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Transcript of Dr. Harry V. Bims

Date: May 20, 2025

Case: Lenovo (United States) Inc., et al. -v- Headwater Research LLC (PTAB)

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 LENOVO (UNITED STATES) INC. and
6 MOTOROLA MOBILITY LLC,

7 Petitioner

8 v.

9 HEADWATER RESEARCH LLC,

10 Patent Owner

11
12 Patent No. 10,749,700
Case No. IPR2024-01181

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14
15 VIDEOCONFERENCE DEPOSITION TESTIMONY OF
16 HARRY V. BIMS, PhD
17 TAKEN ON TUESDAY, MAY 20, 2025
18

19
20
21 REPORTED BY:
22 Rebecca Klanderud, RPR, CSR
Job No. 585113

1 VIDEOCONFERENCE DEPOSITION TESTIMONY OF
2 HARRY V. BIMS, PhD was taken in the above-styled and
3 numbered cause on Tuesday, May 20, 2025, at 10:00 a.m.
4 EDT, via Zoom communication, before Rebecca Klanderud,
5 RPR, CSR and reported remotely by machine shorthand and
6 realtime technology, pursuant to the Federal Rules of
7 Civil Procedure for the United States District Court
8 pertaining to the taking of depositions and the
9 provisions stated on the record or attached hereto.

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9 * * *

10 (All parties present joined remotely.)

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2 EXAMINATION: PAGE

3 By Mr. Milkey 7

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5 EXHIBITS:

6 BIMS EXHIBITS: PAGE MARKED

7 (No Exhibits Were Marked.)

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1 THE COURT REPORTER: Good morning,
2 everyone.

3 This is Rebecca Klanderud, the court
4 reporter for today's deposition.

5 Do counsel stipulate and agree that I may
6 administer the oath remotely, and that the oath so given
7 is valid for purposes of this deposition, please?

8 Mr. Milkey?

9 MR. MILKEY: Yes.

10 THE COURT REPORTER: Thank you, sir.

11 Mr. Saidman?

12 MR. SAIDMAN: Yes.

13 THE COURT REPORTER: Thank you, sir.

14 Doctor, kindly raise your right hand.

15 (The court reporter administered the
16 oath to HARRY V. BIMS, Ph.D.)

17 THE WITNESS: Yes.

18 THE COURT REPORTER: Thank you, sir.

19 Counsel, the witness has been sworn, and
20 you may proceed.

21 HARRY V. BIMS, PH.D.

22 a witness in the above-entitled matter,

1 having been first duly sworn,
2 testified on his oath as follows:

3 EXAMINATION

4 BY MR. MILKEY:

5 Q. Good morning, Dr. Bims.

6 Could you please state your name for the
7 record?

8 A. Harry Bims, B-i-m-s.

9 Q. Okay. And you understand that you're here to
10 testify about an IPR proceeding challenging the '700
11 patent, correct?

12 A. Yes.

13 Q. Okay. And you submitted a declaration in this
14 proceeding?

15 A. Yes.

16 Q. And before we get started, do you have copies
17 of the materials, either electronic or paper, available
18 to you?

19 A. Yes, I do.

20 Q. Okay. I am going to, just for the benefit of
21 the reporter, upload exhibits as I use them in the chat,
22 but feel free to use any non-marked versions of the

1 exhibits that you have. I won't be introducing any new
2 exhibits, or at least I don't plan to currently.

3 So how long did you spend preparing the
4 declaration that you submitted in this proceeding?

5 A. See, I don't remember exactly how many hours on
6 this particular declaration. I know I was working on
7 two declarations and had discussions with the attorneys
8 on both of them at the same time, so I -- I don't know
9 specifically for this declaration how many hours I
10 spent.

11 Q. Do you have a --

12 THE COURT REPORTER: Excuse the
13 interruption.

14 Could you just get a little bit closer to
15 your microphone source, Doctor?

16 It seems like you're a little bit soft.

17 THE WITNESS: Okay. Is that louder?

18 THE COURT REPORTER: No, it isn't.

19 THE WITNESS: It isn't?

20 THE COURT REPORTER: Oh, there it is.

21 That's louder.

22 THE WITNESS: Okay.

1 THE COURT REPORTER: That's better.

2 THE WITNESS: Okay. All right.

3 THE COURT REPORTER: Okay. Thank you.

4 Pardon the interruption. Thank you,
5 Mr. Milkey. Thank you, Doctor.

6 BY MR. MILKEY:

7 Q. And so you mentioned that you submitted two
8 declarations.

9 And that was -- that was -- the other
10 declaration was in a different proceeding, correct?

11 A. Yeah. It was for an '076 patent.

12 Q. Okay. Do you have a sense of how long you
13 spent between both of those two declarations?

14 A. I spent a fair amount of time. I don't have
15 access to my records, but last year I spent a fair
16 amount of time working on both of them.

17 Q. Okay. And what materials did you review in
18 preparing the declaration that you submitted in this
19 proceeding?

20 A. I reviewed my declaration. I reviewed the
21 prior art references that are the basis for the
22 foregrounds in my declaration, as well as additional

1 supporting references that I cited in my declaration.

2 Q. Okay. And do you think that you spent more
3 than 20 hours preparing your declaration in this
4 proceeding?

5 A. Yeah. That sounds right.

6 Q. Okay. Would you say that you spent more than
7 50 hours preparing the declaration in this proceeding?

8 A. I don't know if it's been more than 50 or not,
9 but I think it's safe to say it's probably in that range
10 of 20 to 50 or 60 hours.

11 Q. Okay. And did you do anything to prepare for
12 today's deposition?

13 A. I -- yes. I reviewed the materials I stated
14 earlier.

15 Q. Okay. Approximately how long did you spend
16 preparing for today's deposition?

17 A. I spent a few hours in total stretched over the
18 last week or so.

19 Q. So now I want to ask you some questions about
20 your declaration.

21 MR. MILKEY: I'm uploading -- this is
22 Exhibit 1003.

1 None of these need to be marked as
2 exhibits. They're already part of the record, but I'm
3 just uploading them for the benefit of the reporter.

4 BY MR. MILKEY:

5 Q. So, Dr. Bims, if you could please open Exhibit
6 1003 and confirm that this is the declaration that you
7 submitted in this proceeding?

8 A. Yes, it is.

9 Q. Okay. Thank you.

10 And if you could please turn to paragraph
11 24 of your declaration?

12 A. Okay.

13 Q. And do you see this is where you began
14 discussing the level of ordinary skill in the art?

15 A. Yes.

16 Q. And in paragraph 25, you set forth your
17 understanding of what the level of ordinary skill in the
18 art would be.

19 Do you see that?

20 A. Yes.

21 Q. Okay. And in particular, you state that a
22 person of ordinary skill in the art as of January 28th,

1 2009, would have had -- held at least a bachelor's
2 degree in computer science, electrical engineering, or a
3 related field, and three to five years of experience
4 with networking, power consumption of networked
5 computing devices, and/or wireless digital communication
6 systems.

7 And my question is: Would someone having a
8 bachelor's degree as specified and only three years of
9 experience with networking, power consumption of
10 networked computing devices, and/or wireless digital
11 communication systems be a person of ordinary skill in
12 the art?

13 A. So in this paragraph, I don't drill down to
14 that level of specificity. However, in this paragraph,
15 I do say that more education would compensate for fewer
16 years of experience, so -- which would imply that with
17 less education, one would need more years of work
18 experience.

19 So for the question you're asking, if a
20 person had only a bachelor's degree and not a more
21 advanced degree, then, generally speaking, they would
22 need more experience than the three years and

1 approaching the five year.

2 Q. Okay. But you agree that someone with a
3 bachelor's degree and three years of experience has a
4 bachelor's degree and three to five years of experience,
5 correct?

6 A. Yes.

7 Q. Okay. And also, in paragraph 24, you state
8 that you meet your proposed definition of a person of
9 ordinary skill in the art, correct?

10 A. Yes.

11 Q. And so I've reviewed your CV submitted in this
12 case.

13 Would you say that you have more than
14 ordinary skill in the art?

15 A. Yes, both now and at the time of January 28th,
16 2009.

17 Q. Okay. And in preparing your opinions in this
18 proceeding, do you recall reviewing any documentation
19 describing the functionality of the Apple iOS operating
20 system?

21 A. I did not review Apple iOS documentation in the
22 preparing of my declaration.

1 Q. Okay. And in preparing your declaration, do
2 you recall reviewing any documentation of the Android
3 operating system?

4 A. No.

5 MR. MILKEY: So I am going to upload both
6 the Rao and Scahill references, again, for the benefit
7 of the reporter.

8 And for the record, the Rao reference,
9 R-a-o, is Exhibit 1005, and the Scahill reference,
10 S-c-a-h-i-l-l, is Exhibit 1008.

11 BY MR. MILKEY:

12 Q. And, Dr. Bims, no need to open those up
13 necessarily at this time, but feel free to refer to any
14 materials that are part of the record in this case as
15 you need to throughout this deposition, but I just
16 wanted to flag those as I'm going to start moving into
17 your opinions regarding Rao and Scahill.

18 A. Okay.

19 Q. So if you could please turn to paragraph 50 of
20 your declaration, and let me know when you're there?

21 A. Okay. I'm there.

22 Q. Okay. And you see this is the beginning of

1 your analysis regarding the Overview of the Rao
2 Reference?

3 A. Yes.

4 Q. Okay. Okay. And turning to paragraph 52, more
5 specifically, do you see that the second sentence of
6 paragraph 52 says: "To facilitate the prioritization
7 scheme, Rao's computing device includes a remote access
8 client 120 that interacts with applications 338 on the
9 computing device and the computing device's network
10 stack 310, as illustrated in Figure 1B and Figure 5A
11 below"?

12 A. Yes, I see that.

13 Q. Okay. And then turning to paragraph -- or
14 sorry.

15 Turning to page 21 of your declaration, do
16 you see you have Figure 5A of Rao reproduced?

17 A. Yes.

18 Q. Okay. And so Rao's remote access client 120,
19 do you see that that's depicted in the bottom half of
20 Figure 5A?

21 A. Yes. I see that client 120 is the remote
22 access client in Figure 5A, yes.

1 Q. And do you see that Rao's remote access client
2 includes filter 322?

3 A. Yes.

4 Q. Okay. And what is the purpose of Rao's filter
5 322?

6 A. Well, the specification for the '700 patent is
7 quite long and in that specification, it talks about
8 filter 322 in numerous embodiments in which the filter
9 has the same or slightly different functionality. Some
10 of this functionality includes the ability to receive
11 packets from the packet capture mechanism and to analyze
12 the packets to determine whether or not they will be
13 discarded or routed to the agent 326.

14 And in addition to that, there are other
15 filtering mechanisms using, for example, a filter table,
16 et cetera, as I've described in my declaration.

17 Q. Okay. And I believe you mentioned that the
18 specification for the '700 patent is quite long.

19 Were you referring to the specification for
20 the Rao reference?

21 A. Yes, for the Rao reference. Sorry.

22 Q. Okay. And then turning to paragraph 53 of your

1 declaration, the first sentence references the agent 326
2 stores policies 520.

3 Do you see that?

4 A. Yes.

5 Q. And what are Rao's policies 520 used for?

6 A. Rao's policies are used for a number of
7 different functions. Those functions include in various
8 embodiments the prioritization of applications based
9 upon whether they are foreground or background
10 applications before allowing packets that are in the
11 queue to be transmitted over the network.

12 Q. Okay. And when you say "prioritization of
13 applications," what do you mean by that?

14 A. So in Rao, it discusses the problem that occurs
15 when foreground and background applications are
16 competing for network access requests. And in that
17 context, Rao discusses a method for prioritizing or
18 deprioritizing applications based upon whether or not
19 they are -- the user is actively engaging the
20 application. So, in other words, whether the
21 application is foreground or background would cause the
22 remote access client to assign a prioritization for the

1 activity or packets that are communicated from the
2 application, allowing that application to either receive
3 a higher priority status or lower priority status for
4 its activity.

5 Q. Okay. And in the second sentence of paragraph
6 53, you specify that: "These policies, Rao explains,
7 'specify client-side prioritization of network
8 communications related to applications' at the computing
9 device."

10 Do you see that?

11 A. Yes.

12 Q. Okay. And what are these network
13 communications that you're referring to here?

14 A. These network communications would be the
15 activity generated by the applications that results in
16 packets that would be communicated over the network.

17 Q. Okay. So you mentioned -- you mentioned that
18 the network communications would be the activity
19 generated by the applications that results in packets
20 that would be communicated over the network.

21 So there's -- I want to break that down a
22 bit because I think there's three sort of separate

1 components to your answer. You mentioned an
2 application, an activity, and then packets that result
3 from that activity.

4 And so it's your testimony that Rao's
5 policies prioritize activities?

6 A. Yes. It's prioritizing the activities of an
7 application based on whether it's a foreground or a
8 background application.

9 Q. Okay. So it's your understanding that Rao
10 prioritizes activities and not the packets that result
11 from those activities; is that correct?

12 A. Well, the network activity is realized in the
13 form of packets, but -- so when the classification of
14 the activity occurs for prioritization, that
15 classification will apply to the packets associated with
16 that activity.

17 Q. Okay. Are you aware of any way that Rao
18 prioritizes activities other than prioritizing network
19 packets generated by those activities?

20 A. Well, again, in Rao, there are numerous
21 embodiments, and some embodiments, the filter 322, can
22 -- can -- can drop packets based on examining the packet

1 content before the packet is sent to the agent 326.

2 Q. And what component of Rao would drop packets
3 before the packets are sent to agent 326?

4 A. In some embodiments, it's filter 322.

5 Q. Okay. So other than prioritizing or dropping
6 packets, are you aware of any way that Rao prioritizes
7 activities generated by -- or strike that.

8 Are you aware of any way that Rao
9 prioritizes activities other than prioritizing or
10 dropping network packets generated by those activities?

11 A. Rao discusses that agent 326 has control
12 policies that it uses to determine what it should do
13 with activities that have been classified, and those
14 control policies are described, for example, to be based
15 on whether the application is foreground or background,
16 but a person of ordinary skill would understand that
17 those policies could apply to other things than just
18 foreground and background state of an application.

19 Q. Understood.

20 And you say that Rao discusses that agent
21 326 has control policies to determine what it should do
22 with activities that have been classified in particular

1 ways.

2 And so what my question is specifically is:
3 Does Rao use its control policies to do anything other
4 than drop or prioritize packets associated with those
5 activities?

6 A. So as I'm going through the Rao patent to --
7 patent publication -- application publication to refresh
8 my memory, there are a number of things mentioned in the
9 specification such as intercepting packets, such as
10 reestablishing communications where communica- --
11 network communications have been disrupted. There are
12 other things such as reauthentication, and a few others.

13 Q. All right. So that makes sense. I understand
14 that Rao as a system -- you know, it's a -- it's a --
15 for example, mobile phone does other things besides
16 dropping or prioritizing packets.

17 I'm asking specifically about whether Rao
18 uses its policies 520 to do anything besides dropping or
19 prioritizing packets?

20 A. Well, for example, in paragraph 193 in Rao, it
21 says: In some embodiments, one or more queues 540a
22 through 540n may be used for network packets intercepted

1 but not prioritized because a policy 520 does not exist
2 or apply to the network packet, or the policies 520
3 indicate to ignore or not process the network packet for
4 prioritization.

5 Q. Okay. So to the extent that ignoring or not
6 processing a network packet for prioritization is
7 different than dropping that packet, then would you
8 agree that Rao does not disclose using policies 520 to
9 do anything other than prioritize a packet, drop a
10 packet, or ignore or not process the network packet for
11 prioritization?

12 MR. SAIDMAN: Objection, form.

13 THE WITNESS: So I would disagree with the
14 premise to the question that ignoring or not processing
15 a network packet is separate from dropping the packet.
16 In my view, in reading this paragraph, ignoring or not
17 processing a packet is inclusive of dropping the packet.

18 BY MR. MILKEY:

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

20 So my previous question, then, was whether
21 Rao uses its policies 520 to do anything besides
22 dropping or prioritizing packets.

1 Do you have an opinion on that?

2 A. Well, again, in my view, in deciding to ignore
3 or not process a network packet is broader in scope than
4 simply dropping the packet.

5 Q. Okay. So with that understanding that ignoring
6 or not processing a network packet is broader in scope
7 than simply dropping the packet, let me ask a slightly
8 different question.

9 Does Rao use its policies 520 to do
10 anything other than prioritize packets or ignore or not
11 process network packets?

12 A. For example, in paragraph 180, this is one
13 example of many embodiments in Rao where it describes in
14 paragraph 180: The remote access client 120 may
15 comprise any queues 540a through 540n for queuing and
16 prioritizing network communications of the client 105.

17 So in this paragraph, it's discussing the
18 remote access client not just prioritizing packets, but
19 prioritizing network communications, such as, for
20 example, the network activity of the application.

21 Q. Okay. And can you give me an example of a
22 network activity of the application that Rao discloses

1 as prioritizing?

2 And just for the record, let me ask a
3 slightly cleaner question.

4 Can you give me an example of a network
5 activity of the application that Rao discloses
6 prioritizing?

7 A. So in addition to what I mentioned in paragraph
8 91 in my declaration, I would also point to paragraph
9 193 in Rao where it says: Within each application
10 associated queue 540a through 540n organized by specific
11 application 338a through 338n, type or category of
12 application 338a to 338n, or by protocol, the network
13 packets may be further prioritized by the characteristic
14 of the application 338a through 338n generating them,
15 e.g., a foreground application, the size of the network
16 packet, or the time the network packet was intercepted.
17 In some embodiments, one or more queues may be used for
18 network packets intercepted but not prioritized because
19 a policy does not exist, et cetera.

20 So the characteristic of the application
21 that is generating the packets is associated with this
22 network activity.

1 Q. Okay. And paragraph 193 of Rao discloses
2 prioritizing and queuing network packets, correct?

3 A. Paragraph 193 discusses prioritizing network
4 packets and prioritizing by the characteristic of the
5 application.

6 Q. So just to be clear, paragraph 193 of Rao
7 discusses prioritizing network packets based on the
8 characteristic of the application that generated those
9 network packets, correct?

10 A. Yes. The network packets associated with the
11 activity which is the characteristic of the application,
12 yes.

13 Q. Okay. Does paragraph 193 disclose placing
14 anything other than network packets into queues?

15 A. In paragraph 193, again, it talks about
16 prioritization of network packets and prioritization
17 based on characteristics of the application which, as I
18 mentioned before, is related to the application's
19 activity. And further evidence of this activity is in
20 the previous paragraph 192 in which an embodiment gives
21 examples of the queues prioritizing based on whether an
22 application is an email application or is communicating

1 real-time data or it's a collaboration application,
2 et cetera.

3 So these different classes of applications
4 have different activities, which results in different
5 queues for different packets.

6 Q. Does paragraph 193 in Rao disclose placing
7 anything other than network packets into queues?

8 A. In paragraph 193 itself, it describes network
9 packets only being placed into queues.

10 Q. Okay. And then turning to paragraph 192 of
11 Rao, I believe it's the third full sentence there, do
12 you see it says: In another embodiment, all network
13 packets for a type of application 338a through 338n,
14 such as an email or voice application, or all network
15 packets for a type of protocol used by the application
16 338a through 338n, such as RTP or UDP, may be placed in
17 a queue 540a through 540n for prioritizing networks
18 packets for one or more applications?

19 A. I see that.

20 Q. Okay. And then you see the very next sentence
21 says: For example, online collaboration related
22 applications 338a through 338n may be placed and

1 prioritizing in a first queue 540a for collaboration
2 related applications?

3 A. I see that.

4 Q. Okay. So would you agree that the sentence in
5 Rao that says: For example, online collaboration
6 related applications 338a through 338n may be placed and
7 prioritized in a first queue 540a for collaboration
8 related applications, is providing an example of placing
9 network packets for a type of application into a queue?

10 A. Yes. As I said earlier, the activity of an
11 application is realized in the form of network packets,
12 and these queues described in 192 include queues that
13 allow for the classification of activities of an
14 application in the form of storing the network packets
15 associated with those activities.

16 Q. Okay. So with that understanding, are you
17 aware of any way in which Rao prioritizes activities of
18 applications using its policies 520 other than by
19 prioritizing, ignoring, or not processing network
20 packets associated with those activities?

21 A. Well, as I mentioned, activities are a set of
22 network packets associated with that activity. So in

1 Rao when it's discussing network packets that are
2 classified and then policies enforced based on the
3 classified queues used for storing those packets, it's
4 describing prioritization of activities in the form of
5 their related packets.

6 Q. Okay. And I just want to be clear.

7 Are you aware of any way in which Rao
8 prioritizes activities of applications using policies
9 520 other than prioritizing, ignoring, or not processing
10 network packets?

11 A. In many places, the embodiments in Rao talk
12 about prioritizing based on characteristics of the
13 application, and those characteristics of the
14 application are not limited to the activities of the
15 application, but can also include, for example, whether
16 the application is a foreground or background
17 application or its power state, et cetera.

18 Q. So that wasn't a "yes," and that wasn't a "no,"
19 and I want to understand what the disconnect here is.

20 So is it your opinion that what you just
21 described is an example of how Rao prioritizes
22 activities of applications using policies 520 in a way

1 that is not prioritizing, ignoring, or not processing
2 network packets?

3 A. What I'm saying is that Rao discloses other
4 inputs to its control policy in addition to controlling
5 by dropping or prioritizing packets associated with an
6 activity such as in Rao, it discloses various
7 embodiments that the characteristics of the application
8 or the statistics of an application or the power state
9 of an application is also an input to the control policy
10 that is enforced on network communications.

11 Q. So is it your opinion that a prioritization
12 ignoring or not processing a network packet is an input
13 to Rao's policies rather than an output of Rao's
14 policies?

15 A. So Rao's control policies are enforced based on
16 the activities of the application in the form of its
17 network packets that have been placed into queues, but
18 Rao also talks about looking at the characteristics of
19 the application and the statistics of the application as
20 well, for example, in paragraph 188.

21 Q. Okay. So I'm not asking about what Rao looks
22 at. I'm asking about what Rao does based upon its

1 policies.

2 So to use your framing of the input to the
3 policies, I'm not asking about inputs to the policies.
4 I'm asking about the results or outputs of the policies.

5 And so my question is: Are you aware of
6 any way in which Rao prioritizes activities of
7 applications using policies 520 other than by providing
8 the result of prioritizing, ignoring, or not processing
9 network packets?

10 A. So, for example, in paragraph 188, Rao says:
11 Furthermore, the remote access client 120 may determine
12 any priorities, such as process task priority, assigned
13 to the application 338a through 338n by the operating
14 system of the client 105. In other embodiments, the
15 remote access client 120 may determine any other
16 characteristics or statistics of the application 338a
17 through 338n such as size, memory usage, total execution
18 time, and/or frequency of use. One of ordinary skill in
19 the art will recognize and appreciate the various
20 characteristics of an application the present technique
21 may use for providing client-side application-aware
22 network communication prioritization.

1 Q. Okay. And so what does Rao do other -- in
2 paragraph 188, how does that differ from prioritizing,
3 ignoring, or not processing network packets?

4 A. Well, as paragraph 188 states, a person of
5 ordinary skill would understand that determination of
6 priority can include more than just looking at network
7 packets, but can look at, for example, the size, memory
8 usage, execution time, or frequency of use of an
9 application in determining the priorities.

10 Q. Understood.

11 So what I'm asking is -- again, I'm asking
12 about the results or output of the policies, not the
13 inputs to the policies.

14 So what my question is in paragraph 188,
15 how are the outputs of Rao's policies any different than
16 prioritizing, ignoring, or not processing network
17 packets?

18 A. So in addition to prioritizing or ignoring or
19 processing network packets, in paragraph 42, the
20 prioritization can also include a prioritization of one
21 application over another.

22 Q. Okay. And how is that prioritization of one

1 application over another used to do anything other than
2 prioritize, ignore, or not process network packets?

3 A. For example, in paragraph 42 it says: "In one
4 embodiment of the present invention, the method includes
5 associating a priority with the first application higher
6 than a priority associated with the second application."

7 In that sentence, it does not refer to the
8 network packets of the application. It's only referring
9 to the first and second applications receiving a
10 priority or a priority level.

11 Q. Understood that that sentence does not refer to
12 network packets. The following sentence does.

13 But my question is, in the very first
14 sentence of paragraph 42, in your opinion, how is --
15 associating a priority with the first application higher
16 than a priority associated with the second application,
17 how is that priority actually used to do anything other
18 than prioritize, ignore, or not process network packets?

19 A. Well, as the sentence plainly says, what's
20 being prioritized are applications.

21 Q. Okay. Understood.

22 But what is the result of that?

1 How does that influence system operation in
2 any way?

3 For example, the next sentence talks about
4 receiving network packets and then -- and then the next
5 sentence talks about communicating those network
6 packets.

7 So does prioritization of the application
8 of one application over another application simply
9 result in network packets being prioritized, or does it
10 result in some other effect on system operation?

11 A. So I wouldn't jump to that conclusion, simply
12 because the follow-on sentence starts by saying: "In
13 another embodiment . . ."

14 So it's describing a different embodiment
15 than the first sentence in paragraph 42.

16 Q. Okay. So in the first sentence of paragraph
17 42, how does the prioritization of one application over
18 another application influence system operation?

19 A. So in my review of the specification, sitting
20 here today, it looks as though prioritization from the
21 remote access client in Rao is prioritizing either
22 applications, communication sessions, or activities of

1 an application that are realized in the form of network
2 packets.

3 Q. Okay. So can you provide any examples in Rao
4 of how the outputs of Rao's policies are used to
5 influence system operation other than by prioritizing,
6 ignoring, or not processing network packets?

7 A. So there are other aspects of system operation
8 described, particularly in the beginning sections of the
9 Rao specification, including, for example, as part of
10 the present invention methods for establishing
11 communication sessions with other computing devices, as
12 well as gateways, et cetera, and establishing protocols
13 to be used for communication, things like that.

14 Q. Okay. So I'm specifically asking about Rao's
15 policies for specifying prioritization of network
16 communication. Just as an example, this is referred to
17 in paragraph 182 of Rao, which begins with the sentence:
18 Additionally, the remote access client may have one or
19 more policies for specifying client-side prioritization
20 of network application -- or sorry. Strike that.

21 It starts with: Additionally, the remote
22 access client 120 may have one or more policies 520 for

1 specifying client-side prioritization of network
2 communications related to applications 338a -- 338a
3 through 338n running on an application.

4 And my question is: How are the outputs of
5 Rao's policies 520 used to influence system operation
6 other than by prioritizing, ignoring, or not processing
7 network packets?

8 MR. SAIDMAN: And, Counsel, while we're
9 waiting for an answer, do you mind sort of -- we've been
10 going a little over an hour -- once you reach the end of
11 this line of questions that we have a break?

12 MR. MILKEY: Yeah. As soon as we reach the
13 end of this line, that's fine. I've -- there have been
14 quite a few long pauses, and I would like to get to the
15 end of this line first.

16 THE WITNESS: So, for example, one of the
17 effects of prioritization on system operation is
18 described in paragraph 184, which says: In view of the
19 system 500 of Figure 5A and Figures 1A through 1C, the
20 prioritization technique of the present invention
21 illustrated by method 550 in Figure 5B will be
22 described.

1 And then later on in this paragraph, it
2 says that: The client 105, using the techniques of the
3 present invention, may prioritize the real-time data
4 communications of application 338a ahead of other
5 applications, such as non-real-time data communication
6 applications. This technique may compliment Quality of
7 Service (QOS) networks where network traffic
8 prioritization occurs in intermediary network devices,
9 such as switches and routers.

10 So the prioritization techniques described
11 in Rao have an effect on system operation in switches
12 and routers with respect to quality of service.

13 BY MR. MILKEY:

14 Q. Okay. So it's your opinion that Rao discloses
15 using its policies 520 to influence quality of service
16 in intermediary network devices such as switches and
17 routers?

18 A. Well, the paragraph says the technique
19 compliments quality of service networks where the
20 prioritization occurs not just in the remote access
21 client, but also in intermediary network devices, such
22 as switches and routers.

1 Q. Right. And my question, as you'll recall, was
2 about Rao's policies 520.

3 So my question is: Is it your opinion that
4 Rao uses its policies 520 to influence quality of
5 service prioritization in intermediary network devices,
6 such as switches and routers?

7 A. So Rao's policies 520 appear in Figure 5A. And
8 paragraph 184 starts off saying that this paragraph is
9 in view of system 500 of Figure 5A, and system 500 of
10 Figure 5A includes the policies 520.

11 MR. MILKEY: Move to strike as
12 nonresponsive.

13 BY MR. MILKEY:

14 Q. Is it your opinion that Rao uses its policies
15 520 to influence quality of service prioritization in
16 intermediary network devices, such as switches and
17 routers?

18 A. So as I've said earlier, what this paragraph is
19 saying about the policies 520 as disclosed in Figure 5A
20 is that the technique may compliment quality of service
21 networks. It does not use the word "influence."

22 Q. Okay. Thank you.

1 And so going to the second to last sentence
2 of paragraph 184, it reads: The client 105, using the
3 techniques of the present invention, may prioritize the
4 real-time data communications of applications 338a ahead
5 of other applications, such as non-real-time data
6 communication applications.

7 And so you would agree, right, that one way
8 to prioritize data communications is prioritizing
9 network packets, correct?

10 A. One can prioritize data communications by
11 prioritizing the packets associated with those data
12 communications. That's true.

13 Q. Okay. So does Rao give any specific examples
14 of using its policies 520 to influence system operation
15 other than by prioritizing, ignoring, or not processing
16 network packets?

17 A. Well, again, to the extent that complimenting
18 QOS networks through prioritization that occurs in
19 intermediary network devices, to the extent that that is
20 influencing system operation, then I would say this
21 paragraph discloses influencing through the
22 complimentary nature of the technique to QOS.

1 Q. Okay. How does -- what does it mean to
2 compliment quality of service networks?

3 A. So what this is describing in this sentence
4 that the technique is compatible with the way
5 prioritization occurs in intermediary network devices,
6 such as switches and routers, which is an important
7 aspect since quality of service only works if all
8 devices along the path are implementing prioritization
9 -- traffic prioritization in a complimentary way.

10 Q. Okay. And where in that last sentence of
11 paragraph 184 does it disclose doing anything other than
12 prioritizing network packets?

13 A. So, again, in this paragraph, it's describing
14 prioritization through the use of prioritizing packets,
15 but the prioritization, for example, in this paragraph,
16 it describes as being things other than packets. For
17 example, it says: As such the outbound network packets
18 generated by an application 338a through 338n on the
19 client 104 are prioritized by the client 105 prior to
20 transmission based on the type and/or priority of the
21 application 338a through 338n.

22 So what this sentence is saying is that the

1 applications themselves can have a priority. And
2 because the applications themselves have a priority, the
3 packets generated by the application will be
4 prioritized.

5 Q. Okay. And so it sounds like the end result of
6 that example is that the packets generated by the
7 application are prioritized in a certain way.

8 And so my question is: Again, are you
9 aware of any specific examples in Rao of Rao's policies
10 being used to influence system operation other than by
11 prioritizing, ignoring, or not processing network
12 packets?

13 A. So I mentioned earlier about reestablishing
14 communications on network disruption. This is described
15 in the Summary of the Invention in paragraph four in Rao
16 that when it's describing the present invention provides
17 the following peer-to-peer optimization techniques.
18 Number 5) is "network disruption shielding for reliable
19 and persistent network connectivity and access, such as
20 for mobile computing."

21 Q. Okay. Rao's prioritization policies 520 aren't
22 used to shield from network disruption, are they?

1 Strike that.

2 Are you aware of any examples in Rao of its
3 prioritization policies 520 being used to influence
4 system operation in any other way other than by
5 providing the result of prioritizing, ignoring, or not
6 processing network packets?

7 MR. SAIDMAN: Objection, asked and
8 answered.

9 MR. MILKEY: And just for the record, I do
10 intend to keep asking this line of questioning until I
11 get an answer.

12 THE WITNESS: So as described in Rao, it's
13 policies 520 are part of the "present invention"
14 described in Rao.

15 And Rao says that the present invention in
16 Rao relates to a system for . . .

17 So what Rao discloses, for example, in
18 paragraph 11 is that the present invention, which
19 includes policies 520, relates to the method for
20 establishing sessions between two devices across a
21 network.

22 So the policies that prioritize in Rao are

1 as part of the invention related to establishing
2 peer-to-peer communication sessions.

3 BY MR. MILKEY:

4 Q. Okay. And how does Rao's policies 520
5 establish peer-to-peer communication sessions other than
6 by prioritizing, ignoring, or not processing network
7 packets?

8 A. In paragraph 80, it describes the illustrative
9 embodiments of the present invention, and in particular
10 the prioritization technique providing for client-side
11 and application-aware prioritization of network
12 communications.

13 Proceeding further into paragraph 80, it
14 says in the last sentence: "As such, the prioritization
15 techniques of the present invention may improve or
16 increase the performance, operational characteristics,
17 and user experience on the client based on the
18 applications running on the client."

19 Q. Okay. And how does it do that other than by
20 prioritizing, ignoring, or not processing network
21 packets?

22 A. Well, again, in paragraph 80, in addition to

1 the prioritization of packets, it describes prioritizing
2 the application. So prioritizing the application,
3 according to Rao, may improve or increase the
4 performance operational characteristics and user
5 experience on the client.

6 Q. Okay. And how does prioritization of the
7 application have any influence on system operation other
8 than by providing the result of prioritizing, ignoring,
9 or not processing network packets?

10 MR. SAIDMAN: Objection, asked and
11 answered.

12 MR. MILKEY: Counsel, you know that's not
13 true.

14 MR. SAIDMAN: It is, and we've been going
15 for about 90 minutes, so we're about 20 minutes past
16 where I asked for the break. You're free to pick the
17 session back up after a break, but we're going to be
18 taking a break shortly.

19 BY MR. MILKEY:

20 Q. Okay. I'll reask the question: How does
21 prioritization of the application have any influence on
22 system operation other than by providing the result of

1 prioritizing, ignoring, or not processing network
2 packets?

3 A. So that's a general question that a person of
4 ordinary skill would be able to answer by describing,
5 for example, the prioritization of applications would
6 allow for the resolution of potential scheduling
7 conflicts, would also allow for better power management
8 to optimize the battery life of the mobile device, and
9 would allow for packets to be coalesced into batches so
10 they're transmitted in batches.

11 So a person of ordinary skill would
12 understand that prioritizing an application can have
13 multiple effects on system operation.

14 Q. Okay. You understand that we're talking about
15 the Rao reference, correct?

16 A. I believe your question was not limited to Rao.

17 Q. Okay. All right. In Rao, how does
18 prioritization have any influence on system operation
19 other than by providing the result of prioritizing,
20 ignoring, or not processing the work packets?

21 THE COURT REPORTER: Say, Mr. Milkey, it's
22 Rebecca, the court reporter. I will need a break really

1 soon.

2 MR. MILKEY: Understood.

3 THE COURT REPORTER: Thank you.

4 THE WITNESS: So, for example, in paragraph
5 207, it says that: In some cases, it may be desirable
6 to discard packets to reduce latency and quality issues,
7 such as in voice communications.

8 So -- and what this is saying is that even
9 the policy that will discard packets is nonetheless a
10 policy that reduces from a systems-level latency and
11 quality issues such as in voice communication.

12 MR. SAIDMAN: Since the court reporter has
13 also requested a break, we'd like --

14 MR. MILKEY: Yeah. I --

15 MR. SAIDMAN: -- to take a break now.

16 MR. MILKEY: We'll take a break.

17 I'll note for the record that that was an
18 eight-minute pause before answering the question. I
19 think that's a very strong indication that the question
20 was not previously answered, and we'll pick back up when
21 we get back.

22 Let's go off the record.

1 (A short recess was taken.)

2 BY MR. MILKEY:

3 Q. Welcome back, Dr. Bims.

4 Did you have any discussions with counsel
5 over the break?

6 A. No.

7 Q. And before the break, the last answer you gave
8 was regarding paragraph 207 of Rao.

9 Do you recall that?

10 A. Yes.

11 Q. Okay. And you testified that even if the
12 policy that will discard packets is nonetheless a policy
13 that reduces -- strike that.

14 You testified that paragraph 207 of Rao
15 showed that even the policy that will discard packets is
16 nonetheless a policy that reduces from a systems-level
17 latency and quality issues such as voice communications.

18 Do you remember that?

19 A. Yes.

20 Q. Okay. You agree that in Rao 207, though, it is
21 discussing a policy that has the result of discarding
22 packets, correct?

1 A. In this paragraph of that embodiment, it does
2 describe discarding packets, yes.

3 Q. Okay. And so you agree that paragraph 207 of
4 Rao discloses Rao's prioritization policies 520 being
5 used to influence system operation by providing the
6 result of prioritization, ignoring, or not prioritizing
7 network packets, correct?

8 A. Yes. In paragraph 207, the prioritization
9 leads to system operational benefits.

10 Q. Okay. And it leads to those system operational
11 benefits by providing the result of prioritizing,
12 ignoring, or not prioritizing network packets, correct?

13 A. In this paragraph, yes.

14 Q. Okay. And so before the break, my question
15 was: Are you aware of any examples in Rao of its
16 prioritization policies 520 being used to influence
17 system operation other than by providing the result of
18 prioritizing, ignoring, or not processing network
19 packets?

20 Do you have an opinion as to whether Rao
21 discloses its prioritization policies 520 being used to
22 influence system operation other than by providing the

1 result of prioritizing, ignoring, or not processing
2 network packets?

3 MR. SAIDMAN: Objection, asked and
4 answered.

5 THE WITNESS: Well, my response to that is
6 it's -- sitting here today, reviewing Rao in real time
7 to answer this particular question, that it's hard to
8 give a definitive answer with respect to your question
9 because, for example, when looking at paragraphs 218 and
10 219, Rao discusses how the policy 520 in Figure 5, in
11 combination with other techniques of the present
12 invention, can impact system operations.

13 So it's -- so even though 520 is looking at
14 prioritization, 520, in combination with other aspects
15 of the present invention, can impact multiple different
16 areas of the system operation through the combination
17 and not just focusing on 520 in isolation.

18 BY MR. MILKEY:

19 Q. Okay. And just to be clear, Rao at paragraphs
20 218 and 219 does not disclose using Rao's prioritization
21 policies 520 to influence system operation other than by
22 providing the result of prioritization -- strike that.

1 And just to be clear, Rao at paragraphs 218
2 and 219 does not disclose using Rao's prioritization
3 policies 520 to influence system operation other than by
4 prioritizing, ignoring, or not processing network
5 packets, correct?

6 A. Paragraphs 218 and 219 don't provide the level
7 of detail on how the combination is practiced to
8 understand whether or not there are aspects of the
9 policy implementation other than prioritizing of network
10 packets that would influence system operations.

11 Q. Okay. Thank you.

12 Okay. And then if we go to page 21 of your
13 declaration, again, this is where Figure 5A of Rao is
14 reproduced, we can see Rao's filter 322 being a
15 component of the remote access client 120, correct?

16 A. Yes.

17 Q. Okay. And what is the role of Rao's filter
18 322?

19 A. So when the Rao patent specification -- patent
20 publication specification, it talks about the filter
21 providing a role of filtering individual network packets
22 and determining whether or not they should be dropped

1 prior to forwarding them or routing them to agent 326.

2 Q. Okay. And does Rao's filter 322 receive those
3 network packets from an application that is running?

4 A. There is an I/O interface in one of the
5 embodiments that the agent uses for communication, and
6 that I/O interface can be used by the filter and/or by
7 the application.

8 Q. Okay. So where does Rao's filter 322 actually
9 get the network packets that it filters from?

10 A. For example, in paragraph 105, it says: In one
11 embodiment, filter 322 intercepts all outbound packets
12 of the client 105 for inspection. For example, in some
13 embodiments, the filter intercepts a packet generated by
14 an application 338 executing in user-mode 332 for
15 transmission by the client.

16 Q. Okay. So in that example in paragraph 105 of
17 Rao, how does an application executing in user mode
18 generate a packet?

19 A. Well, all that paragraph 105 says is that an
20 application will generate a packet while executing in
21 user mode 332.

22 Q. Does the application have it be executing in

1 order to generate a packet?

2 A. Apparently, that depends on what you mean by
3 "executing."

4 In Rao, it appears that executing -- when
5 it refers to an application executing, it's talking
6 about an application that it's running in either
7 foreground or background mode.

8 Q. Okay. So doesn't application have to be
9 running in either foreground or background mode in order
10 to generate a packet?

11 A. So within the confines of Rao's teaching, an
12 application can be in either foreground or background
13 mode.

14 Q. Within the confines of Rao's teaching, can an
15 application not be running at all?

16 A. So in Rao, in paragraph 188 and 189, it
17 describes that one of the characteristics or statistics
18 of the application is frequency of use, which means --
19 implies that there are -- can be periods of time when
20 the application is not used. In other words, it's not
21 running.

22 Q. Okay. Is it possible for an application to be

1 running and the user not be using the application?

2 A. It is possible for an application to run in
3 background mode in which the user is not actively using
4 the application.

5 Q. Okay. So, in your opinion, when Rao is
6 referring to the application not being used, does that
7 include situations where the application is running in
8 background mode?

9 A. So the characteristics and statistics of the
10 application described in paragraph 188 are not limited
11 to foreground or background mode.

12 Q. Understood.

13 Would frequency of use, as discussed in
14 paragraph 188 of Rao, include the -- the relative time
15 that an application spans between foreground and
16 background mode, or does that only mean the relative
17 amount of time in which an application is running versus
18 not running?

19 A. Well, what paragraph 188 explains is that when
20 it's discussing an application running in either the
21 foreground or background of the client 105, that's a
22 separate embodiment versus its discussion of the

1 characteristics or statistics of the application,
2 including frequency of use.

3 So, for example, the other characteristics
4 or statistics of the application in paragraph 188
5 include the size, memory usage, total execution time,
6 none of which relate to foreground or background mode.
7 And so when it gets to frequency of use, the person of
8 ordinary skill would understand that frequency of use is
9 not limited to whether or not the application is in
10 background mode.

11 Q. Okay. And does frequency of use have anything
12 to do with whether the application is in background
13 mode?

14 A. If the application is running in background
15 mode, that background mode might affect the frequency of
16 reuse that is determined by the remote access client.

17 Q. And how could the background mode affect the
18 frequency of reuse that is determined by the remote
19 access client?

20 A. It depends on how the device is implemented.
21 The device may be implemented such that applications
22 running in the background mode are scheduled by the

1 operating system to generate activity with a different
2 frequency of use than the foreground application.

3 For example, the operating system may
4 decide that for periods of time a background application
5 is suspended in which case it's not running, and that
6 may differ from how it treats foreground applications.

7 Q. Okay. If a background application is
8 suspended, can it generate network packets?

9 A. It depends.

10 Q. How can a background application generate
11 network packets if it's suspended?

12 A. For example, applications have the ability to
13 leverage a technique called DMA, Direct Memory Access in
14 which the processor acts on behalf of the application to
15 perform various functions.

16 So a person of ordinary skill would
17 understand that an application can cease its operations,
18 but the DMA technique could still execute on behalf of
19 the application to generate packets.

20 Q. Okay. And if a DMA technique is executing on
21 behalf of an application to generate packets, is it the
22 application itself generating those packets, or is it

1 something else generating those packets?

2 A. Well, in that scenario, the application is
3 effectuating the generation of packets.

4 Q. Okay. And it can effectuate the generation of
5 those packets even though it's not running, correct?

6 A. Yes, because the application initiated the DMA
7 process which would then generate the packet.

8 Q. Is it possible for those packets to be
9 transmitted across the network even when the application
10 is not running?

11 A. In this scenario, the DMA process would deliver
12 the packets to the network driver, and if the network
13 driver included a remote access client, as taught in
14 Rao, the remote access client could then perform
15 prioritizations with the knowledge that the application
16 has ceased its -- has suspended its operations.

17 Q. Okay. And would it be possible for the remote
18 access client to effectuate transmission of the packets
19 across the network even though the application has
20 suspended its operations?

21 A. So the policies discussed in Rao are flexible
22 and can include that as one of many possibilities.

1 Q. So are you aware of any instance in which Rao's
2 filter 322 can receive packets generated by an
3 application in scenarios other than when either the
4 application itself is running or there's a DMA process
5 on behalf of an application?

6 A. Well, certainly in Rao it discusses the remote
7 access client determining characteristics or statistics
8 of the application other than whether it's running in
9 the foreground or background mode.

10 Q. Right. And I'm just asking how the filter --
11 sorry.

12 I'm just asking in what situations the
13 filter 322 can actually receive network packets
14 generated by or on behalf of an application.

15 Do you understand?

16 A. Yeah. And I guess my answer is that Rao does
17 discuss the determinations that it considers for when
18 the remote access client will make determinations, and
19 it doesn't preclude additional determinations that may
20 be made, for example, through combinations with other
21 prior art references.

22 Q. So I'm not asking about any determinations,

1 just to be clear, and I appreciate the answer, but I'm
2 simply asking about under what circumstances Rao's
3 filter 322 can receive any network packets generated on
4 behalf of an application.

5 So regardless of any determinations that
6 are made, can Rao's filter 322 receive network packets
7 generated by an application or on behalf of an
8 application in any instances other than where the
9 application is running or where there's a DMA process
10 running on behalf of the application?

11 A. Well, the -- for example, the DMA process
12 scenario is one that a person of ordinary skill would
13 know even though it's not taught in Rao. There may be
14 additional scenarios also not taught in Rao that are
15 compatible with Rao's teaching. So I would not say that
16 the absence of the discussion of other scenarios means
17 that it's not possible for Rao's invention to be used in
18 those scenarios.

19 Q. Okay. That's helpful.

20 So we agree that the DMA process is not
21 taught in Rao, correct?

22 A. Yes.

1 Q. Okay. And setting aside that there may be
2 other processes not taught in Rao, does Rao disclose its
3 filter 322 receiving network packets generated by or on
4 behalf of an application in any instances other than
5 when that application is actually running?

6 A. In paragraph 128, Rao says that: A computing
7 device 102 of the sort depicted in Figures 1D and 1E
8 typically operate under the control of operating
9 systems, which control scheduling of tasks and access to
10 system resources.

11 So what this suggests to a person of
12 ordinary skill is that applications are not always
13 running on the device, and Rao considers that in its
14 invention.

15 Q. Okay. So I was asking a slightly different
16 question, which is: Does Rao disclose its filter 322
17 receiving network packets generated by or on behalf of
18 an application in any instances other than when the
19 application is actually running?

20 A. For example, in paragraph 155, it says that:
21 The false acknowledgment technique of the present
22 invention as illustrated by method 360 of Figure 3B

1 allows a lossy protocol, such as UDP 342a to 343b, to be
2 communicated via a lossless protocol, such as TCP 343a
3 to 343b. By the shim 322a to 322b issuing a false
4 acknowledgment of receipt of a TCP packet, the technique
5 of the present inventions prevents or avoid the
6 reliability mechanisms, operations and algorithms of the
7 lossless protocol, such as in the example of TCP 343a to
8 343b, any of the packet ordering, packet retransmission,
9 a flow control algorithm, a sliding window algorithm,
10 and/or a nagle's algorithm.

11 Which demonstrates that the 322 that we've
12 been discussing can provide false acknowledgment of the
13 receipt of a packet when the application itself is not
14 capable of doing so because it's not running.

15 Q. Is an application not running the only instance
16 in which a false acknowledgment of receipt of a TCP
17 packet could be used?

18 A. So that's the first scenario that comes to mind
19 when reading paragraph 155 because if the application is
20 capable of generating the acknowledgment, then there
21 would not be a need for a false acknowledgment
22 technique.

1 Q. Is it possible that the device didn't receive a
2 given TCP packet in the first place and provides a false
3 acknowledgment of that TCP packet?

4 A. Well, that would not prevent or avoid
5 reliability mechanisms from kicking in because you're
6 saying the device is acknowledging a packet that it is
7 completely unaware of, so it wouldn't even understand
8 what the ports and IP addresses and whatnot would be for
9 the acknowledgment, as well as the sequence numbers,
10 et cetera, and not knowing any of those values that are
11 communicated in an acknowledgment would not prevent
12 reliability concerns. However, if the remote access
13 client receives a TCP packet, but is unable to deliver
14 it to an application because the application is not
15 running, then if the remote access client transmits a
16 false acknowledgment, then that does prevent or avoid
17 reliability mechanisms since the received packet can be
18 later delivered to the application once it begins
19 running.

20 Q. Okay. So, in your opinion, it's impossible for
21 a system to acknowledge a TCP packet that it has not
22 actually received, correct?

1 A. So, in my opinion, that does not prevent or
2 avoid the reliability mechanisms problems that Rao is
3 discussing in paragraph 155.

4 Q. But you agree that a system can acknowledge a
5 TCP packet that it has not actually received, correct?

6 A. It's not obvious how that would work since a
7 device would not know when and where, say, a packet was
8 transmitted in the first place, so it wouldn't know
9 when, where to issue a false acknowledgment.

10 Q. Okay. So sitting here today, you're not aware
11 of any technique for a device to issue a false
12 acknowledgment for receipt of a TCP packet that it did
13 not actually receive, correct?

14 A. In the context of paragraph 155, it is not
15 immediately obvious how that would work in a way that
16 does not cause reliability problems expressed in
17 paragraph 155.

18 Q. Okay. So I'm not asking about reliability
19 problems or anything like that. I'm simply asking:
20 Sitting here today, are you aware of any technique for a
21 device to issue a false acknowledgment for receipt of a
22 TCP packet that it did not actually receive?

1 A. So sitting here today, there are examples of
2 intermediary devices that will acknowledge on behalf of
3 the destination device a TCP packet before it ever
4 reaches the destination device, but that's outside the
5 context of Rao, but that scenario is possible.

6 If the device itself, the final destination
7 device itself were to issue a false acknowledgment for a
8 packet that it had never received, then it's not obvious
9 that that would be a viable implementation because of
10 the concerns of reliability.

11 Q. Okay. So setting aside the concerns of
12 reliability, is it possible for the final destination of
13 the device itself to issue a false acknowledgment for a
14 TCP packet that it has never received?

15 A. The only scenarios that I can think of is when
16 a device issues a negative acknowledgment for a packet
17 that it did not receive, which would tell the sender: I
18 did not receive the TCP packet I expected, but not a
19 scenario in which the device would issue a positive
20 acknowledgment for a packet that it did not receive.

21 Q. Okay. So I'd like to shift gears and go to the
22 section starting at paragraph 60 of your declaration.

1 And when you get to paragraph 60, could you
2 look at that section and confirm that this is the
3 beginning of your analysis titled "Introduction to
4 Rationale to Modify Rao in view of Scahill"?

5 A. Yes. That's what it says.

6 Q. Okay. And so I want to try to understand what
7 your actual proposed combination is a little bit better
8 through the context of Rao's Figure 5A.

9 You can feel free to look at Figure 5A in
10 conjunction with your analysis for the combination in
11 sort of whatever makes sense to you, but my question is:
12 What modifications are you proposing to the architecture
13 disclosed in Rao's Figure 5A in terms of your proposed
14 combination with Scahill?

15 A. So in this section, it doesn't appear that my
16 opinion is limited to combining Figure 5A with Scahill,
17 but what Scahill offers is the -- is the scheduling of
18 network communications as they're teaching, which was
19 not taught by Rao.

20 Q. Okay. As I understand it, part of your
21 proposed combination is to include Scahill's application
22 scheduler functionality into Rao's filter 322.

1 Is that true?

2 A. Well, what I describe, for example, in
3 paragraph 70 is the ways in which Scahill compliments
4 the remote access client in Rao, and the remote access
5 client in Rao is comprised of at least the agent 326 and
6 the filter 322.

7 Q. Okay. So does your proposed combination with
8 Rao and Scahill involve placing Scahill's application
9 scheduler functionality into Rao's filter 322?

10 A. Well, as I just mentioned, in reading in
11 paragraph 70 of my declaration, it says plainly:
12 Indeed, Rao itself envisions that its remote access
13 client may use characteristics of the network, such as
14 congestion, to dynamically adjust which network packets
15 communicate from which priority queue. A person of
16 ordinary skill would under- -- would have understood
17 that Scahill further builds on Rao's disclosure -- in
18 other words the disclosure of the remote access
19 client -- by disclosing how to schedule the transmission
20 of the network communications so as to reduce conflicts
21 in view of network conditions.

22 So what I'm saying here in my declaration

1 is that Scahill compliments the remote access client and
2 builds upon the remote access client, which is a
3 combination of both the filter and the agent and not one
4 in particular.

5 Q. Okay. So you don't have an opinion that the
6 filter 322 in particular would incorporate the
7 functionality of Scahill's application scheduler?

8 A. It's the remote access client that incorporates
9 Scahill's disclosure, and the remote access client is
10 the combination of the agent 326 and filter 322.

11 Q. In your declaration, do you identify any
12 motivation to include the application scheduler
13 functionality specifically within filter 322?

14 A. One example of this is paragraph 88 in my
15 declaration in which it says that: "In Rao/Scahill's
16 architecture, filter 322 coordinates network
17 communications into queues using Rao's policies, and the
18 prioritized network communications would be assigned
19 execution times by filter 322, implemented to
20 incorporate the scheduling functionality of Scahill's
21 application scheduler 24, taking into consideration
22 Scahill's scheduling requests and other network

1 factors."

2 Q. Okay. So is this paragraph discussing
3 incorporating the functionality of Scahill's application
4 scheduler 24 into Rao's filter 322?

5 A. Yes.

6 Q. Okay. In your proposed combination, how many
7 filters does Rao's -- does the Rao/Scahill combined
8 system include?

9 A. When you say -- (witness freezes) --

10 Q. Let me -- let me reask the question.

11 THE COURT REPORTER: Actually -- this is
12 Rebecca, the court reporter.

13 It looks as though Mr. Bims' or Dr. Bims'
14 and Mr. Saidman's screen is frozen.

15 MR. MILKEY: Oh, thank you.

16 THE COURT REPORTER: Should we go off the
17 record?

18 MR. MILKEY: Yeah. Let's go off the
19 record. Thank you.

20 (A short recess was taken.)

21 BY MR. MILKEY:

22 Q. So, Dr. Bims, welcome back.

1 In your proposed combination with -- of
2 Rao/Scahill, the filter 322 is going to receive network
3 packets from multiple different applications, correct?

4 A. Are you talking about paragraph 88 in my
5 declaration?

6 Q. Yeah. I mean, just in your proposed
7 combination in general. I think that paragraph 88 would
8 be an example of that.

9 Would you agree that in your proposed
10 combination, filter 322 would be configured to receive
11 network packets from multiple different applications in
12 Rao's system?

13 A. Yeah. I think in paragraph 87, I describe that
14 scenario.

15 Q. Okay. So in your proposed implementation,
16 would the -- would the filter 322 reside inside or
17 outside of the application?

18 A. Well, the filter resides in the remote access
19 client, which is separate from the applications.

20 Q. Okay. And do you recall Rao disclosing that
21 its system has multiple filters 322 or just a single
22 filter 322?

1 A. What's disclosed in Rao is that there would be
2 a filter 322 in a client 105a and another filter 322 in
3 client 105b or gateway 340.

4 Q. Okay. So if we go to Figure 1A of Rao, this is
5 Exhibit 1005, and if you could just let me know when
6 you're there.

7 A. Did it stop?

8 Q. Oh, yeah. I think you're cutting out a bit.
9 Sorry.

10 A. Oh, yeah. I said I'm there.

11 Q. Okay. Thank you.

12 So I know it's not depicted in Figure 1A of
13 Rao, but is it your understanding that in Figure 1A of
14 Rao each client 105a, 105b, and 105c would have a single
15 filter within it?

16 A. So Figure 1A, I'm looking for 105a, b, and c.
17 I see 102a, b, and c.

18 Q. Oh.

19 A. And Figure 3 --

20 Q. Oh, so -- so, yeah. Thank you. 102a, 102b,
21 and 102c works as well. The 105a, et cetera, is above
22 each box. I'm not sure why it lists it like that, but

1 I'll reask the question.

2 A. Oh.

3 Q. I'll reask the question.

4 So I know it's not depicted in Figure 1A of
5 Rao, but is it your understanding that in Figure 1A of
6 Rao, each box labeled 102a, 102b, and 102c would each
7 have a single filter within it?

8 A. Yes.

9 Q. Okay. And in your proposed combination with
10 Rao and Scahill, are you proposing that you would
11 increase the number of filters within Rao's system or
12 you would just keep the number of filters to be one per
13 client device?

14 A. There would be one filter per remote access
15 client.

16 Q. Okay. Okay. Could you please turn to
17 paragraph 81 of your declaration?

18 And let me know when you're there.

19 A. Okay.

20 Q. And so this is the beginning of your analysis
21 regarding claim limitation 1[c]; is that correct?

22 A. Yes.

1 Q. Okay. And then turning to page 42 of your
2 declaration, do you see that the last full sentence
3 there recites: "Scahill teaches that client library 14a
4 is 'accessible by all client applications,' and the
5 scheduling component API (within client library 14a) is
6 thus callable by each of the executable applications to
7 request an execution time"?

8 A. Yes.

9 Q. Okay. So by way of background. I see that
10 you're specifying that scheduling -- that the scheduling
11 component API is within client library 14a, and my
12 question is specifically: Where is the -- where is the
13 API within client library 14a?

14 A. It would exist somewhere within 14a. I don't
15 know that Scahill provides a specific location.

16 Q. And so is the -- is the API that you're
17 pointing to the application scheduler 24, or is it
18 something that's used to communicate with the
19 application scheduler 24?

20 A. Well, as I describe in paragraph 83, the API or
21 Application Programming Interface is a specification
22 that details the collection of functions, including

1 their input parameters and output results that allows an
2 application program to execute a common set of software
3 functions.

4 So because an API is a -- is functional in
5 nature, it's not necessarily tied to the application
6 scheduler versus scheduled task database or anything
7 else within 14a. It's simply providing the
8 functionality of 14a.

9 Q. Okay. And on page 42 of your declaration, you
10 have Figure 1B of Scahill reproduced and annotated.

11 Is that right?

12 A. Yes.

13 Q. Okay. And you see that application scheduler
14 24 is located in the portion of the client library that
15 is the application-specific library component portion?

16 A. Yeah.

17 Q. Okay. So is it your understanding that the
18 application scheduler 24 is a component that is specific
19 to the respective client application such as application
20 12a?

21 And feel free to keep reviewing. I don't
22 mean to interrupt your review, but if it's helpful, I

1 can direct you to page 17 of Scahill starting at line
2 14, and this is specifically what I'm referring to.

3 At page 17, starting at line 14, Scahill
4 says: "Each client software library 14a, b comprises a
5 plurality of library components, some specific to the
6 respective client application 12a, 12b and some provided
7 in a generic form to all client applications 12a, 12b
8 resident on the device 10a held in persistent memory
9 16."

10 And so my question is whether application
11 scheduler 24 is specific to the respective client
12 application or is, instead, resident on the device 10a
13 held in persistent memory 16?

14 A. Oh, there are multiple places in Scahill in
15 which it describes an application scheduler for each
16 application. For example, on page 20, starting at line
17 29, it says: In Figure 2A, client application 12a is
18 scheduled to perform a task having the task identifier
19 (TID) #1 at time t2. Compliant application 12b is
20 scheduled to perform a task having TID #2 after the task
21 TID #1 has been successfully completed. Client
22 application 12c is scheduled to perform a tasking having

1 TID #3 at time t1. Figure 2B shows how the tasks #1,
2 #2, and #3 are scheduled for performance in various
3 connection windows CW by the respective application
4 schedulers 24a, b, and c of each application 12a through
5 c.

6 And this same description also appears, for
7 example, on page 22 starting at line four where it says:
8 Figure 2D shows how the exemplary tasks shown in Figure
9 2C can be scheduled by the respective application
10 schedulers 24a, b, c of each client application 12a
11 through c to run in connection windows CW#1, CW#2, CW#3,
12 and CW#4 so that at each point in time, only one
13 application is operating.

14 Q. Okay. So is it your understanding that --
15 that, for example, client application 12a has an
16 application scheduler 24s that is specific to that
17 client application?

18 A. Yeah. That's what's described on page 20,
19 starting at line 29.

20 Q. Okay. And is that consistent with what's shown
21 in Figure 1B where the application scheduler is listed
22 as being an application specific library component?

1 A. So on page 18 starting at line 15 describing
2 Figure 1B, it says: "a client application 12a comprises
3 a network aware scheduling software client library 14a.
4 The client library 14a is arranged to allow a connection
5 requesting component 11 of the application 12a to
6 interface with an application scheduler 24 library
7 component of the client library 14a."

8 But then it goes on to say that client
9 library 14a also comprises persistent shared memory
10 components which are shared with other client
11 applications 12b incorporating an equivalent network
12 aware scheduling client library 14b which are hosted on
13 the same communication device 10a as client library 14a
14 according to the invention.

15 Q. Okay. So my question is whether the
16 application scheduler in Figure 1B is a -- is an
17 application-specific library component or a shared
18 library component?

19 A. So the client library 14a is part of -- the
20 client library 14a contains shared components for
21 multiple applications. The client library 14a includes
22 an application scheduler 24 which appears to represent

1 all of the application schedulers that are
2 application-specific, such as 24a through c.

3 Q. Okay. So is it your understanding that the
4 application scheduler 24 is actually an application
5 specific application scheduler such as 24a corresponding
6 to application 12a?

7 A. Yes, and that would be also true for
8 application 12b. It would have an application scheduler
9 24b, and same thing for application 12c. It would have
10 an application scheduler 24c.

11 Q. Okay. I'd like to turn to paragraph 88 of your
12 declaration, and just let me know when you're there.

13 A. Okay.

14 Q. Okay. And in paragraph 88, the first sentence
15 states: "In Rao/Scahill's architecture, filter 322
16 coordinates network communications into queues using
17 Rao's policies, and the prioritized network
18 communications would be assigned execution times by
19 filter 322, implemented to incorporate the scheduling
20 functionality of Scahill's application scheduler 24,
21 taking into consideration Scahill's scheduling requests
22 and other network factors."

1 Do you see that?

2 A. Yes.

3 Q. Okay. What do you mean when you say "the
4 prioritized network communications would be assigned
5 execution times"?

6 A. For example, in paragraph 86, I say: "When an
7 application issues a request for network communications
8 from the launch manager through an API, the API will
9 include as part of the input parameters of the request a
10 desired execution time period for the execution of the
11 network communications."

12 Q. Okay. And what are the network communications
13 here that you're referring to?

14 A. The network communications are as described in
15 paragraph 78 in my declaration, the generation and
16 receiving of network packets corresponding to activities
17 executed by the applications.

18 Q. So are the network packets the network
19 communications, or are the activities that generate the
20 network packets the network communications that you're
21 referring to, for example, in paragraph 86?

22 A. The network communications described in

1 paragraph 86 are the network traffic comprised of the
2 generation and receiving of network packets that
3 correspond to the activities executed by the
4 applications.

5 Q. Okay. So is it the network packets that are
6 placed into queues, or is it the generation of network
7 packets that are placed into queues in your combination?

8 A. The network communications are placed in the
9 queue. In other words, the network packets that are
10 received and/or generated are placed in the queues.

11 Q. Okay. And so in paragraph 88 when you say that
12 -- this is partway through. We've read the whole -- the
13 whole sentence previously, but when it says: "the
14 prioritized network communications would be assigned
15 execution times by filter 322," are you referring to the
16 prioritized network packets being assigned execution
17 times?

18 A. So the network packets are assigned execution
19 times by filter 322 in accordance with access policy
20 that associates those packets with a -- an activity.

21 Q. Okay. Sorry for the aside --

22 MR. MILKEY: But, Ben, do you know if your

1 network is up again?

2 I'm happy to keep going, but it's also been
3 a little choppy. I'm a little worried we're going to --
4 we're going to lose contact at some point.

5 MR. SAIDMAN: Yeah. Let's just go off the
6 record for two minutes just to find out.

7 MR. MILKEY: Great. Thank you.

8 (A short recess was taken.)

9 BY MR. MILKEY:

10 Q. All right. Dr. Bims, could you please turn to
11 page 49 of your declaration?

12 And let me know when you're there.

13 A. Okay.

14 Q. And this is the beginning of your analysis of
15 Claim 4, which recites: "The wireless end-user device
16 of claim 2, the activity classifier determining that a
17 given one of the applications is a network access
18 non-controlled activity based on a user's current
19 interaction with that application."

20 Do you see that?

21 A. Yes.

22 Q. Okay. What is your understanding of what a

1 "network access non-controlled activity" is?

2 A. That's an activity that's related to a user's
3 current interaction with that application.

4 Q. Okay. So as a person of ordinary skill in the
5 art, how do you know whether an application is a network
6 access non-controlled activity or not?

7 A. By determining the user's current interaction
8 with that application.

9 Q. Okay. I understand that Claim 4 says or,
10 rather, Claim 4 requires "determining that a given one
11 of the applications is a network access non-controlled
12 activity based on a user's current interaction with that
13 application," but outside of the context of Claim 4, are
14 there other types of network access non-controlled
15 activities that aren't based on a user's current
16 interaction with an application?

17 A. A network access controlled activity could be
18 based on the application size, memory usage, total
19 execution time, and/or frequency of use.

20 Q. And are you reading from Rao at paragraph 188
21 or something else?

22 A. That comes from Rao's paragraph 188.

1 Q. Okay. So does the fact that an application is
2 running in the foreground necessarily mean that it's a
3 network access non-controlled activity?

4 A. In Rao, it does teach an embodiment in which a
5 foreground application is a network non-controlled
6 activity.

7 Q. Okay. And what embodiment of Rao are you
8 referring to?

9 A. For example, in paragraph 41 and 42 where it
10 says: "In some embodiments, the first application is
11 running in the foreground, and the second application is
12 running in the background."

13 "In one embodiment of the present
14 invention, the method includes associating a priority
15 with the first application higher than a priority
16 associated with the second application."

17 Q. Okay. So is it your opinion that if an
18 application gets a higher priority than another
19 application, the first application is a network access
20 non-controlled activity?

21 A. Yes.

22 Q. Okay. So is it your opinion that if the second

1 application in this example is effectively deprioritized
2 entirely or blocked and the first application is allowed
3 to transmit in some way, that the first application
4 would be a network access non-controlled activity?

5 A. Yes, because the concept of priority is a
6 relative concept. In other words, for the -- for an
7 application to be prioritized, it has to be at the
8 expense of another application that is deprioritized.
9 So the first application which is given the higher
10 priority relative to the second application would thus
11 be a network access non-controlled activity application.

12 Q. And just at a high level, in the context of the
13 specification of the '700 patent, um, without -- I know
14 that certain claims say that you determine a network
15 access non-controlled activity in various ways.

16 But other than those ways discussed in the
17 claims, what is your understanding of what the plain
18 meaning of network access non-controlled activity is?

19 A. If I recall the term "network access,
20 non-controlled activity" is not expressly defined in the
21 '700 patent specification. So we rely on its usage in
22 the claims, um, and it's context in the claims to

1 understand what it means. And a network access
2 non-controlled activity is one that's going to be based
3 on the user's interaction with that application.

4 Q. Okay. So is it your opinion that in the
5 context of Rao, all foreground applications are network
6 access non-controlled activities?

7 A. In the context of Rao, when a -- when an
8 application has been given a higher priority than
9 another application, that application is a
10 non-controlled activity for network access.

11 Q. Okay. Okay. Could you please turn to
12 paragraph 118 of your declaration?

13 Let me know when you're there.

14 A. Okay. I'm there.

15 Q. And you see that this is the beginning of your
16 analysis regarding Claim 16, which recites: "The
17 wireless end-user device of claim 1, wherein the launch
18 manager is integrated with an operating system broadcast
19 intent manager"?

20 A. Yes.

21 Q. Okay. And then the third full -- actually, I
22 should say the last full sentence on page 62 of your

1 declaration, about halfway down in the paragraph, 118,
2 here begins with: "The '700 patent provides an example,
3 disclosing that 'the intercept and policy implementation
4 functions can be designed into the activity manager,
5 broadcast intent manager, media service manager, service
6 manager, or other application or service activity
7 management function in the Android OS.'"

8 Do you see that?

9 A. Yes.

10 Q. Okay. Now, are you familiar with the activity
11 manager in the Android operating system?

12 A. I am aware of an activity manager. I am not
13 familiar with the details of an activity manager.

14 Q. Okay. Do you know whether the activity manager
15 is a system -- is a component of the Android operating
16 system?

17 A. As the '700 patent describes, it's part of the
18 Android operating system.

19 Q. Okay. And do you know whether the activity
20 manager is different from the broadcast intent manager,
21 media service manager, and service manager listed in
22 that same sentence?

1 A. All of them are service activity management
2 functions, but they're separate functions in the Android
3 operating system.

4 Q. Okay. And do you know whether the activity
5 manager in the Android operating system is responsible
6 for scheduling tasks and access to system resources?

7 A. I have not looked into those details.

8 Q. Okay. And do you know what the broadcast
9 intent manager of the Android operating system is?

10 A. I'm aware of the broadcast intent manager of
11 the Android operating system, but not familiar with the
12 details of its implementation.

13 Q. Okay. And is that also a component of the
14 Android operating system?

15 A. Yes, as described in the '700 patent.

16 Q. Okay. Do you know whether the broadcast intent
17 manager is responsible for scheduling tasks in access to
18 system resources?

19 A. I have not looked into those details.

20 Q. Do you know what the media service manager in
21 the Android operating system is?

22 A. I am aware that there is a media service

1 manager in the Android operating system.

2 Q. Okay. Do you know whether the media service
3 manager is responsible for scheduling tasks in access to
4 system resources?

5 A. I am not familiar with those details.

6 Q. Do you know what the service manager in the
7 Android operating system is?

8 A. I'm aware of a service manager in the Android
9 operating system.

10 Q. And do you know whether the service manager is
11 responsible for scheduling tasks in access to system
12 resources?

13 A. I'm not familiar with those details in the
14 Android operating system.

15 Q. Okay.

16 MR. MILKEY: I will pass the witness.

17 MR. SAIDMAN: Give me -- give me a couple
18 minutes. We'll go off the record, and then I'll come
19 right back.

20 MR. MILKEY: Sounds good.

21 (A short recess was taken.)

22 MR. SAIDMAN: Nothing from petitioners.

1 THE COURT REPORTER: Okay. Very good.

2 Can I just understand, Counsel, what your
3 orders are on this record, what you'd like to see and
4 when, please?

5 MR. MILKEY: So for our end, if it's
6 possible to get the transcript by Friday, that would be
7 amazing.

8 THE COURT REPORTER: Okay. Yeah. I'll do
9 that.

10 And did you want the rough or not?

11 MR. MILKEY: Yes, please.

12 THE COURT REPORTER: And how about for you,
13 Mr. Saidman.

14 MR. SAIDMAN: We don't need a draft at this
15 time.

16 THE COURT REPORTER: Did you want the
17 final?

18 MR. SAIDMAN: I don't believe so, not at
19 this time.

20 THE COURT REPORTER: Thank you, folks.

21 Great to work with you today.

22 (The deposition concluded at
p.m. EDT.)

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DEPOSITION ERRATA SHEET

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2 Our Assignment No. 585113

3 Case Caption: Lenovo, Inc. and Motorola Mobility, LLC
4 vs. Headwater Research, LLC

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9 or the same has been read to me, and
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11 except for changes and/or corrections, if
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14 that I offer these changes as if still under
15 oath.

16 Signed on the _____ day of

17 _____, 20____.

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HARRY V. BIMS, PhD
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CERTIFICATE OF SHORTHAND REPORTER

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2

I, REBECCA KLANDERUD, Registered Professional Reporter, Certified Shorthand Reporter within and for the State of California do hereby certify:

3

4

That HARRY V. BIMS, PhD, 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.

5

6

7

I further certify that the both parties were represented by counsel at the deposition.

8

9

I further certify that the deposition of HARRY V. BIMS, PhD was taken via Zoom videoconference communication on Tuesday, May 20, 2025, commencing at 10:00 a.m. EDT.

10

11

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

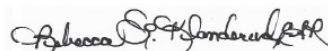
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Transcript of Dr. Harry V. Bims

Conducted on May 20, 2025

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