 Again, I just want to go back to the journal  
12 section. I did mention it earlier, but I wanted to make  
13 sure that -- I was trying to be complete here.

14 This was some work in 2011, my work "From  
15 Mobile Phones to Responsible Devices" and just talking  
16 about how we can try and limit access to certain  
17 interfaces to prevent malicious behavior from phones.

18 Q. And what are you referring to with that? If  
19 you could point me to an entry in your --

20 A. Oh, my apologies. It's Entry Number 20 in  
21 the published journal papers, "From Mobile Phones to  
22 Responsible Devices." That's on page 104.

23 Q. I see.

24 And so what was the proposal in that paper  
25 that involved scheduling of network usage activities at

1 the application level on a device?

2 A. Well, again, I'm trying to be complete here.  
3 And so the focus on this paper was access to some  
4 unmitigated, potentially sensitive instructions that  
5 could cause substantial effort by the network.

6 So as an example, the authentication process  
7 is quite heavy weight in cellular networks. And so a  
8 phone that's compromised, if it's able -- if a malicious  
9 application can send a message, it can cause the network  
10 to do a huge amount of work. And so, again, it was  
11 about making sure that access to specific interfaces was  
12 tighter and that such messages wouldn't be sent out.

13 So it's not a direct read on the patent, but  
14 it is certainly related in about what goes out of the  
15 device, how we control -- in this case, for the benefit  
16 of network security and overload prevention, how we  
17 control how a phone is interacting with both first hop  
18 and then ultimately cellular core elements.

19 Q. Okay. Have you designed anything similar to  
20 Cole's scheduler?

21 A. What do you mean?

22 Q. Something that will, again, schedule  
23 application activity on a device. You know, I  
24 understand that you have some proposals that will modify  
25 how applications -- sorry -- how devices communicate

1 with the network. I'm trying to understand if you have  
2 something that -- if you've worked on something that  
3 would actually, for example, schedule or defer  
4 particular application level activity.

5 A. Well, again, as I've said, you know, from the  
6 network perspective, I certainly have done this. It's  
7 already left the device. And I appreciate that that's a  
8 highly related but slightly different area. As I'm sure  
9 you know, the space of queuing and active queue  
10 management is quite old in networking. Certainly this  
11 was a very hot area in the '90s, even before. And so  
12 it's not an area that I've made publications directly  
13 on, but it's a well-established field, and it's --  
14 you know, making sure that devices don't send too much  
15 traffic is an issue that's essentially nearly as old as  
16 networks. So...

17 Q. Okay. That's helpful. Thank you.

18 If you could go to paragraph 19 of your  
19 declaration. Again, this is the declaration regarding  
20 the '224 patent.

21 A. Is this the paragraph beginning "I have been  
22 informed that a patent"?

23 Q. Yes. Correct.

24 A. I'm there.

25 Q. And so on both paragraphs 19 and 20, you see

1     that you have what appears to be your understanding of  
2     the legal concept of obviousness. Is that fair?

3           A.     Yes. That's fair.

4           Q.     Is this the legal standard of obviousness  
5     that you applied in your analysis throughout your  
6     declaration?

7           A.     Yes.

8           Q.     Are you aware -- did you apply any legal  
9     understanding of obviousness in your analysis in this  
10    proceeding other than what is set forth in these two  
11    paragraphs of your declaration?

12          A.     So just to be clear, I'm not an attorney, and  
13    I haven't been to law school. I am familiar with the  
14    concept of obviousness based on my work in the space in  
15    the past, and any questions that I might have had about  
16    obviousness during the process of writing this report, I  
17    had counsel to talk to.

18                 So I believe that 19 and 20 are fair  
19    summaries of my understanding about obviousness, so I  
20    have no reason to believe that I've done something  
21    beyond what's here.

22          Q.     You're familiar with the concept of  
23    reasonable expectation of success, correct?

24          A.     Yes, generally.

25          Q.     And you understand that that -- for an

1 obviousness theory that involves some sort of  
2 modification or combination, you understand that  
3 reasonable expectation of success is a requirement for  
4 that modification or combination to be obvious?

5 A. Yes.

6 Q. What is your understanding of what is  
7 required for a showing of reasonable expectation of  
8 success?

9 A. So, again, I'm not an attorney. And when  
10 this topic came up, if I had any questions, I asked  
11 about it.

12 But at a very high level, a reasonable  
13 expectation of success would be that I would combine  
14 known things in known ways and that I wouldn't have to  
15 go far outside of the -- my knowledge as a person of  
16 ordinary skill of the art in order to combine them, that  
17 the outcomes would match my expectations.

18 Q. Okay. If you could please turn to  
19 paragraph 46 of your declaration. And, again, just for  
20 the record, this is still relating to the '224 patent.

21 A. Is this the paragraph that's under the  
22 heading "Combination of Cole-D'Amore and Rao"?

23 Q. Correct.

24 A. I'm there.

25 Would you like me to read that paragraph

1 first?

2 Q. Yes. If you could read that paragraph and  
3 let me know when you've finished.

4 A. I've read 46. It certainly continues on to  
5 the other paragraphs. Should I stop there? Or what  
6 would you like me to do?

7 Q. If you could also read paragraph 47, that  
8 would be helpful.

9 A. One moment.

10 Yes. I've read 47.

11 Q. Okay. And you see in paragraph 47 that you  
12 propose incorporating the functionality of Rao's frame  
13 monitor 360 into the connection manager of Cole-D'Amore,  
14 correct?

15 A. Yes, I do.

16 Q. As of the priority date of the '224 patent,  
17 what algorithms existed for incorporating a frame  
18 monitor into a connection manager?

19 A. These are, again, fairly high-level concepts.  
20 And so are you giving me some specific construction  
21 here? Or is this just the plain and ordinary meaning as  
22 I've read them?

23 Q. I mean -- so before we get into this  
24 question, I think that's a fair question, and I want to  
25 address and clarify to the best I can.

1           The way I'm using "connection manager" and  
2           "frame monitor" are in the context of how Rao and Cole  
3           describe those concepts. So frame monitor, for example,  
4           would be something that looks on a frame-by-frame and  
5           packet-by-packet basis to sort of see what is happening  
6           at the packet level. And a connection manager would be  
7           something, such as within Cole, that at the application  
8           level determines what connections are allowed to access  
9           a network. Is that fair?

10          A.       So from my understanding of what you just  
11          said, those come pretty close to plain and ordinary  
12          meaning, and so I'll stick with that.

13                 And I agree that, again, Rao is looking at  
14          the packet level and that Cole and D'Amore are looking  
15          at the application level.

16          Q.       Okay. And so what algorithms existed for  
17          using a frame monitor within a connection manager?

18                 MR. KHAN: Objection; out of scope.

19          A.       I mean, are you asking me to do sort of a  
20          comprehensive literature survey for the term "frame  
21          manager" and then to show it in a connection manager?  
22          I'm not sure what you're asking me for here.

23          Q.       I'm asking if a person of ordinary skill in  
24          the art wanted to incorporate a frame manager into a  
25          connection manager, is there any existing software that

1     they could have looked to as an example of how to do  
2     this? Is there something that would have informed them  
3     how this modification would have actually taken place?

4           A.     This is pretty straightforward for someone  
5     who is a person of ordinary skill of the art. In this  
6     case, I'm making decisions based both on direct  
7     application behavior and then lower down the stack at  
8     the network level. And so anyone with experience in  
9     systems would know that there's valuable information and  
10    context at both of these places.

11           So my inclination is perhaps to point you to  
12    a textbook, something like that. These are -- gaining  
13    context about performance about network issues and  
14    reasoning about them at cross levels is well known.

15           Q.     Okay. Sitting here today, are you aware of  
16    any prior art that did, in fact, use a frame manager  
17    within a connection manager -- strike that.

18           Sitting here today, are you aware of any  
19    prior art that actually did use a frame monitor within a  
20    connection manager?

21           A.     Are you asking me if I am aware of prior art  
22    that has the literal words "frame manager" and  
23    "connection manager" and then combined them?

24           Q.     No. I'm asking consistent with the plain  
25    meaning that we've been discussing of those terms,

1 consistent with their usage in Cole and Rao. Are you  
2 aware of any prior art that used a frame monitor within  
3 a connection manager?

4 A. Again, there are many application monitoring  
5 products, and if one was also using knowledge of  
6 packets, that would be expected. So it's such a broad  
7 question. I believe the question I'm answering is: Is  
8 something that's aware of application behavior also  
9 aware of network behavior? And to that, I would say  
10 yes.

11 Q. That's not exactly the question. My question  
12 is: Is there something that would make use of packet  
13 information to schedule application activity at the  
14 application layer that existed in the prior art?

15 MR. KHAN: Objection; vague.

16 A. I'm apologizing because this all seems so  
17 very high level, and these are pretty well understood  
18 concepts. Are you asking me to name products?

19 Because, again, gaining insight from a system  
20 level, both from applications and from the packets, it's  
21 just sort of standard. I don't know -- I don't know  
22 exactly where to point you, because it's just very clear  
23 to me.

24 Q. Okay. If this concept of gaining insight  
25 from a system level from both applications and from the

1 packets to schedule application activity at the  
2 application layer is standard and expected, can you  
3 point me to any reference or system that you can think  
4 of that did, in fact, do that?

5 A. So let me just take a step back. My  
6 understanding here -- and, again, I'm going to go back  
7 up a couple of paragraphs.

8 What I'm trying to show in my report is  
9 obviousness, and I can show obviousness through a  
10 combination.

11 Now, the references here very clearly spell  
12 out the ability to take such information. And, again,  
13 as a person of ordinary skill of the art, someone who  
14 would want a granular means of enforcing policy, this  
15 allows me to do it at multiple levels based on multiple  
16 inputs. So this is all very clear. There's no sort of  
17 mental leap here that I would have to take to combine  
18 these things.

19 So I can't name a product for you, because I  
20 wasn't asked to do that as part of this exercise. But  
21 as a person of ordinary skill of the art, all of these  
22 references are highly related and give me, an expert,  
23 granularity to enforce policy at multiple levels.

24 Q. Okay. Are you familiar with any paper or  
25 system that has ever used a frame monitor to schedule

1 application activity at the application layer on a  
2 mobile device?

3 A. That wasn't an assignment that I was asked to  
4 do. You know, again, if you'd like, I can go off and do  
5 that. I mean, again, the literature in the space is  
6 quite comprehensive. But finding a specific paper, no.

7 I believe, by the way, that that -- and,  
8 again, I'm not an attorney -- but that would be more  
9 akin to anticipation, and that's not necessarily what  
10 I'm trying to show here. I'm showing obviousness  
11 through these three references.

12 Q. But it's not your contention that using a  
13 frame monitor to schedule application activity at the  
14 application layer on a mobile device was a known feature  
15 that was disclosed in the art, correct?

16 A. I'm sorry. I feel like I'm answering the  
17 same question over again, and I want to make sure I'm  
18 consistent.

19 Again, I don't -- I didn't put forward an  
20 anticipation case. I put forward one of obviousness,  
21 and I combined them here. I wasn't asked to find a  
22 single reference that did all these things. I didn't  
23 spend any time doing that.

24 And so what I have done is I've shown that  
25 these three references in highly related spaces would

1 give me an extremely granular and expressive means of  
2 expressing policy.

3 Q. I understand that you're putting forth an  
4 obviousness ground, and I understand that for an  
5 obviousness ground not all of these things have to be  
6 combined in a precise manner or you can propose  
7 modifications. I'm not disputing that.

8 But what I'm trying to understand is whether  
9 you have any opinion that using a frame monitor to  
10 schedule application-layer activity on a mobile device  
11 was a technique that was already known in the art prior  
12 to the '224 patent's priority.

13 A. So, again, I'm just making sure that I'm  
14 being consistent.

15 Rao does much of what you've said. Right? I  
16 mean, Rao has this frame monitor explicitly, and Rao is  
17 about then scheduling when packets leave the device. I  
18 didn't go with Rao as a single reference. It's combined  
19 with the others, as I've said before.

20 And so yeah. I believe I've -- I apologize.  
21 I believe I've answered the question a few times.

22 Q. Do you have any opinion that using a frame  
23 monitor to schedule application-layer activity on a  
24 mobile device was a technique that was already known in  
25 the art prior to the '224 patent's priority?

1           A.     I think my opinion is clear here. A  
2 combination of these sources very clearly make the case  
3 that such a thing could easily be done using known  
4 techniques combined in a straightforward fashion with  
5 unsurprising outcomes.

6           Q.     Okay. That wasn't my question. My question  
7 was: Do you have any opinion that using a frame monitor  
8 to schedule application-layer activity on a mobile  
9 device was a technique that was already known in the art  
10 prior to the '224 patent's priority?

11          A.     If you'd just give me a moment, please.

12                   (Pause in proceedings.)

13          A.     So I apologize. I feel like we're going in  
14 circles a little bit. So I'll try one last time to  
15 answer again.

16                   You know, Rao and all of the other sources  
17 I've pointed to, you know, point to application where  
18 prioritization attempts to schedule, delay, on some  
19 occasions block traffic going out of the device. And so  
20 these things together take well-known techniques, again,  
21 things that are in textbooks, and make it possible to do  
22 so.

23                   So I believe all of these techniques were  
24 known in the art at the time. I didn't offer an opinion  
25 about whether they'd been combined into one reference.

1 I didn't look for that. But all of the techniques that  
2 we're discussing are well known in art and could be  
3 combined without any real challenge.

4 Q. Okay.

5 A. Did that help?

6 Q. Not really.

7 So my question is specifically about the  
8 technique of using a frame monitor within a connection  
9 manager in order to schedule application-layer activity  
10 on a mobile device. Is that technique a technique that  
11 was known as of the priority date of the '224 patent?

12 MR. KHAN: Objection; asked and answered.

13 A. I'm sorry. I've tried to reword my answer a  
14 few times. I'm just not sure what else I can say.

15 Q. Okay. I will -- I am trying to give you an  
16 opportunity to answer the question, which I believe is  
17 extremely clear. I will ask it one more time, and if  
18 you can provide a "yes" or "no" answer, with any caveat  
19 that you want to provide, I would very much appreciate  
20 it, and I'm sure the board would appreciate it as well.  
21 If you are unable to say "yes" or "no" in response to  
22 the answer, I will understand that you are unable to  
23 answer the question.

24 So, again, the question is: Is using a frame  
25 monitor within a connection manager in order to schedule

1 application-layer activity on a mobile device a  
2 technique that was known in the art as of the priority  
3 date of the '224 patent?

4 MR. KHAN: And thank you, Counsel. Just a  
5 quick comment here that I just object to the extent that  
6 you're demanding a particular answer. Dr. Traynor can  
7 answer how he feels most appropriate to answer the  
8 question without being forced to offer any specific  
9 answer.

10 With that, Dr. Traynor, please go ahead and  
11 answer as you feel most appropriate.

12 A. So, again, I want to make sure that I'm  
13 consistent with what I've said before.

14 I believe that all of the techniques here are  
15 well understood in the art. My effort here was to  
16 demonstrate that they are easily combined with no  
17 surprises. And, as a person of ordinary skill of the  
18 art, yes, all of the pieces are here in the art, well  
19 understood for a very long time.

20 Q. Okay. So based on your answers to this  
21 question, I understand that you do not have an opinion  
22 that using a frame monitor within a connection manager  
23 in order to schedule application-layer activity on a  
24 mobile device is a technique that was known in the art  
25 as of the priority date of the '224 patent. Is that

1 understanding incorrect in any way?

2 MR. KHAN: Objection; misstates testimony.

3 A. Yeah. I just want to, again, clarify and try  
4 to repeat what I've said.

5 All of these techniques were known in the  
6 art. And as a person of ordinary skill at the time and  
7 still one today, all of these pieces were well  
8 understood, all available, you know, combined give a  
9 high amount of granularity of control for a wide range  
10 of policies. And so as a person of ordinary skill of  
11 the art, I believe everything was known and available in  
12 the art at the time. A person of ordinary skill of the  
13 art could have easily combined these.

14 Q. Okay. So it is your understanding that using  
15 a frame monitor within a connection manager in order to  
16 schedule application-layer activity on a mobile device  
17 was a technique that was known in the art as of the  
18 priority date of the '224 patent.

19 A. So one more time, just to be clear. All of  
20 the techniques here are well understood and would have  
21 been known well before the priority date. As a person  
22 of ordinary skill in the art, combining them is a very  
23 straightforward task. If I wanted to have granularity  
24 and control of what's coming in and out of the device  
25 for lots of different policy reasons, all of these

1 techniques would have been known to me at the time,  
2 certainly were known to me at the priority date. And so  
3 I believe my report makes it clear that the combination  
4 is straightforward and that the techniques were all  
5 known and worked together as expected.

6 Q. Are you able to answer the following question  
7 with a "yes"? Is it your understanding that using a  
8 frame monitor within a connection manager in order to  
9 schedule application-layer activity on a mobile device  
10 was a technique that was known in the art as of the  
11 priority date of the '224 patent?

12 MR. KHAN: Objection; asked and answered.

13 A. I apologize. I had to put myself on mute  
14 there for a second. I just had a bit of a cough.

15 Again, I believe I said this before. All of  
16 the techniques were known in the art. A person of  
17 ordinary skill of the art would have combined these, as  
18 I've tried to do in my report. I feel like I've just  
19 repeated myself a bunch of times.

20 MR. MILKEY: Could we go off the record?

21 MR. KHAN: Sure.

22 THE REPORTER: We're off the record.

23 (Off the record: 9:53 a.m. to 10:04 a.m.)

24 Q. So, Dr. Traynor, when did you first come up  
25 with the idea of incorporating a frame monitor into a

1 connection manager within a mobile device to schedule  
2 application-layer activity?

3 MR. KHAN: Objection; vague. Objection; out  
4 of scope.

5 A. I'm not really sure how to answer. I can't  
6 come up with a precise date off the top of my head.

7 Q. Was it after you were retained for purposes  
8 of this proceeding?

9 MR. KHAN: Same objections.

10 A. I didn't time and date each of my ideas in  
11 these reports, so I couldn't answer that meaningfully.

12 Q. How did you arrive at the idea of  
13 incorporating a frame monitor into a connection manager  
14 within a mobile device to schedule application-layer  
15 activity?

16 MR. KHAN: Objection.

17 To the extent there's any confidential  
18 information that is implicated by this question,  
19 Dr. Traynor, please don't share any confidential  
20 discussions. Otherwise, please feel free to answer the  
21 question.

22 A. Again, are you asking about my process of  
23 evaluating patents or -- I can't give you an exact date  
24 when I made this argument for the first time.

25 Q. I'm asking, essentially, why you came up with

1     this idea of combining a frame monitor into a connection  
2     manager within a mobile device to schedule  
3     application-layer activity. What was the thought  
4     process there?

5           A.     So in evaluating the patents, I was using my  
6     expertise as a person of ordinary skill of the art and  
7     thinking about how I would make a system that was  
8     flexible and responsive. And as I evaluated the claims  
9     of this patent, I looked at lots of prior art -- and,  
10    again, I mentioned before there's a great deal of prior  
11    art that I think was relevant -- and narrowed down the  
12    resources -- or the sources that I selected to have the  
13    most straightforward combination.

14          Q.     Is it your opinion that your proposed  
15    combination of Cole with Rao is the most straightforward  
16    combination of the Cole and Rao references?

17          A.     My apologies. Sorry. I combined  
18    Cole-D'Amore and Rao.

19          Q.     Okay.

20          A.     Are you asking me if I could have been more  
21    efficient? I don't think that that's a requirement. I  
22    like that Cole-D'Amore and Rao together very clearly  
23    spell out both what I know as a person of ordinary skill  
24    of the art but also what the '224 attempts to claim as  
25    an invention. So...

1           Q.     Yeah. So my question is -- you mentioned  
2     that you tried to select the most straightforward  
3     combination. What I'm trying to understand is if you  
4     tried to select the most straightforward combination of  
5     the references or if instead you tried to select the  
6     most straightforward combination of the references that  
7     you believed would read on the claims of the  
8     '224 patent.

9           MR. KHAN: Objection; vague. Objection; out  
10    of scope.

11          A.     I apologize. I'm just -- I'm not sure that I  
12    understand.

13                My job here is to determine if there is  
14    anything invented in the '224. Again, there's a great  
15    deal of prior art. All of these techniques are known.  
16    If you're asking if I could have had other references, I  
17    firmly believe so, but I thought that these give a very  
18    clear signal that there was nothing invented in the  
19    '224.

20          Q.     Okay. So by way -- just for background, your  
21    declaration involves first combining Cole with D'Amore  
22    and then separately combining Cole and D'Amore with Rao.  
23    Is that fair?

24          A.     Yes. That's correct.

25          Q.     So you mentioned that you tried to achieve

1 the most straightforward combination, and what I'm  
2 asking is what you meant by that. Did you try to  
3 combine Cole-D'Amore with Rao in the most  
4 straightforward way to combine those references?

5 A. Again, I apologize if I've given any kind  
6 of -- I'm not an attorney, and so I don't know if  
7 "straightforward" has a specific meaning to you.

8 Again, I think that with my experience being  
9 a person of ordinary skill of the art, there is a huge  
10 amount of prior art here that covers everything that the  
11 '224 attempts to claim is an invention. So it is my  
12 appreciation that when filing an IPR, that the board  
13 likes to have references that are direct and so we don't  
14 have to have a squabble about a person of ordinary skill  
15 of the art knowing something.

16 So I think Cole is a very strong reference,  
17 and I think that many of the concepts in Cole probably  
18 are pretty close by themselves. But the good news is  
19 that D'Amore, Rao make it very clear that other people  
20 of ordinary skill of the art knew what I know.

21 I apologize. I hear a noise in the  
22 background not coming from me.

23 Q. Yeah. I'm sorry. My dog is a bit annoying  
24 at times. Apologies.

25 A. Mine are downstairs. I understand.

1           Q.     You would agree -- right? -- that there are  
2 more straightforward ways to combine the Cole-D'Amore  
3 combination with Rao than the combination that you've  
4 proposed.

5                     MR. KHAN:  Objection; out of scope.

6           A.     I really -- I don't know how to answer that.  
7 I also don't know that it's necessarily a requirement  
8 for me when making an argument.  Just like I didn't  
9 present an anticipation argument, I thought that this  
10 was a clear, fairly straightforward combination of the  
11 state of the art.  Are you asking me if I could have  
12 written it with fewer paragraphs?  I think I'm happy  
13 with the number that I ended up with.

14          Q.     It would be possible to combine Cole and  
15 D'Amore with Rao without having Rao's frame monitor  
16 influence application-layer scheduling, correct?

17                     MR. KHAN:  Objection; scope.  Objection;  
18 calls for speculation.

19          A.     My apologies.  That's not what I did, and it  
20 sounds like you're asking me to think about a  
21 hypothetical.  I didn't consider that case.

22          Q.     Is it fair to say that you only considered  
23 combinations that you believed would agree on the claims  
24 of the '224 patent?

25          A.     I considered many cases and many pieces of

1 prior art beyond what's mentioned here. So I don't know  
2 how to answer that. I considered many different things.  
3 I did not consider the hypothetical that you've proposed  
4 to me. With sufficient time, I could think about it,  
5 but that's not a case that I considered.

6 Q. Whose idea was it to combine Cole and D'Amore  
7 with Rao in the way that you're proposing in your  
8 declaration?

9 A. So let me be really clear. This report is  
10 mine. You know, when I started this process when I was  
11 engaged, I was given both the '224 and the '773 patents,  
12 asked to evaluate them independently. All of the  
13 opinions here expressed are mine. I can't answer that  
14 question more than I have. I brought references. I was  
15 asked about other references. But I didn't keep track  
16 of who brought what. Ultimately, the arguments here,  
17 though, are entirely mine.

18 Q. So you don't recall whether this combination  
19 of Cole-D'Amore and Rao was something that you  
20 originally came up with or something that your attorneys  
21 provided to you.

22 A. I just want to be careful about that.  
23 No one provided me with an opinion. This  
24 report is my opinion. So this is what I'm putting  
25 forth. I discussed many different references, you know,

1 with my counsel, but ultimately what's in the report is  
2 my opinion.

3 Q. So I'm not asking you about the opinions in  
4 your report. I'm asking you about the specific  
5 combination of Cole-D'Amore and Rao and how that  
6 combination worked. Is that something that you came up  
7 with? Or is that something that your attorneys came up  
8 with?

9 A. Again, everything in this report is mine. I  
10 don't know if in a conversation -- yeah. I can't even  
11 begin to answer that. Everything here is mine.

12 Q. Was it your attorneys' before it was yours?

13 A. That -- I can't answer that. That's -- all  
14 of the opinions expressed here are mine. If there was  
15 an opinion that we chatted about and I agreed with,  
16 you know, I might have made it my own. But I can't  
17 answer, you know, who had the very seed of this idea,  
18 and I can't give you any kind of timeline. What I can  
19 tell you is that these opinions are mine.

20 Q. Is it fair to say that you don't recall the  
21 specific process by which you arrived at the original  
22 idea of combining Cole-D'Amore and Rao together?

23 MR. KHAN: Objection; misstates testimony.

24 A. I'll repeat again. Before I was engaged, I  
25 looked at these patents. I found some art myself.

1 Counsel found some art. I don't recall the process in  
2 which specific pieces were first proposed as such. But  
3 that said, every opinion here is mine and mine alone.  
4 If I didn't agree with something, it wouldn't be in my  
5 report.

6 Q. If we could switch gears and go to your  
7 declaration regarding the '773 patent.

8 A. I have that open.

9 Q. Okay. And so this is Exhibit 1003 in the  
10 '773 patent proceeding. And you have that open, and you  
11 see at the first page of that document, it references  
12 US Patent Number 10,237,773, correct?

13 A. Give me just a moment.

14 Okay. The number is 10,237,773. That's the  
15 one we're talking about, correct?

16 Q. That's right. Thank you.

17 A. Yes. I have that in front of me now.

18 Q. Okay. If you could please turn to page 35 of  
19 your declaration regarding the '773 patent. And this is  
20 where your analysis of Limitation 1.5 begins.

21 A. So sorry. This is page 35. Are we talking  
22 paragraph 57?

23 Q. That's correct.

24 A. Okay. I'm there.

25 Q. Okay. And do you see the heading on this

1 page is Limitation 1.5, which reads "Based at least in  
2 part on a current WWAN network busy state, select a  
3 corresponding current service usage control policy for  
4 the background network service usage activities"?

5 A. Yes. I see all of those words.

6 Q. So what specifically are you alleging to be  
7 the, quote, corresponding current surface -- service  
8 usage control policy for Limitation 1.5?

9 A. Would you just give me a moment? I want to  
10 read the text before I answer anything.

11 Q. Absolutely.

12 A. So I'm just going to read through 61, if  
13 that's okay. I'll put myself on mute in the meantime.

14 (Pause in proceedings.)

15 A. Okay. I've read through.

16 Would you mind repeating your question for  
17 me, just so I make sure I'm trying to answer it?

18 Q. Yeah. Absolutely.

19 So what specifically are you alleging to be  
20 the, quote, corresponding current service usage  
21 control -- strike that.

22 What specifically are you mapping to be the  
23 corresponding current service usage control policy of  
24 Limitation 1.5 in your analysis in this section?

25 A. So in this section, I point to Cole, and Cole

1 talks about things like background traffic. And so  
2 given a network busy state, something like congestion,  
3 Cole would allow such traffic to be delayed.

4 Q. Okay. So what specifically is the policy in  
5 that case?

6 A. The policy -- and, again, policies can be  
7 embodied in many ways. But it might look something  
8 like, if this is background traffic and the network is  
9 busy, delay until the network is not busy. That's just  
10 an example.

11 Q. Okay. And how is that policy selected?

12 A. I just want to make sure -- because it can  
13 be -- this can turn into quite a technical answer. So  
14 what do you mean "How is it selected?" Sorry for such a  
15 basic question.

16 Q. So Limitation 1.5 says "Select a  
17 corresponding current service usage control policy."

18 A. Uh-huh.

19 Q. What I'm trying to understand is what you're  
20 pointing to as being the selection of the policy.

21 A. Well, there would be, at least in part, a  
22 network busy state on the WWAN, and then when that  
23 condition was met, a policy would be potentially  
24 executed. The example I gave before -- and, again, not  
25 necessarily limited to -- but background traffic might

1 be delayed until the network is less busy. So when we  
2 reach that state, that example policy could come into  
3 play.

4 Q. Okay. If you could go to now paragraph 66 of  
5 your declaration regarding the '773 patent.

6 A. Okay. I'm there.

7 Q. Okay. And you see that this is --  
8 paragraph 66 is regarding the -- a selected subset  
9 feature of Limitation 1.6, right?

10 A. I see that. Would it be okay to go ahead and  
11 read it?

12 Q. Absolutely.

13 A. Thank you.

14 (Pause in proceedings.)

15 A. Okay. I've read it.

16 Q. Okay. So at a high level, how in this  
17 paragraph are you alleging that the policy would be  
18 applied to a selected subset of activities?

19 A. So Cole talks about explicitly background.  
20 D'Amore talks more about a more granular -- I don't want  
21 to say ranking, but a more granular delineation. There  
22 are cases in which, you know, just saying "foreground"  
23 and "background" may not be enough.

24 And so what happens here is that the  
25 combination of Cole and D'Amore allows us to have a more

1 granular policy. So, for example, we may have  
2 background that has varying levels of priority. Does  
3 that make sense?

4 Q. Yeah, I think so. Is the idea, essentially,  
5 that different policies would be applied to different  
6 background service usage activities?

7 A. It depends.

8 Q. What does that depend on? Is that a user  
9 selection or something else?

10 A. Well, it depends on a few things. D'Amore  
11 considers a prioritization that might be specified by a  
12 service provider. So that's one possible entity. It  
13 could be potentially by a user.

14 But the context that I was talking about in  
15 that previous statement was, you know, if I only have  
16 one background network service usage activity at a time,  
17 then the priority between that and something -- some  
18 foreground activity would be pretty clear. But maybe  
19 I've got something like a software update, which could  
20 be delayed a very long time, and a web page update,  
21 which a user might want to get faster. So, again,  
22 D'Amore allows us to be more specific about when we  
23 might want to schedule each of these different  
24 background priorities.

25 Q. So going back up to paragraph 61 of your

1 declaration -- and apologies for jumping around. But  
2 this, again, goes to Limitation 1.5.

3 In your analysis, are you alleging the  
4 service usage control policies to be Cole's management  
5 of actions?

6 A. I'm sorry. Are you asking me for a specific  
7 construction here? I'm just using plain and ordinary  
8 meaning here. Service usage control policy is a -- it's  
9 a policy.

10 Q. Right. So I'm trying to understand your  
11 declaration. Because the last sentence of paragraph 61  
12 says "Cole's management of actions," and then it has in  
13 quotation marks "service usage control policies."

14 And so what I'm trying to understand is if  
15 it's your contention that Cole managing actions, for  
16 example, making a deferral decision, is a service usage  
17 control policy.

18 A. So I want to be a little careful here,  
19 because I think it's a bit more subtle.

20 So Cole's -- my text here, "Cole's management  
21 of actions" -- I apologize -- speaks to both the policy  
22 and the mechanism. And so the policy and the mechanism  
23 for then implementing that policy are generally two  
24 separate things. I'm speaking fairly -- I'm speaking  
25 primarily about the policies, the management of actions

1 that point them towards these policies, and then I'm  
2 implementing it by the connection manager. But these  
3 things could be stored in a separate database.

4 Q. Okay. So things like a deferral action are  
5 not necessarily the policy itself, but that would be  
6 something that is an implementation of the policy?

7 A. So let me just be clear. Because policies  
8 have multiple parts. There are conditions, and then  
9 there are generally actions for those conditions. So as  
10 I mentioned before, a condition might be a network busy  
11 state -- right? There's a significant amount of  
12 congestion -- and then what we do about that.

13 So I just want to make sure it's not that  
14 we're separating these things out. When I get a  
15 condition, then I also get an action that goes with that  
16 condition.

17 Q. Right. So is something like a deferral  
18 action -- you know, saying "I've evaluated all the  
19 information that I have available to me. I've evaluated  
20 all the rules. And now I am going to defer activity X  
21 for five minutes." Is the deferral of activity X -- is  
22 that what you're pointing to as the policy in Cole?

23 A. No. Again, you're stripping off the action.  
24 There's a clause that we have to meet, and it's  
25 important that we consider both of these pieces,

1 because, again -- let's pretend you're just looking at a  
2 deferral. You may not know why you did that. And so  
3 it's "We had a condition, and here is the action for  
4 that condition."

5 Q. Okay. So is it fair to say that the rule set  
6 that leads to the deferral is the policy?

7 A. Sorry. As I said before, it's the  
8 combination of these things. It's that you have to have  
9 a rule and what you do with it.

10 Now, the action -- the what you do with it  
11 could be the same for many different scenarios. Whether  
12 it's congestion or expense, I might say "Wait until  
13 we're on wifi." That's why you have to view these  
14 things together.

15 (Pause in proceedings.)

16 Q. So just -- apologies for the confusion. I'm  
17 trying to understand. Is it your opinion that the  
18 combination of the condition and the action, all of that  
19 together is the policy that you're pointing to?

20 A. Yes. So, again, when you hear -- when you  
21 exceed a threshold, then there's an action that comes  
22 along with it.

23 Q. Okay. And so in that example -- I'm sort of  
24 thinking about this in pseudocode. But the policy would  
25 be something like "If data exceeds threshold, then defer

1 background service usage activities." Is that fair?

2 A. That's one way to implement it. Again, the  
3 more correct -- just to be very particular to systems --  
4 sorry. The more correct way would be to separate  
5 mechanism from policy. And the reason to do that is  
6 because policy might be expanded upon. So we'd  
7 likely -- the system would go out and check all of the  
8 policies until it found a match and then with that match  
9 would come an action.

10 So yes. Logically you could look at it the  
11 way you've suggested, but in a real system, it would  
12 probably be implemented more the way I described it.

13 Q. Where in your declaration do you point to  
14 anything about a system going through and checking a  
15 multitude of policies?

16 A. I mean, I can look. I'm giving you -- I'm  
17 giving you information as a person of ordinary skill in  
18 the art. A system like what's proposed in the '224 or  
19 any of the prior art that I've shown you would need to  
20 be monitoring and be checking. So, for example, if I  
21 had a policy for busy state but I was never checking for  
22 it, sort of what's the point. So all of these imply  
23 that there's some set of policies that we're always  
24 watching out for and we have a response for.

25 Q. Okay. What is one example of -- so I know

1     that you may have different ways that this could be  
2     done. What I'm trying to understand is -- to me, it's  
3     still not entirely clear on how the 1.5 limitation is  
4     met, specifically how the policy is selected for the  
5     background network service usage activities. And so  
6     what I'm trying to understand is what is one example  
7     within Cole that you believe satisfies this "select a  
8     corresponding current service usage control policy for  
9     the background network service usage activities"?

10        A.     Sure. So I'll try to explain again. Again,  
11     the idea here is there is something that's always  
12     looking for this -- can we agree to call this generic  
13     network busy state?

14        Q.     That's fair.

15        A.     Okay. Something is always monitoring for  
16     that. So like you hinted at before, let's look at it  
17     like a piece of pseudocode. If we hit that network busy  
18     state, which, again, could be multiple things, then  
19     there is an action that we take.

20                So Cole talks extensively about delaying  
21     background traffic -- let me just see if I can -- yeah.  
22     So, I mean, Cole talks extensively about background  
23     traffic being deprioritized and then delayed until such  
24     time that another interface is available, that the  
25     network busy state possibly goes away.

1                   So does that help?

2           Q.     Yeah. Give me one second.

3           A.     Okay.

4                   (Pause in proceedings.)

5           Q.     Okay. So in this case, is the policy  
6 delaying the background traffic? Or is the policy  
7 instead delaying background traffic when there's a  
8 network busy state?

9           A.     So, again, we could write lots of different  
10 policies. These are expressive. And so I want to make  
11 sure that I'm answering the question.

12                   Is it possible to write, you know, both such  
13 policies? In these systems, I would expect that that's  
14 the case. But the way I read 1.5, "Based at least in  
15 part on a current WWAN network busy state" -- so this is  
16 one of the factors. The network is busy. Then we're  
17 going to do something about it. Cole suggests  
18 specifically delaying.

19          Q.     Okay. So the delay action taken in response  
20 would be part of the policy, correct?

21          A.     Just to be clear -- again, I think I said  
22 clearly before. We have this condition, and here in 1.5  
23 it's -- the condition is based, at least in part, on a  
24 network busy state. So I assume it could potentially be  
25 other things. But we've got possibly some kind of

1     overload or large amounts of packets being dropped, any  
2     of the things that could make up a busy state. Then we  
3     have an action that goes with that. Those two things  
4     together would make up the policy.

5           Q.     And in that example, something like an  
6     overload or large amounts of packets being dropped would  
7     be an example of the network busy state. Is that right?

8           A.     Yeah. I just want to note. Again, I'm  
9     talking sort of generically. I think network busy state  
10    could be very broadly interpreted, and both of the  
11    things you mentioned could be instantiations of that.  
12    It could also be there's a large amount of traffic  
13    locally, and so you're getting kind of a jamming effect.  
14    Lots of things would satisfy this.

15           MR. MILKEY: Can we go off the record?

16           THE WITNESS: I was just about to ask that  
17    too. Thank you.

18           THE REPORTER: We're off the record.

19           (Off the record: 10:49 a.m. to 11:01 a.m.)

20           Q.     Dr. Traynor, if you could go to paragraph 62  
21    of your '773 patent declaration.

22           A.     I'm there.

23                 Could I just have a moment to read it?

24           Q.     Yes. Absolutely.

25           A.     Thank you.

1 (Pause in proceedings.)

2 A. Okay. I've reread it.

3 Q. Okay. So is it your opinion in paragraph 62  
4 that the deferral decisions, for example, will be  
5 different as applied to different types of background  
6 network service usage activities?

7 MR. KHAN: Objection; vague.

8 A. Could you be more specific? I apologize.

9 Q. Yeah. So you have -- and this is on page 40.  
10 It's the first full sentence on page 40 of this  
11 declaration. There's a sentence that says "These  
12 actions include determining if certain bandwidth  
13 activities, quote, a selected subset of network service  
14 usage activities should be aborted to preserve bandwidth  
15 for other applications." Do you see that?

16 A. I do. Yes.

17 Q. So what I'm trying to understand that -- in  
18 this sentence or in this paragraph more generally, are  
19 you saying that there is going to be a subset of network  
20 service usage activities -- sorry -- more precisely,  
21 there's going to be a subset of background network  
22 service usage activities to which a deferral decision is  
23 made and a different subset to which a deferral decision  
24 is not made?

25 A. That's possible.

1           Q.     Okay. I'm trying to understand how you  
2 believe that Cole discloses or renders obvious the  
3 selected subset requirement of Limitation 1.6.

4           A.     Sure. So, again, if we have background  
5 traffic and we meet these conditions, it could be  
6 deferred.

7                     Sorry. Did you get all that? I heard -- no  
8 problem.

9                     So if we have background traffic, it can be  
10 deferred until a later time slot. But if I don't have  
11 any background traffic, I might only have foreground  
12 traffic. And the most basic policy that -- or that  
13 non-background traffic, rather, may or may not have  
14 another policy with it.

15                    So it's a little hard to answer your question  
16 in the abstract. But if we have background traffic and  
17 the traffic exceeds whatever the metric is from 1.5, I  
18 believe, then we can delay that traffic to preserve  
19 bandwidth for other applications.

20           Q.     Okay. And is the idea that you're going to  
21 delay all of the background traffic or just a subset of  
22 the background traffic?

23           A.     Again, we -- this is the one place where I --  
24 looking at something like D'Amore, for example. D'Amore  
25 might give us a finer grained version of what it means

1 to be backgrounded. So if we take just the explicit  
2 background in Cole, then, you know, perhaps it's all  
3 background traffic. That said, a person of ordinary  
4 skill of the art would realize that there are many  
5 different kinds of background traffic. Some may have  
6 higher priority than others. I gave an example earlier,  
7 updating a web page versus doing a software update. And  
8 so there are many ways that this could be embodied,  
9 depending on what policies an administrator wanted to  
10 have in place.

11 Q. Okay. So the idea is that either in view of  
12 Cole or Cole in view of D'Amore, that the ultimate  
13 deferral decisions would be different as applied to  
14 different background traffic?

15 A. I want to be careful, again.

16 So they could be. But I could also write a  
17 policy that just says background is background is  
18 background and treat it all the same. I spoke earlier  
19 about separating policy from mechanism, and one of the  
20 reasons to do that is because you can then have as  
21 expressive a policy as you wish. You can dictate if  
22 certain background has more priority than other  
23 background.

24 Q. Okay. So in your obviousness theory for  
25 Limitation 1.6, is that based on a situation in which

1 the deferral decisions would be different as applied to  
2 different types of background traffic?

3 A. I'm sorry. I think you're asking something  
4 subtle, and I probably missed it. So could I have you  
5 ask that again?

6 Q. Yeah. I'm trying to understand -- I mean,  
7 part of it -- I'm not trying to be critical of your  
8 report. It's just that there are these quotes and  
9 saying that -- like, for example, this first full  
10 paragraph on page 40. "These actions include  
11 determining if certain bandwidth activities," and then  
12 there's the claim language there.

13 And so I don't know exactly what you're  
14 saying. Are you saying that determining if certain  
15 bandwidth activities -- are you saying that the  
16 bandwidth activities themselves constitute a selected  
17 subset of network service usage activities?

18 A. I think I see.

19 Okay. So those selected -- let me just make  
20 sure I get the words right here -- certain bandwidth  
21 activities, that corresponds to the traffic that is  
22 listed as background. And so here, if we have the WWAN  
23 network busy, which we discussed earlier, then those  
24 activities that would have bandwidth -- sorry -- those  
25 applications that would have associated with them

1 certain bandwidth activities would be put off until  
2 conditions changed.

3 Q. Okay. And here you have an ellipsis  
4 between -- so it says "A selected subset of, ellipsis,  
5 network service usage activities." Why is that ellipsis  
6 there?

7 A. I can't recall. Just for clarity, I assume.  
8 If you'd like to bring me to another quote, I'm happy to  
9 look at that.

10 Q. So the specific language that you left out in  
11 that ellipsis is relating to background. And so I guess  
12 my question is: Is it your allegation that you believe  
13 that Cole meets the limitation of -- if Cole would meet  
14 the claim requirement under the actual claim language,  
15 which says "A selected subset of the background network  
16 service usage activities."

17 A. Cole speaks extensively about applications in  
18 the background, and so I believe that Cole does this.

19 Q. And does Cole -- can you provide any  
20 explanation why you left out background in that quote,  
21 then?

22 A. I apologize. I wrote this report a while  
23 ago. And so my recollection is that this is just for  
24 clarity. I'm already talking -- Cole is very explicit  
25 about background, so that's what I'm saying here.

1 Q. Okay. So in your theory for how Cole meets  
2 this limitation, are you saying that certain background  
3 activities will be treated than other -- strike that.

4 For your theory of invalidity, with respect  
5 to Cole alone, is it your opinion that Cole would treat  
6 certain background activities different than other  
7 background activities?

8 A. No. What I'm saying here is that Cole says  
9 "Should be aborted to preserve bandwidth for other  
10 applications." Those are non-background activities.

11 But in combination with D'Amore, D'Amore  
12 allows us to consider a range of background activities.

13 Q. Okay. So is it your opinion that Cole alone  
14 discloses and renders obvious Limitation 1.6?

15 A. Let me be very clear here. Again, I believe  
16 Cole and my experience as a person of ordinary skill of  
17 the art make it clear that I'm going to have to deal  
18 with conflicts in the background. It may be a desirable  
19 thing.

20 That said, using D'Amore here makes it  
21 explicit. So Cole in combination with being a person of  
22 ordinary skill of the art, I see this as very clear.  
23 But I have the D'Amore reference as well to make sure  
24 that it's not a discussion.

25 Q. Right. So I am trying to -- is it a theory

1 that you are putting forth in your declaration that Cole  
2 alone discloses or renders obvious Limitation 1.6?

3 A. So I believe that I have two grounds here.  
4 One is Cole alone, and one is Cole and D'Amore. And so  
5 I have -- yes.

6 Q. Okay. No, thank you. That's helpful.  
7 And so I'm just asking -- I'm not asking  
8 about D'Amore right now. We'll get there. But I'm just  
9 asking about your ground that's based solely on Cole.  
10 Okay?

11 A. Understood.

12 Q. So in your theory that is based on Cole, is  
13 it your opinion that Cole discloses treating different  
14 background applications differently?

15 A. Again, Cole in combination with me being a  
16 person of ordinary skill in the art, I believe that that  
17 is very clear from Cole. It may not be explicit, but  
18 it's very clear to me in reading it that that's a thing  
19 that I would have to deal with. So...

20 Q. Okay. So it's your view that treating  
21 different background applications differently would be  
22 an obvious implementation of Cole. Is that fair?

23 A. Again, a person of ordinary skill in the art  
24 would understand that there's a range of background  
25 traffic. So I believe I've been clear. I believe Cole

1 does that. But to the extent there's any debate, as  
2 I've said before, I have a second ground in which I  
3 combine Cole and D'Amore.

4 Q. You understand that having a range of  
5 background traffic is different than treating different  
6 background applications differently, right?

7 A. I just want to be clear here that there are  
8 potentially multiple applications that are generating  
9 traffic, and they are in the background. That traffic  
10 has a lower priority than non-background. Whether all  
11 that traffic happens at once or at various times, that  
12 depends on what specifically is running in the system at  
13 this very moment. It's possible to run Cole and that  
14 maybe my background traffic never happens at the same  
15 time, and so I don't have to consider it for multiple  
16 applications. If it does, a person of ordinary skill of  
17 the art would know that they would have to or may want  
18 to handle it. Alternatively, D'Amore gives us a direct  
19 means to do so.

20 Q. Okay. And then going on to your combination  
21 with D'Amore, which is in paragraph 66, is it your  
22 opinion that the combination discloses Limitation 1.6  
23 because the combination would render obvious taking  
24 different actions with respect to different types of  
25 background traffic?

1           A.     I apologize if I'm repeating myself again.

2                     The idea here in the combination is that  
3     D'Amore would allow us to have further granularity.  
4     It's one thing to say that everything is background.  
5     It's another to recognize that different background  
6     items may have different priorities. And so this makes  
7     explicit what I was saying before in Cole. D'Amore  
8     provides us a means of doing this.

9           Q.     So is the idea that there would be different  
10    policies applicable to different types of background  
11    traffic?

12          A.     That's one possible interpretation. D'Amore  
13    also talks about doing this dynamically. And so the way  
14    I treat a software update now might be different. If I  
15    have a web page that needs to be updated, I might  
16    prioritize differently depending on the confluence of  
17    conditions.

18          Q.     Okay. And if two different applications were  
19    prioritized differently, the deferral decisions made  
20    with respect to each of those applications might be  
21    different, right?

22          A.     Again, that's the embodiment of policy. It  
23    could be the same. I could have -- I could say the  
24    network is too busy for both updating a web page, and  
25    it's too busy for doing a software update. It all

1 depends on how these policies are stated.

2 So could you write policies for multiple  
3 things with the same outcome? Certainly. Could you  
4 also write policies with different outcomes? Certainly.

5 MR. MILKEY: All right. I have no further  
6 questions.

7 MR. KHAN: No questions from us.

8 MR. MILKEY: Okay. Well, thank you very much  
9 for your time, Dr. Traynor. I really appreciate it.

10 THE WITNESS: My pleasure.

11 MR. MILKEY: And then does anyone need  
12 anything from me in terms of transcript order or...

13 (Discussion off the record with the court  
14 reporter.)

15 THE REPORTER: And then, yes. Mr. Milkey, I  
16 have you down for a rough draft today and delivery of  
17 the final by Friday.

18 MR. MILKEY: Yeah. That's correct.

19 THE REPORTER: Okay. Mr. Khan, I don't have  
20 your order ahead of time.

21 MR. KHAN: That's okay. I don't think we  
22 need anything. We'll just wait for the transcript.

23 (Proceedings concluded at 11:20 a.m.)  
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That PATRICK GERARD TRAYNOR, PH.D., the  
witness whose deposition is hereinbefore set forth,  
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I further certify that the adverse party,  
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3                   April 2024.

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