

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PALO ALTO NETWORKS, INC.

Petitioner

v.

TAASERA LICENSING LLC

Patent Owner

U.S. Patent No. 9,923,918
Case No. IPR2023-00574

U.S. Patent No. 8,955,038
Case No. IPR2023-00573

* * *

REMOTE VIDEO-RECORDED DEPOSITION OF
JOHN R. BLACK, JR., PH.D.

REPORTED BY:
DEBRA A. DIBBLE, RDR, CRR, CRC, Notary Public
JOB NO. 7979

1 REMOTE VIDEO-RECORDED DEPOSITION OF JOHN
2 R. BLACK, JR., PH.D., produced as a witness at the
3 instance of the Patent Owner and duly sworn, was
4 taken in the above-styled and numbered cause on the
5 above-referenced date, from 10:01 a.m. to 12:47 p.m.
6 MDT, before Debra A. Dibble, CSR, CCR, RDR, CRR,
7 Notary Public, reported by realtime stenographic
8 means at the location of the witness, Louisville,
9 Colorado, pursuant to 37 C.F.R. Section 42.53(d)(4).

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DEPOSITION EXHIBITS

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P R O C E E D I N G S

October 3, 2023, 10:01 a.m. MDT

COURT REPORTER: Due to the nature
of remote reporting, please pause briefly
before speaking to ensure all parties are
heard completely.

Appearances of counsel will be noted
on the stenographic record.

All parties to this deposition are
appearing remotely and have agreed to the
witness being sworn in remotely, which I will
do now if there are no objections to my doing
so.

JOHN R. BLACK, Jr., Ph.D.,
having been duly sworn,
testified as follows:

EXAMINATION

BY MR. PYMENTO:

Q. Hi, Dr. Black. Could you please state
your full name for the record?

1 A. Sure. My name is John Richard Black, Jr.
2 And I'd like to add, for the benefit of
3 the reporter, if at any time I start to be difficult
4 to understand, I have a headset, we can always
5 switch over if you think that would raise the
6 quality. It just starts to chafe my ears after a
7 while. So hopefully this will work and we'll start
8 here.

9 Q. Great. And that sounds -- the quality
10 sounds good to me as well for now.

11 A. Good deal.

12 Q. So I'm Julian Pymonto. I'm counsel to
13 Taasara Licensing in this proceeding. I'll be
14 taking your deposition today.

15 Have you ever had your deposition taken
16 before?

17 A. I believe this is number 19.

18 Q. 19. Wow. Were each of those prior
19 depositions in the context of inter partes review?

20 A. No, I would say the majority were not.

21 Q. And so in what context were they mostly?

22 A. In every one of them, starting from age
23 16, believe it or not, I have always served as an
24 expert witness with respect to computer technology.
25 But it's been, you know, the whole gamut from

1 district court litigation, IPRs. There was one a
2 municipal court with respect to a tax matter.
3 Contract dispute, trade secret, copyright. So
4 there's been a range of issues, and a few in the ITC
5 as well.

6 Q. And in each of these instances you were
7 deposed in your capacity as an expert witness; is
8 that correct?

9 A. Every instance, yes.

10 Q. And I know there's 19 cases, but in at
11 least most of these, did you provide a written
12 report of your opinions like you did in this
13 proceeding?

14 A. I think in every one of them I did, yes.

15 Q. So I think it's safe to say I don't need
16 to go over any of the ground rules of depositions
17 here? Is that all right?

18 A. That's probably safe to say.

19 Q. So I will avoid wasting any of our time
20 doing that.

21 Just briefly, though, I mean, is there
22 any reason you cannot testify truthfully today?

23 A. There's not.

24 Q. Have you taken any drugs or alcohol that
25 could impair your ability to think today?

1 A. I have not, no.

2 Q. Dr. Black, where are you located right
3 now physically?

4 A. I am in my home in Louisville, Colorado.

5 Q. Is there anyone in the room with you?

6 A. Just me.

7 Q. Okay. And if that changes at any time,
8 just for the purposes of the record could you please
9 let me know?

10 A. I will do so.

11 Q. What programs do you currently have
12 running on your computer aside from Zoom?

13 A. So I have Chrome opened, because that's
14 how I launched Zoom. And let me see what else is
15 there.

16 I actually rebooted just before this to
17 kind of clean things up. Oh, I have a shell
18 terminal window open because I had a student who is
19 struggling with the homework that's due today and I
20 had to do some things there. And apart from the
21 terminal window, Zoom, and Chrome, that is all I
22 have.

23 Q. So you don't have any other documents
24 electronically opened right now related to these
25 proceedings, right?

1 A. I don't on the computer that I'm using,
2 but I do have a second desktop behind here. And I
3 do have Cheng open, but I can close -- I can turn
4 off the computer, if you'd like. I can close any of
5 those documents if you prefer. Whatever you --

6 Q. No, that's totally fine. I'm not going
7 to make this more difficult. I mean, for what it's
8 worth, I will be dropping the exhibits into the chat
9 function of Zoom, so that way you can just, you
10 know, access it there. I've tried to number them as
11 well, so that way it will be convenient for everyone
12 to have that numbering and to open them, whatever.

13 A. Okay.

14 Q. I mean, do you have any physical paper
15 copies of the papers in these proceedings as well?

16 A. No, I have no papers relevant to these
17 proceedings.

18 Q. Okay. Great.

19 So I will go ahead and I will place all
20 of the exhibits in the chat that I plan to used
21 today. Hopefully it's not, you know, too excessive
22 for anyone.

23 Just let me know when you get them.

24 A. Well, I see in chat exhibits numbered 1
25 through 7 in -- not in order, but they're all there,

1 it looks like.

2 Q. All right. I tried to get them in order,
3 but I guess, you know, some loaded quicker than
4 others. But yes, I mean, it's going to be
5 Exhibits 1 through 7.

6 A. Sounds good.

7 Q. Just for the record, the first document,
8 Exhibit 1, is going to be U.S. Patent No. 8,955,038,
9 which is the subject patent in IPR 2023573.

10 The second exhibit, Exhibit 2, Dr. Black,
11 is your declaration that was submitted in
12 IPR 2023573.

13 Exhibit 3 is U.S. Patent No. 8,065,712.
14 That's to Cheng.

15 The fourth exhibit will be the
16 institution decision in IPR 2023573.

17 Exhibit 5 is going to be U.S. Patent
18 no. 9,923,918, which is the subject patent in
19 IPR 223574.

20 Exhibit No. 6 is going to be your
21 declaration which was submitted in IPR 2023574.

22 And finally, Exhibit 7 is the institution
23 decision in IPR 2023574.

24 (Black Deposition Exhibit 1 marked.)

25 (Black Deposition Exhibit 2 marked.)

1 (Black Deposition Exhibit 3 marked.)

2 (Black Deposition Exhibit 4 marked.)

3 (Black Deposition Exhibit 5 marked.)

4 (Black Deposition Exhibit 6 marked.)

5 (Black Deposition Exhibit 7 marked.)

6

7 BY MR. PYMENTO:

8 Q. So, Dr. Black, first, I'd like you to
9 open the two declarations in the two procedures,
10 which are 2 and 6.

11 Just let me know when you get those two
12 open.

13 A. Okay, I have Exhibits 2 and 6 opened.

14 Q. Great. Sitting here today, do you
15 believe that you considered any other materials
16 aside from the documents cited in those two
17 declarations?

18 A. It's a difficult question, because in
19 some sense that -- the question goes to documents
20 that I've read that inform my understanding of the
21 art generally and the field generally. I don't
22 recall specifically going to another document during
23 the drafting of my report that I relied upon or
24 consulted, but I may have to shore up understanding
25 of some detail, the protocol or something like that.

1 To the best of my recollection, I've
2 cited to the things I relied upon in the report. I
3 don't recall if there's anything else I consulted
4 during the drafting of the report.

5 Q. That's fair. I also uploaded Exhibits 4
6 and 7, which are the decisions granting institution
7 of these cases. And those documents were created by
8 the patent office after you submitted your
9 declaration -- your declarations. Have you reviewed
10 those decisions prior to this deposition?

11 A. Yes, I have.

12 Q. How much time did you spend preparing for
13 this deposition?

14 A. I would say in the range of 20 to
15 40 hours over the last week or so.

16 Q. And when did you first recall being
17 involved in this case? Or rather these two cases?

18 A. I'm not exactly sure. I definitely could
19 look it up, when I signed the engagement letter, but
20 it would have been sometime last year. Certainly by
21 November of 2022. Perhaps over the summer. I would
22 have to consult my records to know with certainty.

23 Q. About how much time did you spend
24 preparing the declaration or declarations?

25 A. Once again, I would have to consult my

1 records. It seems I'm working on other various
2 projects, and it's been what, some nine months or so
3 since I submitted these.

4 Given its length and the depth of the
5 declaration and the depth of the analysis contained
6 in that declaration, something like this would
7 usually be in the maybe 80- to 100-hour range.

8 Q. And, Dr. Black, aside from your counsel
9 at Winston & Strawn, did you communicate with anyone
10 else about your deposition today?

11 A. I mean, this is uninteresting, but I told
12 my fiance I was being deposed. Those kind of daily
13 life management, but no other attorneys.

14 Q. Did you communicate with anyone at
15 Palo Alto Networks directly about your deposition
16 today?

17 A. I did not.

18 Q. Aside from your attorneys at Winston &
19 Strawn, was anyone else involved in the preparation
20 of your declarations in these actions?

21 A. No.

22 Q. And the documents that you considered in
23 drafting these declarations, aside from, you know,
24 the patents-in-suit, could you -- the patents in
25 these proceedings, can you tell me how the prior art

1 documents were located in this case?

2 A. I don't recall -- like the prior art
3 documents really in this case are just Cheng. And I
4 believe the lawyers may have furnished me with the
5 patents and their file histories.

6 I don't remember if Cheng was something I
7 had dug up or ran across. As you probably know, as
8 you're looking for prior art there may be many
9 different possible candidates and you evaluate how
10 well they work. And I don't recall what that
11 process looked like probably a year ago, whether I
12 found Cheng or whether someone brought it to my
13 attention, but that was the one that I ultimately
14 decided was the best fit to provide the basis for my
15 declaration.

16 Q. So you made the determination that that
17 would be the prior art reference to focus on in your
18 declaration?

19 A. I'm virtually certain that's true. I
20 would never sign up for an engagement where I was
21 forced to take on something that was not a good
22 reference.

23 Q. So, Dr. Black, I'd like to talk about
24 your background a little bit. You attached your CV
25 to both of the declarations as Appendix A, so let's

1 look at Exhibit 6. And that would be Appendix A on
2 PDF page 68.

3 A. I'm there.

4 Q. Do you mind taking just brief look at the
5 CV and letting me know if you think the CV is still
6 accurate?

7 A. I'm pretty sure I've updated it since
8 January. I couldn't tell you exactly what, but they
9 would be nominal changes, maybe another committee
10 I'm on or something like that. So for the most part
11 I believe it is accurate.

12 Q. Okay. Do you mind just going through
13 your current position? It says associate professor
14 of computer science at University of Colorado at
15 Boulder, and then each of the positions listed under
16 the past employment and explaining what you did at
17 each of those positions?

18 A. Sure. Would it be okay if maybe I
19 started in reverse order and went in order of time?

20 Q. Yeah, that works perfect.

21 A. So I received a bachelor's degree -- this
22 is in the bottom of my education section -- in
23 computer science and math in 1988.

24 I then took a position at Ingres
25 Corporation. That's listed in the past employment.

1 There, I was a professional developer, a programmer,
2 and I worked on various parts of that -- of a
3 database product. So this was something for storing
4 and retrieving information, you know, large data
5 store. I worked on various aspects, including the
6 data types facility, some of the security features,
7 some of the logging and transaction features of our
8 product.

9 I was there for six years, and then in
10 1994 I moved into my car for a year and went to
11 Yosemite and became a full-time rock climber, so
12 that's not listed.

13 In 1995 I returned to the university. I
14 attended the University of California at Davis,
15 where I received a Ph.D. in 2000, focusing on
16 computer security. And my thesis was focused more
17 on cryptography, specifically on what we called
18 message authentication codes.

19 I received my Ph.D. in July of 2000, and
20 immediately took a position at the University of
21 Nevada, Reno, as an assistant professor of computer
22 science. For two years I was in Reno.

23 My wife did not like living there and
24 wanted to move to Boulder, Colorado, where her
25 brother lived and still lives, so I applied. And

1 apparently there was something like 800 applicants.
2 I somehow landed an interview, and among the ten
3 interviews somehow got the offer.

4 So in 2002, we packed up and moved to a
5 city here near Boulder, Colorado, where I took on an
6 assistant professor position, focusing on research
7 in computer security and cryptography, and teaching
8 classes across the board in a variety topics.

9 In 2008 I was promoted to associate
10 professor, which is just a way of indicating that I
11 received tenure in 2008.

12 And then in September of 2015, some
13 friends, including a couple of professors and I, all
14 took a leave of absence to go and do a start-up.
15 The start-up was called SecureSet. And SecureSet
16 was focused on teaching nominally competent
17 technical folks how to be security specialists, so
18 that they could apply for entry-level security jobs.
19 Because at the time, and I think still, there are
20 about 200,000 unfilled security jobs in the
21 United States and the massive shortfall of qualified
22 applicants for those jobs, so our start-ups tried to
23 address that shortfall.

24 In 2018 the dean basically said, you have
25 to leave the university permanently or come back,

1 and I opted to leave the start-up and come back to
2 the university in 2018. The start-up was
3 subsequently acquired by Wework anyway, so it is no
4 longer under the control of the founders.

5 And I've been back at the university
6 since 2018, resuming my duties there.

7 Q. Thank you for that. I appreciate that.

8 Let's turn to paragraph 23 of your
9 declaration.

10 This is the same exhibit.

11 A. Okay.

12 Q. Do you see where it says: ...a person of
13 skill in the art or, you know, P-O-S-I-T-A, POSITA,
14 would have a bachelor's degree in computer science,
15 computer engineering, or electrical engineering and
16 at least three years of experience in networking
17 operating systems and cyber security, or a master's
18 degree in one of the foregoing and at least two
19 years of experience in the aforementioned fields.

20 Is that right?

21 A. Yes, I see that.

22 Q. So is it safe to say that you well exceed
23 the qualifications of a POSITA, according to this
24 definition, correct?

25 A. Certainly, yes.

1 Q. Let's turn to Exhibit 3, which is the
2 Cheng reference. Column 6, lines 59 to 62.

3 A. I'll need a moment to open it.

4 Q. Sure.

5 A. Okay. I have Cheng. Can you restate the
6 paragraph or the column?

7 Q. Sure. It's column 6, lines 59 to 62.

8 A. Okay, I'm there.

9 Q. Do you see where it says, in -- so it
10 says: In one embodiment, access manager 110
11 provides policy rule sets to be applied by the
12 client agent software 142, 154 on client machines
13 that have the client agent software installed.
14 Correct?

15 A. I see that.

16 Q. In your experience, is the term "policy
17 rule" set a term that is used in the art?

18 MR. LIN: Objection, form.

19 A. Certainly "policy" is used and "rule" is
20 used. Maybe "rule set" -- I couldn't tell you. I
21 would have to check and see if the compound term
22 "policy rule set" is commonly used in other terms of
23 art or something that was coined in Cheng. I
24 couldn't tell you just off the top of my head.

25 * * *

1 BY MR. PYMENTO:

2 Q. What would your understanding of a policy
3 rule set be?

4 A. Are you asking me in the context of the
5 Cheng patent or sort of generically if you walked up
6 to me on the street without any context?

7 Q. The context of the Cheng patent.

8 A. In the context of the Cheng patent, I
9 would say the policy rule set -- a set is a
10 collection of things, and so a rule set, to me,
11 would be a collection of rules, and these rules
12 would be regarding the security policies that are
13 described in the patent.

14 Q. Would you describe that last part that
15 you said? A rule is a security policy described in
16 the patent?

17 MR. LIN: Objection, form.

18 A. Usually in computer science a rule is
19 formed as an if-then. A rule says, if this
20 condition is met, then this action is taken. That's
21 not the only way that rules can be expressed or
22 characterized, but that's sort of the common
23 understanding. So if you said something like, your
24 virus software is version 1 but it needs to be
25 version 2, and therefore I'm going to take an

1 action, that would be considered a security rule.

2 Security policies are often a set of
3 rules that enforce these requirements. They'll
4 sometimes have thresholds to measure things and try
5 to make assessments of risk factors of
6 vulnerability. It's very common in security
7 software to have a series of tests that try to
8 assess the level of vulnerability of a system in
9 order to understand what the risk profile looks
10 like.

11 BY MR. PYMENTO:

12 Q. So is it your testimony that a policy
13 would consist of a set of rules?

14 MR. LIN: Objection, form.

15 A. It certainly could. In the Cheng patent
16 they use the term "policy rules," which is, I think,
17 just to emphasize that these rules are around a
18 security policy, not just arbitrary rules about the
19 temperature of the CPU or something. These are
20 security policy rules.

21 BY MR. PYMENTO:

22 Q. Based on your reading of Cheng, could you
23 provide an example of a policy rule?

24 A. Would it be okay if I looked through
25 Cheng to answer your question?

1 Q. Sure. That's fine.

2 [Document review.]

3 A. So I'm reading, now, from paragraph --
4 I'm sorry, from column 5, line 12, and I see it
5 says, in Cheng: The policy rules are updated
6 regularly, such that the qualification procedures
7 can check that the latest antivirus version has been
8 installed on the client machine, et cetera.

9 So, for example, you could have a rule
10 that says the latest antivirus version must be
11 installed on the client machine, and that would be a
12 rule.

13 BY MR. PYMENTO:

14 Q. And what is your understanding of Cheng's
15 purpose in having a set of such policy rules?

16 A. Well, in computer security, we often want
17 to check not just for one possible source of a
18 vulnerability or weakness, but there are so many
19 different places to worry about, that there's often
20 a list of things to be checked in order to assess
21 the security status of an endpoint or a machine.

22 Q. What is your understanding of the term
23 "operating conditions"?

24 MR. LIN: Objection, form.

25 A. I'm sorry, is this a term from Cheng? I

1 don't recall off the top of my head.

2 BY MR. PYMENTO:

3 Q. Just the term in general, operating
4 conditions, what would be your understanding given
5 your experience if you heard that, you know, in a
6 publication?

7 MR. LIN: Objection, form.

8 A. So not in the context of this lawsuit,
9 just generically, an operating condition, I would
10 say, without any further context, if someone used
11 the term, I would think of something to do with the
12 state of a system, of a network or system that was
13 observed during its operation. In other words, it's
14 not turned off, it's functioning, and you're
15 observing something about the state of that system.

16 BY MR. PYMENTO:

17 Q. And what would be your understanding of
18 an operating hardware condition?

19 MR. LIN: Objection, form.

20 A. Again, outside the context of this
21 litigation, of this petition, I would say if someone
22 used that term I might actually be a little confused
23 at what they meant. But if I had to come up with
24 kind of an understanding off-the-cuff, I would say,
25 well, it's an operating condition, as I just

1 described a moment ago, that is related to the
2 hardware of the system rather than purely a software
3 status.

4 BY MR. PYMENTO:

5 Q. If I were to say to provide your
6 understanding in the context of this proceeding,
7 would that change your answer?

8 A. I would probably then ask you to point me
9 to where we're -- what we're talking about and what
10 we're looking at to understand the term, since I
11 don't recall the term existing or appearing in
12 Cheng. So if you're asking me about Cheng and what
13 an operating condition was in Cheng, I would want to
14 go read the passage where that appears or where
15 you're referencing.

16 Q. Okay. Let me point you to -- I'll point
17 you to Exhibit 5, which -- and I'll show you exactly
18 where.

19 Exhibit 5, Claim 6.

20 A. Just to confirm, we're looking at now the
21 '918 patent, correct?

22 Q. That's correct.

23 A. And this is dependent Claim 6 of the
24 '918. I have it.

25 Q. Great. So based on reading Claim 6 here,

1 what would be your understanding of a hardware
2 condition?

3 MR. LIN: Objection, form.

4 A. Well, I think that the specification has
5 a long list of -- I would have to go see if they
6 call them hardware conditions, but they have it
7 termed something close to that. And the first thing
8 I would do is go match those up and see if those
9 terms matched. And then I would understand that the
10 patentee had certain examples in mind, at least in
11 an embodiment. And that would help me to
12 understand, in the context of the patent, what that
13 term means.

14 I wouldn't perhaps want to limit the
15 scope of the term simply to the list of examples
16 given, especially if it says these are examples, not
17 limited to. If there's language like that.

18 So that would be my undertaking, I would
19 first go look to the specification to see if
20 those -- if there is lexicography. Right? If this
21 says this is exactly what this means, and then this
22 would then constrain the term. If there's terms,
23 then maybe that would help inform my understanding
24 but not limit it.

25 * * *

1 BY MR. PYMENTO:

2 Q. And in reviewing the '918 patent in
3 preparation of drafting the declaration and in
4 preparation for this deposition, did you form an
5 understanding of the term "hardware condition"?

6 A. I don't think I formally construed the
7 term. I wrote down, this is the scope of the term,
8 and here are the bounds and the limits of that
9 construction, but I did look to see what the
10 patentee had in mind as far as what would fall under
11 the heading of that term. Once again, I would want
12 to go check before I take a position right now. But
13 the same terminology is used in the spec. I think
14 that's true, but I'd need to go check.

15 Q. I mean --

16 A. The --

17 Q. Sorry, I didn't mean to cut you off. Did
18 you have more to the answer?

19 A. Maybe, if you would allow me, I would
20 just go look. I know there is a long list.

21 Q. Yeah, absolutely, you can go ahead and
22 check.

23 (Document review.)

24 A. All right. So the term "hardware
25 condition," at least if I -- if this document, this

1 exhibit we're looking at has faithfully been OCR'd
2 and I'm not mistyping anything, it looks like
3 hardware condition is a term that occurs only in the
4 claims three times and not in the spec. But there
5 is a term in the spec that is called hardware
6 configuration and state. State and condition are
7 sometimes synonymous or closely related. The state
8 of something and its condition can often mean the
9 same thing. And so I would take the list of
10 hardware configuration and state examples. And the
11 patent says such as which I would interpret this to
12 mean these are examples but not necessarily
13 limiting: CPU type, total system memory, free
14 memory, et cetera.

15 So these are examples of conditions or
16 states of a running computer that are somehow
17 related to the hardware, because the CPU is a piece
18 of hardware, as is memory.

19 BY MR. PYMENTO:

20 Q. And would you consider these examples of
21 hardware conditions operating conditions as well?

22 A. To me, operating conditions isn't a term
23 of art, and so unless a patent specifically called
24 them that or defined what operating conditions are
25 with, you know, some kind of defined lexicography, I

1 would have to think about that. I don't think my --
2 in my declaration I opined on this question, and so
3 it would probably take me a little while to consider
4 your question and give a complete answer.

5 Q. What is your understanding of a software
6 condition?

7 A. Once again, it's not a term of art, as
8 far as I know. And so outside of the context of the
9 patents and the litigation, I would -- if someone
10 just used the term, I would say it has to do with
11 the state of the software. I might assume that the
12 software is in a running configuration. In other
13 words, software can just be on a printed page, of
14 course. Right?

15 And then the state of the software is
16 kind of a strange thing to talk about, because it's
17 not operating, it's not running.

18 So I would probably think to the context
19 of running -- running software and the current state
20 that it's in would be its operating condition. That
21 would be my guess, without any further context.

22 Q. What are some examples of software
23 conditions that you believe a person of skill in the
24 art would be aware of?

25 A. So I just taught an ethical hacking

1 lecture this morning. I teach students how to break
2 into machines as part of a security class. And so
3 one thing that we do is, when we get on a new
4 machine we start looking at the current state of
5 that machine, including, let's say, what ports are
6 open. I mean, if there's an open port and it's
7 surveying some kind of -- let's say a web server is
8 running on that port, that's interesting, because
9 maybe that web server is vulnerable. So you might
10 check the version of that web server. What plug-ins
11 it has added to it. What additional features are
12 there. Because sometimes those create
13 vulnerabilities. What port it's running on.

14 So those would be software-based status
15 conditions, I would say, since they don't really
16 touch the hardware, they're mostly abstracted.

17 Q. Would you please turn to Exhibit 6,
18 paragraph 63? It's on page 28.

19 A. I'm there.

20 Q. In about the middle of the long paragraph
21 there is a therefore, and it says: Therefore, in my
22 opinion, a POSITA would have understood that the
23 client agent software disclosed in Cheng is part of
24 one or more software services, such as registry,
25 process, application, and service checks on the

1 client machine, provided by an operating system,
2 (because the client agent software is a software
3 service invoked to perform checks of security
4 measures implemented by the operating system).

5 Do you see that?

6 A. It goes on, but I see the portion you
7 read, yes.

8 Q. What is the basis for this understanding?

9 A. Well, I'm putting myself in the mind of a
10 POSITA at the time, and imagine reading Cheng, and
11 imagining the types of services that run on
12 endpoints that will monitor various conditions and
13 states of a machine. I've written similar software
14 myself. Not exactly the same thing, but software
15 that can be embedded into the operating system and
16 become a service. Or you could write it as a
17 stand-alone agent that interacts with the operating
18 system. But in one way or the other, you have to
19 invoke system services in order to query the state
20 of the system.

21 This is something that we teach in
22 undergraduate -- in the undergraduate curriculum, so
23 I believe somebody who qualifies as a POSITA in the
24 2005 time frame would have understood that those are
25 sort of the steps that would be required for

1 implementing something like Cheng's agent.

2 (Clarification by reporter.)

3 BY MR. PYMENTO:

4 Q. Dr. Black, did you obtain this language
5 that we've been discussing from anywhere in the
6 Cheng specification?

7 MR. LIN: Objection, form.

8 A. So as you'll agree, of course, I'm not
9 quoting Cheng in the sentence fragment that you
10 read, I'm saying what a POSITA would have
11 understand, in my opinion. And I'm certainly using
12 terms from Cheng, such as I think client agent
13 software is either explicitly a term or something
14 relatively close to that. Cheng also uses terms
15 such as registry.

16 I think process, application service
17 checks might be verbatim or at least closely related
18 to examples that Cheng gives of things that could be
19 checked or services that could be used. We could go
20 find it in Cheng if we wanted to make sure that I'm
21 right there.

22 BY MR. PYMENTO:

23 Q. Is it your opinion that software located
24 on an endpoint which is implemented to check
25 security measures of an operating system is always

1 provided by the operating system of the endpoint?

2 MR. LIN: Objection, form.

3 A. That's an implementation detail. You can
4 write your software such that it is then provided by
5 the operating system. And if you make it into an
6 operating system module, which is how some security
7 software is implemented, it need not be. It could
8 be software provided by an outside, you know,
9 third-party provider that then interacts with the
10 operating system, queries the registry, queries the
11 process file system, queries applications by using
12 services provided by the operating system, but how
13 you implement that depends on a lot of other
14 factors.

15 BY MR. PYMENTO:

16 Q. Could such software also be provided by a
17 server?

18 A. That's Cheng phrasing that I'm not sure I
19 could -- I would have to reinterpret. It servers
20 particularly provide services, and don't commonly
21 provide software unless maybe a server is allowing
22 to you download software or something. But
23 typically servers don't provide software.

24 Q. In your understanding, if the software
25 were implemented to check security conditions

1 unrelated to the operating system of the endpoint,
2 would it still be provided by the operating system
3 of the endpoint?

4 MR. LIN: Objection, form.

5 A. So let's imagine an implementation where
6 the client endpoint isn't provided by the operating
7 system, is provided by some third party, and is
8 wanting to check various conditions on the endpoint.
9 I don't know of any way to do that other than going
10 through the operating system. That is the ultimate
11 authority, that is the gateway to all of the
12 information about what's going on on the machine,
13 including information about other processes that may
14 not themselves be part of the operating system.

15 So if I wanted -- you know, if I wrote my
16 own program as a third party and I installed it on
17 your endpoint and it wanted to check, let's say your
18 e-mail server to make sure it's patched and
19 up-to-date, I would still have to engage the
20 operating system to do that. I don't have any sort
21 of back channel that I could -- where I could do it
22 directly.

23 BY MR. PYMENTO:

24 Q. So what I'm trying to understand is
25 that -- is that software being provided by the

1 operating system of the endpoint or just implemented
2 by the operating system at the endpoint?

3 A. That software would still have to
4 configure software services provided by the
5 operating system on the endpoint.

6 If it is itself not provided by the
7 operating system, it would still have to configure
8 software services that are provided by the operating
9 system, even if it is not itself doing that.

10 Q. Okay. One more related question. If
11 software is downloaded at an endpoint and
12 implemented to check security measures of an
13 operating system but only operates by a server
14 command, is it your understanding that the software
15 is provided by the endpoint's operating system?

16 MR. LIN: Objection, form.

17 A. If a software itself, that you were
18 describing, is not provided by the operating system,
19 it's still, in every conceivable way that I can
20 think of, must still be configured to use software
21 services provided by an operating system, because it
22 has to call services provided by an operating system
23 in order to nominally function to really do anything
24 at all.

25 * * *

1 BY MR. PYMENTO:

2 Q. Let me rephrase that a different way. So
3 if the software is downloaded at the endpoint, and
4 you know this, and it's downloaded at the endpoint
5 and it's implemented to check security measures of
6 the operating system of the endpoint, and it only
7 operates by a server command, do you know for sure
8 that that software was provided by the endpoint's
9 operating system or could it be provided another
10 way?

11 MR. LIN: Objection, form.

12 A. I'm sort of confused by a part of your
13 question, which is something about a server in the
14 middle. Everything else made sense, but the part
15 about something about a server didn't quite sit
16 right with me.

17 BY MR. PYMENTO:

18 Q. Okay, let's remove the server part about
19 it.

20 A. Okay.

21 Q. Yeah.

22 A. So I'm looking at the limitation that is
23 under discussion in paragraph 63. And it says:
24 Configuring one or more software services provided
25 by an operating system.

1 So I'm saying that it's possible that the
2 agent, sitting on the end point, is not provided by
3 an operating system. It's provided by me, let's
4 say. But it still must configure one or more
5 software services that are provided by an operating
6 system in order for it to do anything at all,
7 including as you, I think was in your question,
8 checking the security of the operating system,
9 checking the security of something outside the
10 operating system, let's say Microsoft's e-mail
11 server or Apache, which is not part of anybody's
12 operating system. To even go and examine that other
13 piece of memory, you have to go through the
14 operating system, so you have to go through services
15 provided by the operating system to perform that
16 step.

17 Q. Understood. What is your understanding
18 of the term "application," generally?

19 MR. LIN: Objection, form.

20 A. Generally, once again outside of the
21 context of the litigation, it is such a broad and
22 amorphous term. Some people will -- may say app.
23 That often means mobile apps or things on
24 smartphones. It really is just another word for a
25 piece of software.

1 I would say there are certain things that
2 are clearly not apps, like the kernel of your
3 operating system, which is this highly privileged
4 core that is doing the very specific sort of things
5 to make your machine run. No one would really call
6 that an application. An application is usually
7 outside of the operating system. But there are also
8 applications that are part of the operating system,
9 so you can't really draw that line clearly.

10 So I would say, most broadly, application
11 is just a piece of software.

12 BY MR. PYMENTO:

13 Q. So is it your testimony that an
14 application is something that can be provided by an
15 endpoint's operating system?

16 MR. LIN: Objection, form.

17 A. Yeah, I mean, like Internet Explorer, I
18 would call an application. That's a browser that
19 was provided by Windows, and Windows is an operating
20 system. So it's possible, I would say. Many
21 applications are not provided by the operating
22 system, they're provided by a third party.

23 BY MR. PYMENTO:

24 Q. As far as cyber security event
25 collectors, for example, are those applications

1 generally provided by an endpoint's operating system
2 in your experience?

3 A. They can be. I mean, Windows has
4 security features that are provided by Windows.
5 There's a firewall and there is some monitoring.
6 There's virus protection. Those are provided by
7 Windows directly. But you can also go and buy a
8 third party if you prefer, and install that instead
9 or alongside. So it's possible that endpoint
10 security software could be provided by the operating
11 system, or it's possible it's provided by someone
12 else.

13 Q. Are the client agents of Cheng
14 applications?

15 MR. LIN: Objection, form.

16 A. They might be. I think that you could
17 implement Cheng in a variety of ways. You could
18 write simply, you know, third-party stand-alone
19 applications and sell them as a security package to
20 users. I think you could also take Cheng's
21 invention and build it right into the operating
22 system itself. I don't think Cheng draws a line and
23 says, here's the one and only way to implement the
24 client agent. I think that it provides, you know --
25 that's an implementation detail. Once again, I

1 might want to bake it right into Windows. And if
2 Windows adopted this approach, and maybe it does,
3 they would probably build it right into the
4 operating system. But if, you know, Kasperski or
5 some outside company decided to do this, well, then
6 they can't really put it into Windows because
7 they're not Microsoft and they would do it as an
8 application. So it may be or may not be, depending
9 on how it's implemented.

10 BY MR. PYMENTO:

11 Q. In your opinion, what kind of -- what
12 level -- let me scratch that.

13 In your opinion, what level of experience
14 would an engineer have in order to be able to enable
15 those various implementations?

16 A. Given that I assigned similar things as
17 homework, maybe not too much. Of course, I don't
18 think my students provide, you know, professional
19 quality software, so there's a gradient there.

20 But it's not that hard, after a few years
21 of undergraduate training, to write a piece of
22 software that monitors various conditions and
23 statuses and states of software, of the operating
24 system itself, of the hardware. Most machines, most
25 operating systems provide an API or a way of asking,

1 you know, I'd like to see this. I'd like to know
2 this value of this registry key. You know, querying
3 the registry to get what users log in, what's the
4 MAC address, how much memory is available, what
5 software is installed. You know, my son is a junior
6 at the same university, and he knows how to do all
7 of these things, for example.

8 Q. When you say "these things," I just want
9 to hone in on the specificity. What do you mean by
10 "these things"?

11 A. Check who is logged into the machine.
12 How much memory is installed. What type of CPU.
13 What software versions of what software are
14 currently installed. These things are all pretty
15 readily available to a piece of software that you
16 write, so that you could look around.

17 Once again, you'd have to query the
18 operating system to find out, but the operating
19 system provides a facility whereby you can say,
20 Mr. Operating System, I'd like to know X, Y, and Z,
21 and it will go and fetch those values and give them
22 back to you. And then you can compile them into a
23 package and ship them off, if that was your purpose,
24 or to evaluate them locally, if you'd prefer to do
25 that.

1 Q. And so would that include creating that
2 sort of agent, for lack of better words, as an
3 application provided by an endpoint's operating
4 system, say Windows OS?

5 MR. LIN: Objection, form.

6 A. So if I asked a student, let's say, to
7 make an agent like we just described, I think they
8 would prefer to do it as a stand-alone application,
9 not part of the operating system. Because Windows,
10 you can't really modify the operating system. It's
11 proprietary. You would have to work at Microsoft.

12 If it were a Linux project, Linux is open
13 source, and so you can modify the operating system.
14 And we do that in some classes that I teach. But
15 that's much a more invasive undertaking, because
16 you're actually in the guts of the operating system
17 itself, which requires a lot more care.

18 But I have assigned projects that involve
19 that level of invasiveness, so it depends. I could
20 ask a student to write it as an application, that's
21 stand-alone, that is not provided by the operating
22 system, but that requires services provided by the
23 operating system. Or I could say, no, what I
24 actually want you to do is build a kernel module, a
25 piece of code that is going to be inserted into the

1 very heart of the operating system itself and it's
2 going to do this monitoring from within. That's a
3 little bit harder, but it's still within the purview
4 of an undergraduate.

5 Q. Understood. So we've been going on for
6 about an hour. Do you want to take a ten-minute
7 break?

8 A. Sure. Sounds good. I'll stretch my
9 legs.

10 (Recess taken, 11:00 a.m. to
11 11:21 a.m. MDT)

12 BY MR. PYMENTO:

13 Q. So, Dr. Black, could you please turn to
14 Exhibit 3, which is Cheng, column 5, lines 37 to 40?

15 A. I'm there.

16 Q. Do you see where it says: The client
17 agent comprises software resident on a client
18 machine and carries out certain checks, as indicated
19 by the rule set, and reports the results via the
20 access server to the access manager?

21 A. I see that.

22 Q. Are the check results described here
23 indicative of compliance of the endpoint in Cheng?

24 MR. LIN: Objection, form.

25 A. Do you mean "indicative of" in that the

1 client software can draw that conclusion, or do you
2 mean "indicative" meaning that the information is
3 all there such that it's possible to determine
4 compliance?

5 BY MR. PYMENTO:

6 Q. Well, actually, let me rephrase it
7 completely.

8 A. All right.

9 Q. Are those check results synonymous with
10 compliance results? I think that's it. Are those
11 check results synonymous with compliance results?

12 MR. LIN: Objection, form.

13 A. I wouldn't use those synonymously. I
14 think that they provide the measurements that will
15 allow the access manager to determine whether
16 compliance has been met or not.

17 Cheng describes situations where the
18 client software is able to itself ascertain whether
19 it's in compliance, but also says in certain cases
20 it may not know -- even though it did the
21 measurements, it may not know ultimately whether the
22 access manager is going to conclude that it is in
23 compliance or not, and that decision is really
24 ultimately up to the access manager.

25 * * *

1 BY MR. PYMENTO:

2 Q. So it is your -- is it your testimony
3 that Cheng discloses compliance of the endpoint
4 based on those check results?

5 MR. LIN: Objection, form.

6 A. I think based in part. There may be some
7 other determinations such as what the policy rule
8 set contains at the time those check results are
9 received.

10 BY MR. PYMENTO:

11 Q. So is it possible, based on your
12 understanding of Cheng, that a policy rule set does
13 not need to consider check results?

14 A. I think it's possible to have a policy
15 rule set that doesn't consult them. I don't know
16 that Cheng explicitly considers that state. He
17 seems to mostly consider revision whereby you do
18 receive and consider those check results, and apply
19 the rules from the policy rule set to determine
20 whether an endpoint is in compliance or not.

21 Q. Is it fair to say that Cheng's client
22 agents determine the compliance state based on check
23 results and reports those check results to Cheng's
24 access manager?

25 A. I wouldn't characterize the client

1 software as determining the compliance state,
2 because, as I said a moment ago, Cheng describes
3 situations where it may be possible to determine the
4 compliance state, but also situations where the
5 client software really is kind of just a dumb
6 service that's saying, I took some measurements,
7 here they are, and it doesn't really try and
8 ascertain what the ultimate determination is going
9 to be based on those measurements. It's left to an
10 authority that's separate from the client agent
11 software. So I wouldn't say that -- I wouldn't
12 characterize the client agent software as
13 determining compliance if determining means it's
14 able to make the determination independently.

15 Q. Understood. And let's just go back to a
16 previous question that I asked, and just dig deeper
17 into that, which is, is it your testimony that
18 compliance of the end point can be based on metrics
19 other than check results?

20 MR. LIN: Objection, form.

21 A. I mean, it -- the check results are sort
22 of the, you know, input to the algorithm, but the
23 algorithm also is important in that process, right?
24 And the algorithm, which decides compliance or not,
25 is not provided by the endpoint, is not measured by

1 the endpoint, and is not contained in the endpoint
2 software. So the conditions that are measured are
3 important inputs into that determination, but then
4 the judge, if you will, that takes all of those
5 measurements into account and applies the rules from
6 the policy rule database will -- is the ultimate
7 arbiter of whether an endpoint is in compliance or
8 not, and those rules are important because they have
9 to be known in order to be used to determine the
10 outcome.

11 BY MR. PYMENTO:

12 Q. Is it your testimony that the compliance
13 policies or policy rule sets dictate the algorithm?

14 MR. LIN: Objection, form.

15 A. In part. There's an algorithm -- this is
16 kind of torturous, but there's an algorithm that
17 executes the rule, right? So that's important, too.
18 It's sort of the software that takes the
19 measurements received from the client agent
20 software, and that same software likely also reads
21 in the rules from the policy rule sets, and it
22 interprets the rules using the measurement data and
23 then determines the outcome. So all three of those
24 pieces of data, I think are important.

25 * * *

1 BY MR. PYMENTO:

2 Q. I'm sorry, if you could just go over,
3 what are those three pieces of information that you
4 mentioned?

5 A. So you have a collection of data that's
6 remitted by the client agent software and received
7 through the access server by the access manager.
8 That's dataset number one. Those are what we've
9 been calling sort of measurements.

10 Then there are the rules in the policy
11 rule set. And those are collected in the data store
12 together, and that's second collection of data. And
13 they -- some, in some sets are algorithms, like
14 Cheng says there, you know, could be formulated as
15 if you're virus version is greater than 1.2, then
16 you're okay. If it's less than, then you must go to
17 this remediation and change your role to temporary.

18 It has kind of like if-then statements,
19 rules that are fired based on conditions.

20 But then you need a third actor, you
21 actually need a piece of running software that is
22 going to take the inputs from the measurements, and
23 look at the rules, and then execute those rules,
24 follow those rules based on the data received to
25 determine what the ultimate outcome, whether you're

1 in compliance, whether you need remediation, that
2 kind of thing.

3 Q. And where is that determination located
4 and -- yeah, where is that determination located?

5 A. Well, Cheng describes that determination
6 being made by the access manager, so that would be
7 software running on the access manager that takes
8 into account those two different data sets and makes
9 its conclusion based on those.

10 Q. Is it your testimony that check results
11 correspond to operating conditions on the endpoint?

12 MR. LIN: Objection, form.

13 A. Well, they certainly include operating
14 conditions. The -- Cheng describes a whole bunch of
15 different check results that could be collected.
16 Maybe some of those I would have -- I don't know if
17 I would call them operating conditions. That's not
18 a term I normally use. But it might be something
19 more static. For example, a size of a file that's
20 just sitting on the disk. I don't know that I'd
21 call that an operating condition, for example, but
22 Cheng certainly doesn't limit itself to say you
23 can't look at certain things like that, or registry
24 entries. They might not be considered operating
25 conditions, depending on how we define that term.

1 BY MR. PYMENTO:

2 Q. In your understanding, checking the
3 registry, is that checking on an operating
4 condition?

5 A. The registry is, you know, a very large
6 collection of data. Some of the entries in the
7 registry, like how much memory is currently
8 available, I would think that's an operating
9 condition, again using this sort of
10 seat-of-the-pants definition of the term I'm using,
11 which is, you know, the state of something that's
12 currently in flux and is part of the operation of
13 the computer. But it could also tell you the MAC
14 address of your hardware, your network card. That's
15 not something that is typically, I would think of as
16 an operating condition, because it's sort of a
17 burned-in serial number, which doesn't feel like
18 it's, you know, the current status of something
19 that's in flux.

20 But I would say the registry contains
21 certainly things that would be considered operating
22 conditions under this idea I have for the term, as
23 well as things that are sort of -- you know, the
24 serial number of the machine, it's not really a
25 moving target.

1 MR. PYMENTO: I think maybe we can
2 take a ten-minute break. I don't think I have
3 very much more to go.

4 THE WITNESS: Okay. I'll see you in
5 ten minutes.

6 (Recess taken, 11:35 a.m. to
7 11:48 a.m. MDT)

8 BY MR. PYMENTO:

9 Q. Dr. Black, could you please turn to
10 paragraph 60, page 26? This is of Exhibit 6.

11 A. Paragraph 60, you say?

12 Q. Yep.

13 A. Okay.

14 Q. Could you please clarify the sentence at
15 the bottom which reads: Therefore, Cheng discloses
16 that a plurality of operating conditions on the
17 endpoint -- and then there's a parenthetical, i.e.,
18 the assessed posture of the client machine...

19 Are you opining that the operating
20 condition on the endpoint is the assessed posture of
21 the client machine in Cheng?

22 MR. LIN: Objection, form.

23 (Document review.)

24 A. Okay. I just wanted to read it one more
25 time. Sorry, the question was?

1 BY MR. PYMENTO:

2 Q. Are you opining that the operating
3 condition on the endpoint is the assessed posture of
4 the client machine in Cheng?

5 MR. LIN: Same objection.

6 A. I think that the data that are collected,
7 which would include operating conditions of the
8 endpoint, make up what I'm calling here the
9 posture -- that's just a term that we use sometimes
10 to mean the disposition or the current state of the
11 machine, is what I'm talking about there.

12 BY MR. PYMENTO:

13 Q. Okay. So if I'm understanding you
14 correctly, you're saying the state of the machine is
15 the collection of operating conditions on the
16 endpoint?

17 A. Yeah. You know, once again I would be
18 careful, I think, to say it depends on what
19 operating conditions include, because there might be
20 things that some people might say, well, a serial
21 number is not an operating condition because it's
22 not changing. But here I mean all of the
23 measurements taken by the client software, including
24 things that are maybe static in nature and unmoving,
25 as well as maybe things that are in flux. Version

1 of your software, all of that together that are
2 collected determine the posture of the client
3 machine. That doesn't mean that we know whether
4 it's in compliance yet or not, but just its current
5 posture, it's current state.

6 Q. Okay. And so could you provide a
7 distinction for me between the operating conditions
8 and then information about the operating conditions
9 related to state?

10 MR. LIN: Objection, form.

11 A. I mean, in the way you cast your
12 question, I would say maybe the operating condition
13 is -- one operating condition could be that you're
14 running antivirus version 1, and it has this list of
15 current malware signatures installed, and it's patch
16 level 38. Those would all be used to determine the
17 so-called, you know, security posture or posture of
18 the client machine.

19 Information about that, for example
20 information about those conditions might be whether
21 they are the latest, the patch level is all the way
22 up-to-date. That sort of meta information, it's
23 information about the information, right? It's
24 whether that information is of the high enough
25 standard to reach the compliance threshold, if

1 that's the kind of approach we're using, or whether
2 it falls short. So I hope that's responsive.

3 BY MR. PYMENTO:

4 Q. Yeah, I mean, just to clarify that more,
5 you're saying the -- in the example you gave, are
6 you saying that the operation condition, you know,
7 is that version number, for example?

8 A. All the measurements taken by the client
9 software I would call, you know, operating
10 conditions in this context.

11 Q. And each of the measurements would be a
12 operating condition -- an operating condition.

13 A. I think that's fair.

14 Q. And just to really clarify that, so in
15 the example you gave, the version is the operating
16 condition: The status information is whether that
17 version meets a threshold. Is that right?

18 MR. LIN: Objection, form.

19 A. No, I would say status information is
20 also more or less synonymous with operating
21 condition. The status information includes the
22 measurements taken by the client endpoint. Whether
23 that information, the status information or the
24 measurements taken, whether they are good enough,
25 that's a determination made by the access manager.

1 BY MR. PYMENTO:

2 Q. Okay. And for each of the status
3 information as well as the operating conditions, is
4 it your testimony that both of those would be
5 gathered by Cheng's client agent? Or just one or
6 the other?

7 A. Well, once again, I don't really draw a
8 major distinction there. I think all of the
9 measurements taken by the agent is in a sense status
10 information. You could carve it up and say, some of
11 this is hardware status, some of this is user
12 information, some of this is web server information,
13 but all of this goes into that bundle of information
14 that's sent to the access manager.

15 Q. Okay. Could you please turn to
16 Exhibit 2, paragraph 74?

17 Exhibit 2 is your declaration for the IPR
18 related to the '038 patent.

19 A. I'm there.

20 Q. Okay. In this section, on page 33 and
21 34, do you opine about the claimed rule data store
22 in your declaration here?

23 MR. LIN: Objection, form.

24 A. I'm sorry, the question is about the
25 entirety of what's on pages 33 and 34?

1 BY MR. PYMENTO:

2 Q. Yes. Maybe I'll -- you know, I'll
3 rephrase it just to set it up a little bit better.

4 Do you see that the title reads:
5 initiating, by the computing system, based on the
6 compliance state, an action identified in at least
7 one rule in the data store, wherein the action is
8 carried out by a processor on the endpoint?

9 A. Right, I see that heading, and that's a
10 limitation of -- I'm not sure what claim we're
11 looking at, but it's a limitation of one of the
12 claims.

13 It says limitation of Claim 1 right
14 there.

15 Q. Do you opine about the claim rule in the
16 data store in your declaration here in this section?

17 MR. LIN: Objection, form.

18 A. If you'll give me a moment just to read
19 through it.

20 [Document review.]

21 A. So I do reference the policy rule set,
22 which is the rules that are in the data store. I
23 don't know that I verbatim say the words "data
24 store" in these paragraphs. I think I say it
25 elsewhere in the report.

1 BY MR. PYMENTO:

2 Q. Is it your testimony that the data store
3 in this claim limitation is the same data store that
4 the policy rule sets we discussed before are in?

5 A. The policy rule sets, yes, are stored in
6 the policy repository, which I identify as the
7 claimed data store.

8 Q. What is the basis for your understanding
9 that the data stores would be the same?

10 A. I'm sorry, what do you mean? The same
11 between --

12 MR. LIN: Object to form.

13 BY MR. PYMENTO:

14 Q. Between the policy rules that comprise
15 the policy rule sets and then these rules that
16 identify an action.

17 MR. LIN: Same objection.

18 A. So you're suggesting that --

19 Rules have conditions and then actions.
20 That's typically what a rule is. As I characterized
21 it earlier, it's typically an if-then. I think
22 Cheng talks about rules in the same way, saying
23 there are consequences to certain determinations,
24 such as changing your role to temporary, requiring
25 you seek remediation. I have never in my life

1 seen -- I can't imagine how you would implement the
2 actions separate from the rule. You have to tie
3 them together in order to have a causal effect of
4 what's happened and then what needs to be done. So,
5 I mean, to me, what a rule means is there's an if
6 and a then, and those are kind of married together
7 in one place.

8 BY MR. PYMENTO:

9 Q. And is it your understanding that those
10 if-then statements both occur before or in order to
11 determine a compliance state?

12 A. I believe both in the asserted patents
13 and in Cheng, when you're -- when the inventions are
14 described determining whether an endpoint is in
15 compliance, this is done after the collection of the
16 measurement data, after digesting what the rule sets
17 say. And then that's done all at once, applying the
18 if-thens.

19 The asserted patents have a lot more
20 complex math involved in that determination, but
21 ultimately both of them run an algorithm and then
22 have an output. Not at least, the output is thumbs
23 up/thumbs down on compliance. It might be more
24 nuanced than that. There might be a compliance
25 rating or something else, but at least in compliance

1 or out of compliance comes out of that process.

2 Q. Is it your testimony that there is no
3 differentiation between the terms "policy" and
4 "rule" in the asserted patents?

5 MR. LIN: Objection, form.

6 A. I know both words are used. I think --
7 well, I shouldn't say no without checking, but I
8 think both words are used.

9 They're lengthy patents, 40 pages or so.
10 I probably need to read through and see if I could
11 ever find a context where they're maybe shifting the
12 meaning in certain contexts. But to me, outside of
13 the context of the litigation, a rule is a much more
14 general term. A rule could be almost anything that
15 says if-then. But policy tends to mean there's an
16 overarching idea that you're trying to implement.
17 Like a security policy has a very specific goal that
18 might be implemented based on rules, along with 80
19 some other things, but...

20 So I wouldn't say that they are
21 synonymous in every context. Whether the patents,
22 the asserted patents use them synonymously, I'd want
23 to read every sentence with that question in mind to
24 see if I could find an exception or underscore my
25 understanding. I don't know sitting here.

1 BY MR. PYMENTO:

2 Q. Okay. Let me make that question a little
3 bit more concrete. Let's look at the '038 patents.
4 That's going to be Exhibit 1.

5 Let's actually turn to Claim 1 itself.

6 Just let me know when you reach there.

7 A. Okay. I am at Claim 1 of the '038.

8 Q. Do you see that last claim limitation?

9 It starts with: Initiating, by the computing
10 system, based on the compliance state an action
11 identified in at least one rule?

12 A. I see that.

13 Q. That term "rule," is that mentioned prior
14 in that Claim 1?

15 [Document review.]

16 A. It would be easy to overlook, but at
17 least as a quick read, I don't see that word "rule"
18 prior to that final limitation.

19 BY MR. PYMENTO:

20 Q. But you do see the word "policies" and
21 "policy used."

22 A. Certainly.

23 Q. Okay. Based on that understanding, would
24 it be reasonable to infer that those two terms mean
25 something different?

1 A. Once again, my normal take is that a
2 policy is a collection of rules. I think I said
3 that at the outset. I mean, I guess in some cases
4 it might just be a single rule. But normally
5 policies are implemented by, at least in part, by
6 rules. If you have a dress code policy, you're
7 going to have, you know, a rule that says, if your
8 shoes are this and your shirt is that, right? It's
9 going to be a list of checks and conditions. And so
10 I don't recall whether in the '038, if it explicitly
11 defines policy as a collection of rules or if that
12 is just something that is sort of I read it that way
13 because that's normally the way that a person
14 skilled in the art would understand it.

15 I could go check but, of course, it would
16 take me a long time to read the full patent.

17 Q. I understand that. I'm just trying to
18 get clarity on the mapping so -- of Cheng 2, the
19 '038 and the '918.

20 And so with Cheng, it uses this term
21 "policy rule set," which is maybe causing confusion
22 to me, and perhaps is different from what you just
23 explained.

24 So in Cheng, at least, it seems that
25 policy rules are one term. Correct?

1 A. I think it uses "policy," I think it uses
2 "rule," I think it uses "policy rules," and I think
3 it uses "policy rule set," and I don't recall any
4 basis for differentiating. I think they're just
5 using those terms interchangeably. But I -- once
6 again, I -- you could point me to a passageway and
7 say, oh, here they're drawing a distinction, but I
8 think a policy in Cheng is a policy rule set -- or
9 as a policy might be a conceptual idea of what the
10 goal was: But in computer science, the policy rule
11 set attempts to enforce the policy or implement the
12 policy.

13 So I think in Cheng it's being more
14 technical. By saying policy rule set, this is the
15 implementation of how we enforce policy; whereas in
16 the asserted patents, they might say policy more
17 abstractly.

18 But again, if you're on a computer, you
19 have to implement the policy. It's not an idea,
20 it's code. So you would typically use rule sets.
21 And I believe in the asserted patents that's exactly
22 how they implement their policy, or enforce their
23 policy.

24 Q. Let me turn your attention to column 5 in
25 Cheng. So that's Exhibit 3. And that's the second

1 paragraph in column 5.

2 A. I'm sorry, we're in Cheng column 5, line
3 11?

4 Q. Yes, that's correct.

5 Do you see where it says: In one
6 embodiment, a policy repository stores "policy
7 rules" specified as combinations of conditions?

8 A. I see that.

9 Q. So at least in Cheng, is it your
10 understanding that policy rules are their own term?
11 There is no distinction between policies and rules
12 in Cheng?

13 MR. LIN: Objection, form.

14 A. I think a policy, again, is sort of an
15 abstract goal, and policy rules are the
16 implementation, the computer science specification
17 of how to implement the policy. They may -- it's
18 very common to informally sort of interchange the
19 two. You could -- by policy, they could be talking
20 about the implementation, but just use the word
21 policy. Because in the context of a computer
22 science patent, it's going to be the same thing. So
23 I don't know that, in Cheng, the word "policy"
24 necessarily is different from "policy rules."

25 * * *

1 BY MR. PYMENTO:

2 Q. Okay. So is it also your testimony that
3 Cheng discloses what would normally be considered a
4 policy that includes several rules within it?

5 A. Yes. In fact, I think it would -- he
6 calls them policy rules, and he calls them both just
7 plain rules. I don't think there's a difference.

8 Q. Okay. And is it your testimony that each
9 of these rules or policy rules in Cheng are if-then
10 statements?

11 A. I'd want to see if he explicitly says
12 that. He characterizes them as conditions. And
13 typically, when we say in computer science a
14 conditional, it means an if-then statement.
15 Different languages maybe don't use the words
16 if-then, so you could have different syntax, but the
17 concept of a conditional is pretty universal. It's,
18 you have a -- something that was checked and then an
19 action is performed.

20 Q. So let's turn to column 8 of Cheng. The,
21 I guess, third full paragraph starting at line 27.

22 A. Okay.

23 Q. So it says: In one embodiment, a policy
24 rule set is a collection of policy rules where each
25 rule -- or each policy rule can be described as a

1 Boolean expression resulting in a positive/negative
2 outcome upon rule evaluation.

3 Is that in line with the if-then
4 statement that is, I guess, conventional in rules?

5 A. Yeah. I mean, that's -- that's one way
6 of describing it. We talk about a Boolean
7 expression. Boolean expression is "ands" and "ors"
8 and "nots," have -- elsewhere talks about -- in the
9 next paragraph talks about "greater than" and "less
10 than." Those are typically involved.

11 And then there's a positive and negative
12 outcome. So that's the "if," right? "If" evaluates
13 to true or false. And then the "then" is what
14 happens if it's true, if the condition is true.

15 You can also have an "else," which says
16 what happens if it's false.

17 Q. And the part of the statement after the
18 "then" is generally what carries that out?

19 Well, what is your understanding of how
20 it's carried out in Cheng?

21 A. So the consequence of, let's say failing
22 to reach the compliance threshold or the compliance
23 state, Cheng describes various possible actions that
24 can be taken. One is that the role of the endpoint
25 can be changed to a temporary status, which would

1 indicate that the endpoint now needs to go and
2 undertake remedial action. And so the temporary
3 role allows the endpoint to still have some network
4 access, enough to fix itself, but not complete
5 access, because it didn't reach the compliance
6 state.

7 That's one possibility. There's another
8 quarantine state that it can be put into, but
9 basically the end point is put on notice that it
10 needs to bring its operating conditions or state up
11 to snuff before it will be allowed full access to
12 the network.

13 Q. And what exactly -- what component in
14 Cheng brings the endpoint up to snuff?

15 MR. LIN: Objection, form.

16 A. Well, in the example that I was talking
17 about, like if we look at Figure 1 of Cheng?

18 BY MR. PYMENTO:

19 Q. Yep.

20 A. The endpoint depicted here, 145, there is
21 a dotted, double-headed arrow to remediation
22 resources, indicating that this computer does have
23 access to remediation resources. It can download
24 the latest patches and bring itself to a better
25 security state, at which point it can produce new

1 measurements that will then be evaluated by access
2 manager 110, and hopefully, for the endpoint's sake,
3 be in compliance, and then receive full access to
4 the access servers for everything.

5 Q. And the remediation would occur on the
6 endpoint itself, correct?

7 A. Yeah, the interaction with 160. But how
8 that -- you know, the repairing and patching and
9 updating, that would occur on the endpoint.

10 Q. Just a few more questions.

11 Based on your understanding, can you
12 restrict an endpoint's access to a resource on a
13 network that is already restricted?

14 MR. LIN: Objection, form.

15 A. Yeah, absolutely. You -- most networks
16 are restricted in some way just by how they're
17 built, but you could impose further restrictions by,
18 in Figure 1 of Cheng, for example, all access goes
19 through these access servers. And they could block
20 certain endpoints according to a command given by
21 the access manager to say endpoint 145 is not
22 allowed to access anything except for remediation
23 resources 160. And that's technology that's been
24 around forever.

25 * * *

1 BY MR. PYMENTO:

2 Q. So is it your understanding that
3 restriction, or at least that term in the art,
4 really refers to a spectrum of how restricted an
5 endpoint's access can be?

6 MR. LIN: Objection, form.

7 A. I mean, yeah, restricting can take all
8 kinds of different forms. I can say restrict you
9 only to computers one, two, three, or only to
10 network seven or...

11 I can describe any kind of limiting of
12 your access in a variety of ways.

13 BY MR. PYMENTO:

14 Q. So if I were to say this endpoint's
15 access to a resource on a network is restricted, and
16 then I say restrict it, would that have any meaning
17 to you?

18 A. I would probably ask for clarification.
19 Do you mean further restricted? So take away even
20 more? Because that's certainly possible. I could,
21 you know, --

22 The ultimate restriction, I suppose,
23 would be to cut off all access to everything. And I
24 don't know if you can further restrict after that.
25 Maybe cut its power.

1 Q. Related question: Based on your
2 understanding, could you allow an endpoint's access
3 to a resource on a network that is already allowed?

4 MR. LIN: Objection, form.

5 A. I mean, in a computer system you could
6 give an instruction to allow access for an endpoint
7 that is redundant, because it's already allowed. A
8 system would be considered kind of broken or flawed
9 if that caused it to crash or go into a wrong state.
10 For example, if you said allow twice and that
11 allowed it to disallow, that would be an error. So
12 you should be able to say allow something that's
13 already allowed, and it should just basically be
14 ignored.

15 BY MR. PYMENTO:

16 Q. Could you turn to Claim 1 in Exhibit 4?
17 That's the '918 patent again.

18 Sorry, not Exhibit 4. That would be
19 Exhibit 5. My apologies.

20 A. Claim 1?

21 Q. Yes.

22 A. I'm with you.

23 Q. Do you mind reading the claim language
24 starting with "authorizing access" all the way to
25 the end of Claim 1?

1 A. You want me to read it into the record?

2 Q. Sure.

3 A. Authorizing access by the endpoint to a
4 computing resource on the network, authorization
5 being determined by the remote computing system in
6 response to the compliance state; and continuing to
7 monitor the compliance state by the endpoint and
8 restricting access to the computing resource if the
9 compliance state changes.

10 Q. Thank you. Is it fair to say that the
11 claim language is referring to the scenario in which
12 an endpoint was compliant and access was authorized
13 but becomes not compliant and then access needs to
14 be restricted?

15 MR. LIN: Objection, form.

16 A. Yeah, it's not -- it's not great wording.
17 I would have maybe rewritten the final limitation to
18 say: and restricting access to the computing
19 resource if the compliance state becomes
20 non-compliant. It just says changes. I think maybe
21 a reasonable reading of that means changes from
22 compliant to noncompliant.

23 BY MR. PYMENTO:

24 Q. Could you please turn to Exhibit 3?

25 That's Cheng again. Do you mind reading the

1 sentence at column 7, line 59 to 64?

2 A. Column 7, line 59?

3 Q. Sorry, that might be -- here. Hold on a
4 second.

5 58. Sorry. Starting with "most." "Most
6 or all"?

7 A. Okay. Through 64?

8 Q. Yes, please.

9 A. Cheng column 7 starting at 58 says: Most
10 or all the information needed regarding protective
11 measures can be automatically retrieved by the
12 policy server from the outside sources. The policy
13 server regularly receives up-to-date information
14 from outside sources. The policy server may pull
15 the information on a periodic or event-driven basis.

16 Q. Thank you. So what you just read refers
17 to information from outside sources; is that
18 correct?

19 (Document review.)

20 A. This -- yeah, information needed
21 regarding protective measures, it says can be
22 retrieved from the outside resources 240.

23 Q. Okay. And as you just mentioned, it's
24 fair -- is it fair to say that this information from
25 outside sources is in regards to protective

1 measures?

2 A. Information needed regarding protective
3 measures is exactly what Cheng says in that passage,
4 yes.

5 MR. PYMENTO: I do not have any
6 further questions.

7 MR. LIN: Okay. I guess, can we take
8 a quick break and then we'll get back on the
9 record?

10 (Recess taken, 12:25 p.m. to
11 12:40 p.m. MDT)

12 -----

13 EXAMINATION

14 -----

15 BY MR. LIN:

16 Q. Good morning, Dr. Black. Just a couple
17 of quick questions. If you can turn to Exhibit 5.
18 It's the '918 patent, and Claim 1.

19 And I just wanted to direct you to the
20 last two limitations that I believe counsel just
21 asked you about, the one that starts with first,
22 "authorizing access by the endpoint," and then the
23 next limitation after that, "continuing to monitor
24 the compliance state by the endpoint."

25 Do you see those?

1 A. I see those, yes.

2 Q. And then you -- I don't know if you need
3 a second to kind of refresh your memory about those
4 limitations, but I have a couple of questions about
5 those limitations.

6 A. Let me just read them over one more time.

7 Q. Sure.

8 [Document review.]

9 A. Okay.

10 BY MR. PYMENTO:

11 Q. Is there anything about these two
12 limitations, the one that starts with authorizing
13 and then continuing to monitor, that limits
14 restricting access to a computing resource to a
15 scenario in which the endpoint was compliant and
16 access was authorized, and then the endpoint becomes
17 noncompliant and access needs to be restricted?

18 A. I mean, I think I testified earlier that
19 I think that's a reasonable take.

20 So we have these two limitations. We
21 have authorizing access, and it just says in
22 response to the compliance state. It would be kind
23 of surprising if it were out of compliance and that
24 was authorizing access, but the claim doesn't say
25 that that's not within the scope.

1 Similarly, continuing to monitor the
2 compliance state, restricting access if the
3 compliance state changes, I think one would
4 reasonably take that to mean that the compliance
5 state changes to a worse degree, like noncompliant
6 or a lower compliance score. But once again, to be
7 responsive to your question, it doesn't say that, it
8 just says that the compliance state changes somehow.

9 Q. And is there anything in the rest of the
10 Claim 1 that limits the claim, Claim 1, to
11 restricting access to a computing resource to that
12 same scenario I just described?

13 A. I'm sorry, I didn't understand the
14 question.

15 Q. So we were just discussing whether or not
16 these two limitations, the last two limitations was
17 limited to the scenario where the endpoint was
18 sourcing clients and access was authorized, and then
19 the endpoint becomes noncompliant and access needs
20 to be restricted. I'm asking if there's anything
21 else in Claim 1 that limits -- that limits
22 restricting access to a computing resource to that
23 exact scenario.

24 A. I see.

25 MR. PYMENTO: Objection.

1 A. I just want to read through all of
2 Claim 1 with your question in mind, then.

3 [Document review.]

4 A. So I believe the first-time "compliance
5 state" the term is used is in the determining
6 limitation. And there, a compliance state is
7 determined. This is a compliance state of the
8 endpoint based on the user information and status
9 information. So at that point, some compliance
10 state is determined. Whether that's an up and down,
11 a "yes" or "no," or if it's a score, or if it's some
12 other kind of indicator, we now have established
13 that a compliance state exists.

14 And then the last two limitations, it
15 says authorizing in response to the compliance
16 state, and then restricting access if the compliance
17 state changes. So I wouldn't want to narrow the
18 scope of the claim according to, you know, any other
19 presumptions I might apply. The claim just says in
20 response to the compliance state and if it changes,
21 that's all it says.

22 BY MR. PYMENTO:

23 Q. Did anything that counsel asked you about
24 your report today change any of your opinions
25 disclosed in your report?

1 A. No.

2 MR. LIN: I have no further
3 questions.

4 MR. PYMENTO: Nothing more from me.

5 (Time noted: 12:47 p.m. MDT)

6 --o0o--

C E R T I F I C A T E

I, DEBRA A. DIBBLE, RDR, CRR, CRC, Notary
Public, do hereby certify:

That JOHN R. BLACK, Jr., Ph.D., the witness
whose deposition is hereinbefore set forth, was duly
sworn by me and that such deposition is a true
record of the testimony given by such witness;

That pursuant to FRCP Rule 30, signature of
the witness was not requested by the witness or
other party before the conclusion of the deposition;

I further certify that I am not related to any
of the parties to this action by blood or marriage,
and that I am in no way interested in the outcome of
this matter.

IN WITNESS WHEREOF, I have hereunto set my
hand on 9 October 2023.

Debra A. Dibble
Registered Diplomate Reporter
Certified Realtime Reporter
Notary Public

1 I HEREBY CERTIFY that I have read
2 this transcript of my deposition, and that
3 this transcript accurately states the testimony
4 given by me, with the changes or corrections, if
5 any, as noted.

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10 X _____

11 JOHN R. BLACK, Jr., Ph.D.
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1 ERRATA SHEET FOR THE TRANSCRIPT OF:

2 CASE NAME: Palo Alto v Taasera

3 DEP DATE: October 3, 2023

4 DEPONENT: JOHN R. BLACK, Jr., Ph.D.

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25 JOHN R. BLACK, Jr., Ph.D.

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