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# Transcript of Dr. Prashant Shenoy - IPR2020-01582

**Date:** October 27, 2021

**Case:** Netflix, Inc. -v- Avago Technologies International Sales PTE. Limited (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Conducted on October 27, 2021

<p>1 UNITED STATES PATENT AND TRADEMARK OFFICE</p> <p>2 -----</p> <p>3 BEFORE THE PATENT TRIAL AND APPEAL BOARD</p> <p>4 -----</p> <p>5 NETFLIX, INC.</p> <p>6 Petitioner,</p> <p>7 v</p> <p>8 AVAGO TECHNOLOGIES INTERNATIONAL SALES</p> <p>9 PTE, LIMITED,</p> <p>10 Patent owner.</p> <p>11 -----</p> <p>12 Inter Partes Review No. IPR2020-01582</p> <p>13 U.S. Patent No. 8,572,138 B2</p> <p>14 -----</p> <p>15 Virtual Videotaped Deposition of</p> <p>16 DR. PRASHANT SHENOY</p> <p>17 Wednesday, October 27, 2021</p> <p>18 9:00 a.m. CST</p> <p>19 Job No.: 407036</p> <p>20 Pages: 1 - 146</p> <p>21 Reported by: THERESA A. VORKAPIC,</p> <p>22 CSR, RMR, CRR, RPR</p>	<p>1 A P P E A R A N C E S</p> <p>2 ON BEHALF OF THE PETITIONER:</p> <p>3 JEFFREY LIANG, ESQUIRE</p> <p>4 SHEPPARD MULLIN</p> <p>5 Four Embarcadero Center</p> <p>6 Seventeenth Floor</p> <p>7 San Francisco, California 94111</p> <p>8 650-815-2673</p> <p>9</p> <p>10 ON BEHALF OF THE PATENT OWNER:</p> <p>11 DANIEL S. YOUNG, ESQUIRE</p> <p>12 CHAD E. KING, ESQUIRE</p> <p>13 ADSERO IP</p> <p>14 8210 SouthPark Terrace</p> <p>15 Littleton, Colorado 80120</p> <p>16 303-268-0066</p> <p>17</p> <p>18 ALSO PRESENT:</p> <p>19 Alex Sussman, Audiovisual Technician,</p> <p>20 Planet Depos</p> <p>21</p> <p>22</p>
<p>1 Virtual Videotaped deposition of</p> <p>2 Dr. Prashant Shenoy taken pursuant to notice</p> <p>3 before Theresa A. Vorkapic, a Certified Shorthand</p> <p>4 Reporter, Registered Merit Reporter, Certified</p> <p>5 Realtime Reporter, Registered Professional</p> <p>6 Reporter and a Notary Public in and for the State</p> <p>7 of Illinois.</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p>	<p>1 C O N T E N T S</p> <p>2 EXAMINATION OF DR. PRASHANT SHENOY PAGE</p> <p>3 Examination By Mr. Young 5</p> <p>4 Examination By Mr. Liang 141</p> <p>5</p> <p>6 E X H I B I T S</p> <p>7 (Attached to transcript.)</p> <p>8</p> <p>9 SHENOY DEPOSITION EXHIBITS PAGE</p> <p>10</p> <p>11 Exhibit 1 US Patent 8,572,138 B2 6</p> <p>12 Exhibit 2 PTAB Institution Decision 46</p> <p>13 Exhibit 3 Reply Declaration 1029 49</p> <p>14 Exhibit 4 Petition Exhibit 1003 114</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p>

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<p style="text-align: right;">5</p> <p>1 PROCEEDINGS</p> <p>2 THE REPORTER: Will counsel please</p> <p>3 stipulate that in lieu of formally swearing in the</p> <p>4 witness, the reporter will instead ask the witness</p> <p>5 to acknowledge that their testimony will be true</p> <p>6 under the penalties of perjury, that counsel will</p> <p>7 not object to the admissibility of the transcript</p> <p>8 based on proceeding in this way, and that the</p> <p>9 witness has verified that he is, in fact,</p> <p>10 Dr. Prashant Shenoy.</p> <p>11 MR. YOUNG: That's fine with me.</p> <p>12 MR. LIANG: That's fine with me.</p> <p>13 THE REPORTER: Would you raise your right</p> <p>14 hand, please.</p> <p>15 (The witness was duly sworn.)</p> <p>16 DR. PRASHANT SHENOY,</p> <p>17 called as a witness herein, having been first duly</p> <p>18 sworn, was examined and testified as follows:</p> <p>19 EXAMINATION</p> <p>20 BY MR. YOUNG:</p> <p>21 Q Good morning, Dr. Shenoy. How are you?</p> <p>22 <b>A Good morning. I'm doing well. Thank you.</b></p>	<p style="text-align: right;">7</p> <p>1 <b>A So the term virtual machine is a term of</b></p> <p>2 <b>art. The Sundar patent makes use of virtual</b></p> <p>3 <b>machines. As I've explained in my declaration, it</b></p> <p>4 <b>does not claim inventing virtual machines. It is</b></p> <p>5 <b>using virtual machines as they existed in the art</b></p> <p>6 <b>at that time. The concept of virtual machine</b></p> <p>7 <b>relates to software abstraction that provides the</b></p> <p>8 <b>illusion of a physical machine, and that's how</b></p> <p>9 <b>virtual machines were understood in the art at</b></p> <p>10 <b>that time as consistent with its use in the Sundar</b></p> <p>11 <b>patent.</b></p> <p>12 Q Is a virtual machine an environment that</p> <p>13 emulates a computer platform as used in the Sundar</p> <p>14 patent?</p> <p>15 <b>A There is some discussion of virtual</b></p> <p>16 <b>machines in the Sundar patent specifically at the</b></p> <p>17 <b>end of Column 32 and Column 33.</b></p> <p>18 And I'll read it out: "The term virtual</p> <p>19 machine is used herein to refer to a software that</p> <p>20 creates an environment that emulates a computer</p> <p>21 platform."</p> <p>22 So that's consistent with what I said</p>
<p style="text-align: right;">6</p> <p>1 Q You are familiar with the Patent 8,572,138</p> <p>2 to Sundar; is that correct?</p> <p>3 <b>A Yes, I am.</b></p> <p>4 MR. YOUNG: Alex, if you wouldn't mind</p> <p>5 pulling up Document 2 from the folder and marking</p> <p>6 that Shenoy 1, please.</p> <p>7 (A certain document was marked Shenoy</p> <p>8 Deposition Exhibit 1 for identification, as of</p> <p>9 10/27/2021.)</p> <p>10 BY MR. YOUNG:</p> <p>11 Q Dr. Shenoy, if you could just please</p> <p>12 identify the document for the record, please.</p> <p>13 <b>A Yes. This is the first page of the Sundar</b></p> <p>14 <b>patent.</b></p> <p>15 Q You've reviewed that patent as part of</p> <p>16 your opinions in this matter; is that right?</p> <p>17 <b>A Yes, I have.</b></p> <p>18 Q The Sundar patent talks about the concept</p> <p>19 of virtual machines; is that correct?</p> <p>20 <b>A Yes, it does.</b></p> <p>21 Q What is your understanding of the term</p> <p>22 "virtual machine" as used in the Sundar patent?</p>	<p style="text-align: right;">8</p> <p>1 before that virtual machine is a term in the art</p> <p>2 and as used in the Sundar patent.</p> <p>3 MR. YOUNG: Alex, if you can give me</p> <p>4 control of the document.</p> <p>5 Sorry for the delay. I'm getting some lag</p> <p>6 here.</p> <p>7 Jeff, I'm sorry. I'm having an awful time</p> <p>8 getting this to work.</p> <p>9 MR. LIANG: Dr. Shenoy does have a printed</p> <p>10 copy with him. So you could just call out the --</p> <p>11 MR. YOUNG: I think I got it, but yes,</p> <p>12 thanks, Jeff. I'll probably end up doing that if</p> <p>13 I get so much delay in trying to move this around.</p> <p>14 BY MR. YOUNG:</p> <p>15 Q Dr. Shenoy, I've pulled up on the screen</p> <p>16 here and I think you have a hard copy of the</p> <p>17 portion you were referring to, which I believe was</p> <p>18 at the bottom of Column 32, Line 67 through the</p> <p>19 top of Column 33, Lines 1 and 2; is that right?</p> <p>20 <b>A Yes, that's correct.</b></p> <p>21 Q And this section of the Sundar patent is</p> <p>22 referring to Figure 24; is that correct?</p>

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<p>9</p> <p>1 A Yes. The passage that we are just</p> <p>2 discussing refers to Figure 24 and this is done on</p> <p>3 Column 32, Line 59, where it says: "As</p> <p>4 illustrated in Figure 24, a virtual machine</p> <p>5 manager 402 is executing on node 400," and then it</p> <p>6 goes on to discuss virtual machine managers and</p> <p>7 virtual machines.</p> <p>8 Q I'm going to try to go back up to the top</p> <p>9 here, and hopefully, it will be a little quicker.</p> <p>10 I put Figure 24 up on the screen here. Do</p> <p>11 you see that?</p> <p>12 A Yes, I do.</p> <p>13 Q Can you describe Figure 24 for me, please.</p> <p>14 A Yes. So Figure 24 describing or</p> <p>15 illustrating a virtual machine manager which is</p> <p>16 labeled "Box 402" that is executing on a physical</p> <p>17 node which is labeled "Box 400" and it shows</p> <p>18 several virtual machines that are labeled "404A,"</p> <p>19 "404B" and so on through "404M" that are executing</p> <p>20 on the virtual machine manager, and each virtual</p> <p>21 machine is running on an operating system and some</p> <p>22 applications.</p>	<p>11</p> <p>1 "When deployed on physical node 200, virtual</p> <p>2 machine manager hosts virtual machines 404A</p> <p>3 through 404N, collectively virtual machines 404."</p> <p>4 Do you see that?</p> <p>5 A Yes, I do.</p> <p>6 Q So this picture, Figure 24, would be a</p> <p>7 picture of what happens once virtual machine</p> <p>8 manager 402 is deployed onto the physical node</p> <p>9 400, correct?</p> <p>10 A So in this example that we are discussing,</p> <p>11 description of the figure indicates that when</p> <p>12 you're deployed the virtual machine manager 402 on</p> <p>13 the physical node, it has the capability to host a</p> <p>14 number of virtual machines, and those are</p> <p>15 illustrated in the figure as 404A, 404B and so on.</p> <p>16 Q So the virtual machine manager is deployed</p> <p>17 to physical node 400 and then I think you said and</p> <p>18 then it will host the virtual machine 404A through</p> <p>19 404N; is that correct?</p> <p>20 A So, again, in this example, the virtual</p> <p>21 machine manager is hosting several virtual</p> <p>22 machines which are labeled "404A" through "404N"</p>
<p>10</p> <p>1 Q How does the Sundar patent describe how</p> <p>2 virtual machine -- in this example, how virtual</p> <p>3 machine 404A is created?</p> <p>4 A Exhibit 404 does show the creation of a</p> <p>5 virtual machine but broadly speaking would use the</p> <p>6 virtual machine manager to create the virtual</p> <p>7 machine.</p> <p>8 Q So the virtual machine manager 402 would</p> <p>9 be first deployed onto the physical node 400; is</p> <p>10 that correct?</p> <p>11 MR. LIANG: Objection to form.</p> <p>12 BY THE WITNESS:</p> <p>13 A So, again, this figure is simply an</p> <p>14 example that shows a virtual machine manager and</p> <p>15 some virtual machines. It's not illustrating the</p> <p>16 deployment of virtual machines or other aspects of</p> <p>17 those deployments. There is other material in the</p> <p>18 spec of the patent that discusses that.</p> <p>19 BY MR. YOUNG:</p> <p>20 Q I'm not going to switch back and forth</p> <p>21 because it will take forever, but on your paper</p> <p>22 copy, if you go to Column 32, Line 65, it says:</p>	<p>12</p> <p>1 and you need the virtual machine manager for the</p> <p>2 system to host these virtual machines.</p> <p>3 Q You stated that, I believe, in other</p> <p>4 places of the Sundar patent it describes how</p> <p>5 virtual machines are created by the virtual</p> <p>6 machine manager; is that correct?</p> <p>7 A There is a discussion of autonomic</p> <p>8 deployment of the virtual machine manager, and as</p> <p>9 part of that, you copy the virtual machine images,</p> <p>10 and there are several other steps that are</p> <p>11 performed in those examples of the specification.</p> <p>12 Q What are those other steps in the examples</p> <p>13 of the specification?</p> <p>14 A So I would point to Figure 27 as an</p> <p>15 example figure, and it shows several of these</p> <p>16 steps. So in Figure 27, you create a new -- 27A</p> <p>17 specifically, you create a new tier. You specify</p> <p>18 the capture virtual machine manager image for the</p> <p>19 tier. You activate the tier, and you capture in</p> <p>20 Figure 27B, which is a continuation, related</p> <p>21 figure -- you specify the capture of an</p> <p>22 application image for the new tier. You set</p>

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<p style="text-align: right;">13</p> <p><b>1 targets to activate the new tier. As part of</b>  <b>2 that, you also move the virtual machine. Those</b>  <b>3 are the steps that are described in Figure 27A for</b>  <b>4 autonomic deployment.</b>  5 Q And there's another description of this  6 process with respect to -- I'll stop you there --  7 I'll stop there.  8 The example that you just gave me was in  9 relation to Figure 27; is that correct?  <b>10 A Yes.</b>  11 Q Okay. So this is on the screen here, you  12 can see it on your hard copy, looking at  13 Column 35. Do you see that?  <b>14 A Yes, I do.</b>  15 Q This is starting at Line 25 of Column 35,  16 there is a discussion of Figure 27A; is that  17 correct?  <b>18 A Yes, Figure 27A is discussed in Column 35</b>  <b>19 starting at Line 25.</b>  20 Q In there starting in Column 35, Line 33,  21 it says: "After these physical nodes boot the  22 virtual machine manager image instance, each of</p>	<p style="text-align: right;">15</p> <p><b>1 claims work is different from the examples that</b>  <b>2 we've been talking about.</b>  3 Q Okay. We'll get to the claims in a  4 moment, but before we talk about the claims, I'll  5 repeat the question, and you can let me know if  6 you have any question or if you're confused about  7 the question.  8 Is there anyplace in the specification of  9 the Sundar patent that describes any other way  10 that a virtual machine is created other than the  11 execution of a virtual machine manager on an  12 application node?  <b>13 A So the examples that have read in the</b>  <b>14 specification use a virtual machine manager</b>  <b>15 running on an application node to create and</b>  <b>16 execute virtual machines and that is consistent</b>  <b>17 with how the art used virtual machine managers to</b>  <b>18 create virtual machines.</b>  19 Q So I think the answer to my question is  20 no, there are no other ways in the Sundar  21 specification that virtual machines are created  22 other than the execution of a virtual machine</p>
<p style="text-align: right;">14</p> <p>1 the nodes creates a set of virtual machines as  2 specified by the image instances"; is that  3 correct?  4 A Yes. In this example, where it's  5 illustrated in Figure 27A, it talks about booting  6 the virtual machine manager image instance, and  7 each of the physical nodes then creates a set of  8 virtual machines that are specified by the  9 respective virtual machine image instances.  10 Q Are you aware of any other way that the  11 Sundar patent discloses the creation of virtual  12 machines other than executing the virtual machine  13 manager on an application node?  <b>14 A So the Sundar -- the specification of the</b>  <b>15 Sundar patent discusses examples, and we just</b>  <b>16 spoke about one such example relating to the 27A,</b>  <b>17 where you use the virtual machine manager images,</b>  <b>18 create the virtual machine manager or to apply the</b>  <b>19 virtual machine manager on a node and to create a</b>  <b>20 set of virtual machines using those images.</b>  21 However, I would also say that I have  22 provided an opinion in my declaration that how the</p>	<p style="text-align: right;">16</p> <p>1 manager on an application node; is that correct?  <b>2 A I should say that there are several steps</b>  <b>3 involved in creating virtual machine. Just</b>  <b>4 executing the virtual machine manager doesn't</b>  <b>5 create virtual machines because you have to</b>  <b>6 configure virtual machines and you have to</b>  <b>7 register them and so on, so those steps have to be</b>  <b>8 performed. You're just simply starting a virtual</b>  <b>9 machine manager is not going to create virtual</b>  <b>10 machines without some of those additional steps,</b>  <b>11 but I am certain there is a virtual machine</b>  <b>12 manager that's involved in the creation of virtual</b>  <b>13 machines.</b>  14 Q So we've talked about the specification of  15 the Sundar patent, and then you'd mentioned that  16 the claims of the Sundar patent worked differently  17 than the examples in the specification. Did I get  18 that right?  19 MR. LIANG: Objection to form.  20 BY THE WITNESS:  <b>21 A So I have provided a discussion of Claim 1</b>  <b>22 and some other claims in my declaration and my</b></p>

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<p>17</p> <p>1 interpretation of what a POSITA would have</p> <p>2 understood those claims to say. I've also</p> <p>3 provided additional opinions on how prior art</p> <p>4 teaches these claims using the three-step process</p> <p>5 that was articulated by Broadcom. So there is</p> <p>6 these opinions in my declaration that explain how</p> <p>7 a POSITA would have interpreted these claims and</p> <p>8 how the prior art teaches them.</p> <p>9 (Reporter clarification.)</p> <p>10 BY MR. YOUNG:</p> <p>11 Q My question is much more narrow. I've</p> <p>12 read your declaration. I know what it says.</p> <p>13 My question is simply, is it your opinion</p> <p>14 that the Claim 1 of the Sundar patent covers</p> <p>15 something different than the examples provided in</p> <p>16 the specification that we have just discussed</p> <p>17 including Figure 26 and Figure 27?</p> <p>18 A So, again, Claim 1 has several steps,</p> <p>19 rather, that talks about a software image</p> <p>20 repository, talks about control node, talks about</p> <p>21 the capabilities of the control node, and then we</p> <p>22 talked about Figure 27 which has several steps in</p>	<p>19</p> <p>1 did it.</p> <p>2 A Yes.</p> <p>3 Q And we've also just established that</p> <p>4 Claim 1 of the Sundar patent talks about -- or an</p> <p>5 element of it is a plurality of virtual machines,</p> <p>6 correct? We just established that.</p> <p>7 A Yes.</p> <p>8 Q So my question is: Are the virtual</p> <p>9 machines that are discussed in Figures 24 through</p> <p>10 27 the same thing as the virtual machines that are</p> <p>11 discussed in Claim 1?</p> <p>12 A So as I've explained in my declaration,</p> <p>13 Claim 1 is talking about capabilities of the</p> <p>14 distributed computing system with regards to the</p> <p>15 software image repository, so it's talking about</p> <p>16 the plurality of virtual machines. It is</p> <p>17 describing the virtual machines that a VMM is</p> <p>18 capable of creating. Figure 27A is talking about</p> <p>19 virtual machines that are being created and</p> <p>20 actually executed.</p> <p>21 So although at a high level the virtual</p> <p>22 machine technology that is referred to in Claim 1</p>
<p>18</p> <p>1 it. There are steps in Figure 27 that are not</p> <p>2 represented in Claim 1, for example, creating a</p> <p>3 new tier and issues related to tiers and moving</p> <p>4 virtual machines or even executing virtual</p> <p>5 machines, and I explain that in my declaration.</p> <p>6 Q You see Claim 1 of the Sundar patent on</p> <p>7 the screen, correct?</p> <p>8 A Yes, I do.</p> <p>9 Q And it talks about in that claim -- in</p> <p>10 part, it talks about a plurality of virtual</p> <p>11 machines; is that correct?</p> <p>12 A It does refer to a plurality of virtual</p> <p>13 machines, yes.</p> <p>14 Q And are those virtual machines the same</p> <p>15 type of virtual machine that is described in the</p> <p>16 examples of the Sundar patent, including Figures</p> <p>17 24 through 27?</p> <p>18 A I don't understand the question.</p> <p>19 Q We've been talking about with respect to</p> <p>20 Figures 24, 26 and 27 -- we referred with respect</p> <p>21 to those examples, those figures, we talked about</p> <p>22 virtual machines; do you remember that? We just</p>	<p>20</p> <p>1 and Figure 26 and 27 are the same, Claim 1 is</p> <p>2 talking about capabilities of deploying virtual</p> <p>3 machines, whereas these figures talk about actual</p> <p>4 execution, and I explain that also in my</p> <p>5 declaration.</p> <p>6 Q So this, I think, is a simple question.</p> <p>7 Do you believe that Claim 1 of the Sundar</p> <p>8 patent would cover the embodiments disclosed in</p> <p>9 Figures 24, 26 and 27?</p> <p>10 MR. LIANG: Objection to form.</p> <p>11 BY THE WITNESS:</p> <p>12 A Can I have the court reporter repeat the</p> <p>13 question, please, so that I get it.</p> <p>14 (The record was read by the reporter.)</p> <p>15 BY THE WITNESS:</p> <p>16 A So I don't know what "cover the</p> <p>17 embodiments" mean. There are several aspects of</p> <p>18 those figures that are not in the claims.</p> <p>19 BY MR. YOUNG:</p> <p>20 Q Do you believe that a claim can cover</p> <p>21 something if the embodiment discloses everything</p> <p>22 in the claim but also discloses additional things?</p>

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<p>21</p> <p>1 A So I don't know if that's a legal 2 question, so this is not really a legal response 3 to your question. The claim has certain elements. 4 There are things in the specification that 5 describe some of those issues, and the claim has 6 to be read based on what it is discussing in the 7 light of the specification, and that's how -- 8 provided in my declaration, that's how I said a 9 POSITA would interpret those claims. 10 Q Maybe I'll ask it this way, then. 11 Are the elements -- are all the elements 12 of Claim 1 disclosed in the embodiments of the 13 Sundar patent described in Figures 24, 26 and 27? 14 A So Figures 24, 26 and 27 describe virtual 15 machines. They describe virtual machine managers. 16 They describe deployment of virtual machines, and 17 the claim is talking about these issues as well. 18 And as I said before, Claim 1 is talking 19 about capabilities of the distributed computing 20 system, so the difference is that it's talking 21 about capabilities, whereas some of the 22 embodiments are talking about actual actions being</p>	<p>23</p> <p>1 Q So is it your opinion that the difference 2 between, in your opinion, what Claim 1 covers and 3 the embodiments set forth in Figures 24, 26 and 27 4 is a difference between the capabilities of 5 certain -- of the repository and the control node 6 in Claim 1 versus the actual execution of the 7 virtual machine manager and virtual machines as 8 set forth in those figures? 9 MR. LIANG: Objection to form. 10 BY THE WITNESS: 11 A So as I've explained in my declaration, 12 Claim 1 is talking about the capabilities of the 13 distributed computing system and its software 14 image repository and in the control node, whereas 15 the figures describe the capabilities and some of 16 the actions being performed as a result of those 17 capabilities, and that is a difference between 18 what is in Claim 1 and how some of the figures and 19 the embodiments are being discussed in the 20 specification. 21 BY MR. YOUNG: 22 Q So is it fair to say that the figures,</p>
<p>22</p> <p>1 performed. 2 Q And those actions being performed would be 3 performed by components that have that capability, 4 correct? 5 A So the claim only talks about 6 capabilities. Of course, if it does the 7 capabilities, it can perform the actions, but the 8 claim does not talk about performing the actions, 9 and one of those actions is execution of virtual 10 machine manager, execution of virtual machines, 11 and I spoke about that in the previous deposition. 12 I described that in my declaration as well. 13 Q Do you believe that the embodiments 14 disclosed in Figures 24, 26 and 27 do not disclose 15 a software image repository and a control node 16 that have the capabilities reflected in Claim 1? 17 A So Figures 24, 26 and 27 are describing 18 actions that involve the software image repository 19 and the control node, and if those actions are 20 being performed, the distributed computing system 21 has the capability to perform those actions. And 22 Claim 1 is talking about those capabilities.</p>	<p>24</p> <p>1 that disclosure -- strike that question. 2 Is it your opinion, then, that the 3 description of the distributed computing systems 4 in Figures 24, 26 and 27 contain the entire 5 disclosure of the system and Claim 1 only claims a 6 portion of it, just the capabilities and not the 7 execution; is that your opinion? 8 MR. LIANG: Objection to form. 9 BY THE WITNESS: 10 A So, again, these figures have embodiments, 11 and these figures have other aspects that are not 12 even in the claim. I talked about creating tiers 13 and so on which are not in Claim 1 at all. So the 14 figures have -- talk about various aspects. Some 15 of them are not reflected in the claims. The 16 figures talk about actions, and as I said, Claim 1 17 specifically talks about capabilities to perform 18 those actions but not those actions themselves. 19 So there are -- there is a difference 20 between what is all in the figures and the 21 embodiments and what's in Claim 1, and there are 22 aspects that are not even in the claim, as I</p>

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<p style="text-align: right;">25</p> <p>1 discussed before.</p> <p>2 <b>BY MR. YOUNG:</b></p> <p>3 Q Is there anything in Claim 1, is there any</p> <p>4 element of Claim 1 that is not disclosed in the</p> <p>5 figures and accompanying descriptions of Figures</p> <p>6 24, 26 and 27?</p> <p>7 <b>A The capabilities that are discussed in</b></p> <p>8 <b>Claim 1 are discussed in the embodiments that are</b></p> <p>9 <b>in Figures 24, 26 and 27.</b></p> <p>10 Q So would it be fair -- in your opinion,</p> <p>11 would a POSITA, a person of ordinary skill in the</p> <p>12 art, POSITA, look at Figures 24, 26 and 27 and the</p> <p>13 accompanied text in order to understand the scope</p> <p>14 of Claim 1?</p> <p>15 <b>A So these figures are embodiments and</b></p> <p>16 <b>examples. You asked about the scope of Claim 1.</b></p> <p>17 <b>I have not said anything about these figures</b></p> <p>18 <b>encompassing the entire scope of whatever it is in</b></p> <p>19 <b>the claims. Those embodiments certainly give</b></p> <p>20 <b>examples that would satisfy the claims in terms of</b></p> <p>21 <b>the capabilities of the claim distributed</b></p> <p>22 <b>computing systems.</b></p>	<p style="text-align: right;">27</p> <p>1 <b>machine manager and also talks about images or</b></p> <p>2 <b>image instances, rather, of a plurality of</b></p> <p>3 <b>software applications.</b></p> <p>4 Q Those are separate sets of images,</p> <p>5 correct, that are stored on the software image</p> <p>6 repository?</p> <p>7 <b>A Yes, they would be separate images.</b></p> <p>8 Q It says that the plurality of image</p> <p>9 instances of the virtual machine manager that is</p> <p>10 executable on a plurality of application nodes,</p> <p>11 correct?</p> <p>12 <b>A So the first part of the claim describes a</b></p> <p>13 <b>plurality of image instances in virtual machine</b></p> <p>14 <b>manager that's executable on a plurality of</b></p> <p>15 <b>application nodes.</b></p> <p>16 Q Okay. So when we looked at Figure 24, it</p> <p>17 had an example of a virtual machine manager that</p> <p>18 was executed on a physical node, correct?</p> <p>19 <b>A So Figure 24 is an example that shows a</b></p> <p>20 <b>virtual machine manager 402 that is executing on</b></p> <p>21 <b>physical node 400.</b></p> <p>22 Q So the plurality of image instances of the</p>
<p style="text-align: right;">26</p> <p>1 Q So maybe I'll ask it this way.</p> <p>2 Is it your opinion that a POSITA would</p> <p>3 review Figures 24, 26 and 27 and the accompanied</p> <p>4 text in order to understand Claim 1?</p> <p>5 <b>A A POSITA would typically look at a claim</b></p> <p>6 <b>and understand it in the light of the</b></p> <p>7 <b>specification, so from that perspective, Claim 1</b></p> <p>8 <b>is read and you would read the figures to</b></p> <p>9 <b>understand it. Having said that, there are --</b></p> <p>10 <b>Claim 1 is written carefully and clearly, and you</b></p> <p>11 <b>have a good understanding of it just by reading</b></p> <p>12 <b>it, but typically, you would read it in the light</b></p> <p>13 <b>of the specification and these figures as</b></p> <p>14 <b>examples.</b></p> <p>15 Q In looking at Claim 1 on the screen, the</p> <p>16 first element talks about a software image</p> <p>17 repository, correct?</p> <p>18 <b>A Yes.</b></p> <p>19 Q And it talks about storing two sets of</p> <p>20 images; is that correct?</p> <p>21 <b>A It talks about software image repository</b></p> <p>22 <b>being operable to store images of the virtual</b></p>	<p style="text-align: right;">28</p> <p>1 virtual machine manager that are stored in the</p> <p>2 image repository, they are intended to act like</p> <p>3 virtual machine manager 402 in Figure 24, correct?</p> <p>4 MR. LIANG: Objection to form.</p> <p>5 BY THE WITNESS:</p> <p>6 <b>A So Claim 1 talks about storing image</b></p> <p>7 <b>instances of the virtual machine manager. The</b></p> <p>8 <b>figure shows a virtual machine manager that is</b></p> <p>9 <b>running on that physical node. Now in an example</b></p> <p>10 <b>deployment scenario, if you were to deploy the</b></p> <p>11 <b>virtual machine manager instance on the physical</b></p> <p>12 <b>node, you will see something like what is shown in</b></p> <p>13 <b>example Figure 24. It's different from what the</b></p> <p>14 <b>claim says, but that's what the figure would show.</b></p> <p>15 <b>BY MR. YOUNG:</b></p> <p>16 Q So I think what you said was -- and stop</p> <p>17 me if this is not right, but I think what you said</p> <p>18 is with respect to the plurality of image</p> <p>19 instances of the virtual machine manager that are</p> <p>20 stored in the software image repository of Claim 1</p> <p>21 of the Sundar patent that when those image</p> <p>22 instances of the virtual machine manager are</p>

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<p>29</p> <p>1 executed on the application nodes, what you are 2 going to see is reflected in virtual machine 3 manager 402 and physical node 400 in Figure 24, 4 correct?</p> <p>5 MR. LIANG: Objection to form. 6 BY THE WITNESS:</p> <p>7 <b>A So Claim 1 talks about storing virtual 8 machine manager image instances. When those 9 images are deployed onto a physical node, you will 10 see something like what is shown on Figure 24. It 11 does not talk about executing the virtual machine 12 manager, but it does show a virtual machine 13 manager that is executing. I do want to clarify 14 that.</b></p> <p>15 Q In Claim 1, specifically Column 36, 16 Line 31, it says: "Wherein, when executed on the 17 application nodes" -- stop right there.</p> <p>18 The Claim 1 does say that when the 19 plurality of image instances of the virtual 20 machine manager are intended to be executed on 21 application nodes, correct?</p> <p>22 MR. LIANG: Objection to form.</p>	<p>31</p> <p>1 that shows the virtual machine manager running on 2 top of -- I'm sorry. Strike that.</p> <p>3 What Figure 24 shows is that virtual 4 machine 404A as an example is running on virtual 5 machine manager 402, correct?</p> <p>6 <b>A The figure does show several virtual 7 machines -- 404A, B, through M -- running on the 8 virtual machine manager, but so far, our 9 discussion of Claim 1 has only talked about image 10 instances of virtual machine managers.</b></p> <p>11 Q But I think we also just established that 12 the image instances of the virtual machine manager 13 when executed create the plurality of virtual 14 machines like is shown in Figure 24, correct?</p> <p>15 <b>A So the next part of the claim that we were 16 just discussing says: "Wherein when executed on 17 the application nodes, the image instances of the 18 virtual machine manager provide a plurality of 19 virtual machines."</b></p> <p>20 So the claim talks about the capability of 21 the software image repository, and it says that 22 the distributed computing system is capable of</p>
<p>30</p> <p>1 BY THE WITNESS:</p> <p>2 <b>A So it's talking about a plurality of image 3 instance of the virtual machine manager that is 4 executable on a plurality of application nodes. 5 So certainly, the image instances are executable 6 on application nodes.</b></p> <p>7 BY MR. YOUNG:</p> <p>8 Q And the claim also says "when executed," 9 correct, "wherein when executed," it says right 10 the very next set of words, correct?</p> <p>11 <b>A The very next set of words do say wherein 12 when executed.</b></p> <p>13 Q When they're executed, what do the 14 plurality of image instances of the virtual 15 machine manager do?</p> <p>16 <b>A So, again, Claim 1 is talking about a 17 capability, but if you're asking what happens once 18 you deploy a virtual machine manager image 19 instance and execute it, you will get something 20 like Figure 24. A claim does not require actual 21 execution.</b></p> <p>22 Q When you say when I get with Figure 24,</p>	<p>32</p> <p>1 <b>storing these virtual machine manager instances 2 that when executed on the application nodes would 3 provide these virtual machines.</b></p> <p>4 Q So it's talking about the capabilities of 5 the software image repository, but it's also -- 6 Claim 1, first element, is also talking about the 7 capabilities of the plurality of image instances 8 of the virtual machine managers, correct?</p> <p>9 <b>A In this case, it talks about a virtual 10 machine manager that is executable on a plurality 11 of application node that wherein when executed 12 would provide a plurality of virtual machines.</b></p> <p>13 Q The second set of images that the software 14 image repository stores are this plurality of 15 image instances of a plurality of software 16 applications, correct?</p> <p>17 <b>A The next part of the claim that we are 18 discussing talks about a plurality of image 19 instances of a plurality of software applications.</b></p> <p>20 Q Okay. And then it says that those 21 plurality of software applications, those image 22 instances of the plurality of software</p>

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<p>33</p> <p>1 applications, are executable on the plurality of 2 virtual machines, correct?</p> <p>3 <b>A The claim talks about plurality of image 4 instances of a plurality of software applications 5 that are executable on a plurality of virtual 6 machines, yes.</b></p> <p>7 Q It says "the plurality of virtual 8 machines," correct?</p> <p>9 <b>A Here it talks about the plurality of 10 virtual machines.</b></p> <p>11 Q So what plurality of virtual machines is 12 that section of Claim 1 referring to? What I mean 13 by that section is the reference to the plurality 14 of virtual machines cited in Column 36, Line 37.</p> <p>15 <b>A So as I've explained in my declaration, in 16 this case, the plurality of virtual machines 17 refers to the virtual machines that the virtual 18 machine manager is capable of creating.</b></p> <p>19 Q So with those two sets of images -- strike 20 that.</p> <p>21 If you go back to Figure 24, it shows an 22 OS and applications 406A that are executing on</p>	<p>35</p> <p>1 <b>The claim, as you've been discussing, 2 talks about the capabilities of the image 3 instances of the virtual machine manager or the 4 capability of the distributed computing system to 5 store image instances of the virtual machine 6 manager and image instances of a plurality of 7 software applications.</b></p> <p>8 <b>BY MR. YOUNG:</b></p> <p>9 Q I think we just established, however, that 10 the plurality of image instances of the virtual 11 machine manager also have capabilities, correct?</p> <p>12 <b>A We did talk about wherein when executed in 13 the application nodes, the image instances of the 14 virtual machine manager provide a plurality of 15 virtual machines, so they have the capability to 16 provide a plurality of virtual machines.</b></p> <p>17 Q So the plurality of image instances of the 18 virtual machine manager and the plurality of image 19 instances of a plurality of software applications 20 in Claim 1 have the capability to establish 21 exactly what you see here in Figure 24, correct?</p> <p>22 <b>MR. LIANG: Objection to form.</b></p>
<p>34</p> <p>1 virtual machine 404A; is that correct?</p> <p>2 <b>A In Figure 24, there is a box labeled "OSN 3 applications for 6A" that are executing on virtual 4 machine 404A.</b></p> <p>5 Q So with these two sets of images, they 6 have the capability to, one, have the virtual 7 machine plurality of image instances of the 8 virtual machine manager be deployed onto a 9 physical node to then execute to create the 10 virtual machine and then have the software 11 image -- these plurality of software images to be 12 deployed onto the virtual machine that was created 13 by the execution of the virtual machine manager, 14 correct?</p> <p>15 <b>MR. LIANG: Objection to form.</b></p> <p>16 <b>BY THE WITNESS:</b></p> <p>17 <b>A So the figure here is simply showing a 18 virtual machine manager 402 running on a physical 19 node. It shows several virtual machines that are 20 running on the physical virtual machine manager, 21 and it shows operating systems and applications 22 that execute on each of the virtual machines.</b></p>	<p>36</p> <p>1 <b>BY THE WITNESS:</b></p> <p>2 <b>A So Figure 24 is an example embodiment, and 3 Claim 1 talks about capabilities where you have 4 image instances of the virtual machine manager and 5 image instances of software applications that have 6 also the capability to execute on the physical 7 node and the virtual machine manager, and that 8 could, in this example, look like what's depicted 9 in Figure 24.</b></p> <p>10 <b>BY MR. YOUNG:</b></p> <p>11 Q Would there be any other purpose for 12 storing the plurality of image instances of the 13 virtual machine manager and the plurality of image 14 instances of the software applications that a 15 person of ordinary skill in the art would 16 understand by reading the Sundar patent, any other 17 purpose other than creating what you see here in 18 Figure 24?</p> <p>19 <b>A The Sundar patent talks about autonomic 20 deployment, so capability that has been discussed 21 in the control node is one where instances are 22 autonomically deployed or have the capability to</b></p>

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<p style="text-align: right;">37</p> <p>1 be autonomically deployed onto physical nodes.  2 Once they are deployed, Figure 24 gives an example  3 of what the physical node would look like.  4 Q The next element of Claim 1 talks about a  5 control node, correct?  6 A Yes.  7 Q And it talks about: "Autonomic deployment  8 of a plurality of image instances of the virtual  9 machine manager on application nodes by causing  10 the plurality of image instances of the  11 software" -- I'm sorry, "image instances of the  12 virtual machine manager to be copied from the  13 software image repository to the application  14 nodes."  15 Correct?  16 A Yes. That part of the claim says what you  17 just read out.  18 Q Okay. And then it has a second part,  19 correct?  20 A Yes, it does.  21 Q And that part says: "Provide autonomic  22 deployment of the plurality of image instances of</p>	<p style="text-align: right;">39</p> <p>1 A It says to provide autonomic deployment of  2 a plurality of image instances of software  3 applications on the virtual machines.  4 Q Okay. So what virtual machines is that  5 part of the claim talking about?  6 A Here it's talking about the virtual  7 machines that the virtual machine manager is  8 capable of creating.  9 Q Would it mean, then, that the autonomic  10 deployment of the plurality of image instances of  11 the software applications cannot happen until the  12 plurality of image instances of the virtual  13 machine manager are executed on the application  14 nodes in order to create the virtual machines in  15 which the plurality of image instances of the  16 software applications are deployed?  17 MR. LIANG: Objection to form.  18 THE WITNESS: Can I please have the court  19 reporter read back that question. It was a long  20 question.  21 (The record was read by the reporter.)  22 BY THE WITNESS:</p>
<p style="text-align: right;">38</p> <p>1 the software applications on the virtual  2 machines."  3 Do you see that?  4 A Yes, I do.  5 Q What does it mean by "on the virtual  6 machines"?  7 A So it's talking here about the capability  8 of autonomic deployment of these image instances  9 of software applications, and those applications  10 are deployed on the virtual machines.  11 Q How were those virtual machines created?  12 MR. LIANG: Objection to form.  13 BY THE WITNESS:  14 A So this claim here has no discussion of  15 creating virtual machines at all. It's talking  16 about the capabilities of the distributed  17 computing system to store image instances and to  18 deploy those image instances.  19 BY MR. YOUNG:  20 Q It says "the virtual machines," correct?  21 When it says the virtual machines, what I'm  22 referring to is Claim 1, Column 36, Line 47.</p>	<p style="text-align: right;">40</p> <p>1 A So Claim 1 is only talking about  2 capabilities. It does not require any actions to  3 be taken at all. So as far as Claim 1 is  4 concerned, the distributed computing system with  5 the capability of storing image instances has the  6 capability of deploying those image instances,  7 then they would have to be deployed, then they  8 would have to be executed as far as Claim 1 is  9 concerned. It's only talking about capabilities.  10 It's not talking about actions.  11 BY MR. YOUNG:  12 Q Would the control node have the capability  13 to deploy the image instances of the software  14 applications without first having the capability  15 to deploy the image instances of the virtual  16 machine managers, execute them on the application  17 nodes, create the virtual machines and then have  18 the capability of deploying the image instances of  19 the software applications onto those virtual  20 machine managers?  21 A No. The control node doesn't do some of  22 those steps. Those steps are being done on the</p>

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<p style="text-align: right;">41</p> <p><b>1 application. Control node is simply deploying</b>  <b>2 instances. You are referring to steps that are</b>  <b>3 happening in application nodes that are not part</b>  <b>4 of the claim at all.</b>          5 Q So it's your opinion, then, that Claim 1          6 does not cover the preferred embodiments disclosed          7 in the Sundar patents set forth in Figures 24, 26          8 and 27, correct?  <b>9 A I did not say that. I simply said what is</b>  <b>10 claimed in Claim 1 is capabilities of the</b>  <b>11 distributed computing system, in this case, the</b>  <b>12 control node. There are things and figures that</b>  <b>13 happened in the application that are not in this</b>  <b>14 claim at all.</b>          15 Q Does the control node have the          16 capabilities of deploying the image instances of          17 the software applications on anything other than          18 the image instances -- the virtual machines          19 created by the deployment of the image instances          20 of the virtual machine manager?  <b>21 A So the control node is performing</b>  <b>22 autonomic deployment of the virtual machine</b></p>	<p style="text-align: right;">43</p> <p><b>1 image instances from the repository to the</b>  <b>2 application nodes.</b>          3 There are other things that happen on the          4 application nodes that are discussed in the          5 figures, but the claims are talking about what is          6 of the capabilities of the control node and the          7 image repository.          8 Q In your opinion, what would a POSITA          9 understand the part of Claim 1 that says: "And to          10 provide autonomic deployment of the plurality of          11 image instances of the software applications on          12 the virtual machines." What does that mean to a          13 POSITA?  <b>14 A A POSITA would read the entire language</b>  <b>15 there because it goes on to say: "By causing the</b>  <b>16 plurality of image instances to be copied from the</b>  <b>17 image ^ of the software image repository to the</b>  <b>18 application node."</b>  <b>19 So the POSITA would understand that to</b>  <b>20 perform -- there is capability to perform</b>  <b>21 autonomic deployment of the software -- of the</b>  <b>22 image instances of the software application on the</b></p>
<p style="text-align: right;">42</p> <p><b>1 manager image instances and autonomic deployment</b>  <b>2 of the image instances of software applications,</b>  <b>3 and it's doing this by copying those instances</b>  <b>4 from the control node to the application nodes.</b>  <b>5 That is what is in the claim.</b>          6 Q The claim says that the control node          7 has -- the control node comprises the automation          8 infrastructure to provide autonomic deployment of          9 the plurality of image instances of the software          10 applications on the virtual machines, correct?  <b>11 A It says on the virtual machines, but it</b>  <b>12 goes on to say by copying the images from the</b>  <b>13 software repository to the application nodes, and</b>  <b>14 that is what autonomic deployment means here.</b>          15 Q But on the application nodes are the          16 virtual machines that are created by the virtual          17 machine manager, correct?  <b>18 A Again, I would say what is happening on</b>  <b>19 the application nodes is different from what is</b>  <b>20 happening on the control node. Control node is</b>  <b>21 performed -- has the capability to provide</b>  <b>22 autonomic deployment, and it does this by copying</b></p>	<p style="text-align: right;">44</p> <p><b>1 virtual machines because it does say that, and it</b>  <b>2 does this by causing the plurality of the images</b>  <b>3 to be copied from the image repository to</b>  <b>4 application nodes.</b>          5 Q So is it your opinion that the virtual          6 machines are on the application nodes, correct?  <b>7 A The virtual machines that are deployed by</b>  <b>8 the control node run on application nodes or</b>  <b>9 physical nodes, and we talked about an example</b>  <b>10 which was in Figure 24.</b>          11 Q Okay. And the plurality of image          12 instances of the software applications are          13 deployed onto the virtual machines that are on the          14 application nodes, correct?          15 MR. LIANG: Objection to form.          16 BY THE WITNESS:  <b>17 A So, again, this is only talking about the</b>  <b>18 capability. It's not talking about actual</b>  <b>19 deployment in this case, and the capability of</b>  <b>20 deploying the image instances of software</b>  <b>21 applications on virtual machines is done by</b>  <b>22 causing the plurality of image instances to be</b></p>

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<p>45</p> <p>1 <b>copied from the image repository to the</b>  2 <b>application nodes.</b>  3 MR. YOUNG: I think we've been going for a  4 little over an hour, an hour and seven minutes.  5 Do you want to take a break or do you want  6 to keep going, Dr. Shenoy?  7 THE WITNESS: A short five-minute break  8 would be good to take.  9 MR. YOUNG: Just to be consistent, why  10 don't we just do -- let's just come back at -- it  11 will be 11:15, your time, I think.  12 THE WITNESS: Okay. That would be good.  13 Thank you.  14 (A recess was had.)  15 BY MR. YOUNG:  16 Q Welcome back, Dr. Shenoy.  17 <b>A Thank you.</b>  18 Q As part of this inter partes review, the  19 Patent Trial and Appeal Board issued a decision  20 instituting this action.  21 Are you aware of that?  22 <b>A Yes, I am.</b></p>	<p>47</p> <p>1 Figure 24, starting on the bottom half of Page 4  2 and top half of Page 5; is that correct?  3 <b>A Yes. It's talking about Figure 24 on this</b>  4 <b>page.</b>  5 Q Do you agree with the board's description  6 of Figure 24?  7 <b>A It is describing Figure 24, and I</b>  8 <b>generally agree with what has been said with</b>  9 <b>regards to this figure by the board.</b>  10 Q I'm sorry. I might have misunderstood.  11 Can you say you did agree with the board's  12 description of Figure 24?  13 <b>A I did agree with it, yes. I said I did</b>  14 <b>agree with whatever has been described on these</b>  15 <b>two pages, whatever was said about it, but on</b>  16 <b>these pages whatever is said, I do agree with.</b>  17 Q So you agree that on the bottom of Page 4  18 where it says: "Virtual machine manager 402  19 executes on physical node 400 and hosts virtual  20 machines 404A through 404N," you agree with that  21 statement?  22 <b>A Yes, I do.</b></p>
<p>46</p> <p>1 Q Have you read the decision?  2 <b>A I have read it.</b>  3 MR. YOUNG: Alex, can you pull up -- I  4 think it was Document 27 in your list. It should  5 be labeled "PTAB Decision Trial Instituted  6 Paper 9."  7 (A certain document was marked Shenoy  8 Deposition Exhibit 2 for identification,  9 as of 10/27/2021.)  10 BY MR. YOUNG:  11 Q Dr. Shenoy, you're familiar with this  12 document that I've put up on the screen?  13 <b>A Yes. It's the institution decision from</b>  14 <b>PTAB.</b>  15 Q Do you have a paper copy of this decision  16 available to you?  17 <b>A Yes, I do.</b>  18 Q I'm looking at the bottom of Page 4 to the  19 top of Page 5, if you can get that available to  20 you. It's also on the screen.  21 <b>A Yes.</b>  22 Q Here, the board gives a description of</p>	<p>48</p> <p>1 Q And then you also agree, then, I take it,  2 that virtual machines 404 provide environments on  3 which guest operating systems execute as though  4 they were operating directly on a physical  5 computing platform?  6 <b>A That's a quote from the patent</b>  7 <b>specification, and it talks about it coming from</b>  8 <b>Column 33, Lines 2 through 6, yes, I agree with</b>  9 <b>that statement. It's in the specification.</b>  10 Q So you agree that virtual machines are  11 environments in which guest operating systems and  12 other applications execute in; is that correct?  13 MR. LIANG: Objection to form.  14 BY THE WITNESS:  15 <b>A So earlier we talked about what the patent</b>  16 <b>describes virtual machines. I explain that in my</b>  17 <b>declaration. It says during an explanation of</b>  18 <b>what virtual machines 404 do in the context of</b>  19 <b>Figure 24. The statement is not meant to be a</b>  20 <b>definition of a virtual machine.</b>  21 BY MR. YOUNG:  22 Q So are there virtual machines that are</p>

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<p style="text-align: right;">49</p> <p>1 described in the Sundar patent either in the</p> <p>2 specification or the claims that are different</p> <p>3 than board's description of virtual machines 404</p> <p>4 as set forth on Page 5 of their decision?</p> <p>5 <b>A So this sentence here that we just</b></p> <p>6 <b>discussed, where it says virtual machine 404</b></p> <p>7 <b>provide environments on which guest operating</b></p> <p>8 <b>systems execute as though they were operating</b></p> <p>9 <b>directly on a physical computing platform, that is</b></p> <p>10 <b>consistent with how a POSITA would understand what</b></p> <p>11 <b>virtual machines did at that time.</b></p> <p>12 Q You prepared a reply declaration in this</p> <p>13 IPR, correct?</p> <p>14 <b>A Yes, I did.</b></p> <p>15 MR. YOUNG: Alex, if you can please pull</p> <p>16 up Document 11. It should say "Reply</p> <p>17 Exhibit 1029."</p> <p>18 (A certain document was marked Shenoy</p> <p>19 Deposition Exhibit 3 for identification, as of</p> <p>20 10/27/2021.)</p> <p>21 BY MR. YOUNG:</p> <p>22 Q Dr. Shenoy, this looks like -- what I have</p>	<p style="text-align: right;">51</p> <p>1 <b>virtual machines.</b></p> <p>2 Q Do you believe that Claim 1 -- strike</p> <p>3 that.</p> <p>4 Is it your opinion that the software image</p> <p>5 repository and the control node as claimed in</p> <p>6 Claim 1 of the Sundar patent have the capability</p> <p>7 to perform this three-step process?</p> <p>8 MR. LIANG: Objection to form.</p> <p>9 BY THE WITNESS:</p> <p>10 <b>A So as I explain in my declaration, it's my</b></p> <p>11 <b>opinion that a POSITA would not have Claim 1 to</b></p> <p>12 <b>map onto this three-step process, but in my</b></p> <p>13 <b>declaration, starting at Paragraph 13, I said if</b></p> <p>14 <b>that proposed construction were to be adopted, the</b></p> <p>15 <b>prior art teaches it.</b></p> <p>16 <b>BY MR. YOUNG:</b></p> <p>17 Q We'll talk about the prior art in a</p> <p>18 moment. My question is -- and I apologize if I</p> <p>19 didn't understand your answer.</p> <p>20 But my question is: Is it your opinion</p> <p>21 that the software image repository and the control</p> <p>22 node as claimed in Claim 1 of the Sundar patent</p>
<p style="text-align: right;">50</p> <p>1 on the screen here appears to be a copy of your</p> <p>2 reply declaration in this matter, correct?</p> <p>3 <b>A Yes. This is the first page of my reply</b></p> <p>4 <b>declaration.</b></p> <p>5 Q So in Paragraph 13 of your reply</p> <p>6 declaration, it refers to PO's three-stage</p> <p>7 process. That's patent owner's three-stage</p> <p>8 process, correct?</p> <p>9 <b>A Yes. In Paragraph 13, I talk about the</b></p> <p>10 <b>three-stage process that the patent owner has</b></p> <p>11 <b>discussed in these proceedings.</b></p> <p>12 Q What is your understanding of patent</p> <p>13 owner's three-page process? What are the three</p> <p>14 stages?</p> <p>15 <b>A So my understanding is that patent owner</b></p> <p>16 <b>has indicated a three-step process where the</b></p> <p>17 <b>control node deploys an image instance of the</b></p> <p>18 <b>virtual machine manager, and then the virtual</b></p> <p>19 <b>machine manager supports virtual machines on those</b></p> <p>20 <b>nodes or provides virtual machines on those nodes,</b></p> <p>21 <b>and subsequently the control node deploys image</b></p> <p>22 <b>instances of software applications on those</b></p>	<p style="text-align: right;">52</p> <p>1 have to have the capability to implement the</p> <p>2 three-step process that you just described?</p> <p>3 MR. LIANG: Objection to form.</p> <p>4 BY THE WITNESS:</p> <p>5 <b>A So Claim 1 talks about capabilities of the</b></p> <p>6 <b>control node. We talked about that earlier. The</b></p> <p>7 <b>three-step process involves some steps that are</b></p> <p>8 <b>performed on the application nodes, specifically</b></p> <p>9 <b>to execute those image instances, and I've already</b></p> <p>10 <b>explained that Claim 1 does not require execution.</b></p> <p>11 <b>So there are aspects of the three-step</b></p> <p>12 <b>process which relate to the capability of the</b></p> <p>13 <b>image repository and the control node. Those are</b></p> <p>14 <b>certainly covered in Claim 1 but not actions that</b></p> <p>15 <b>are performed on the application nodes or actual</b></p> <p>16 <b>execution.</b></p> <p>17 <b>BY MR. YOUNG:</b></p> <p>18 Q Does the control node have the capability</p> <p>19 to autonomically deploy the plurality of image</p> <p>20 instances of the software applications in any</p> <p>21 manner other than on the virtual machines on the</p> <p>22 application nodes?</p>

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<p style="text-align: right;">53</p> <p>1 A So as we discussed this previously, if you 2 read that claim language fully, it talks about the 3 capability of autonomic deployment by causing the 4 plurality of image instances to be copied. So 5 that is what the claim is actually talking about. 6 It does have the capability to deploy the image 7 instances on the application nodes. 8 Q If I had a system that had the software 9 image repository that stored the two sets of 10 images, the images of the virtual machine manager 11 and the images of the software applications, and I 12 had a control node and the control node simply 13 copied the image instances of the virtual machine 14 manager and then copied the image instances of the 15 plurality of software applications, both of them 16 simultaneously just onto an application node, 17 would that system infringe Claim 1? 18 MR. LIANG: Objection to form. 19 BY THE WITNESS: 20 A There are lots of aspects to that 21 question. I would need to think about that 22 question carefully. You said simultaneous</p>	<p style="text-align: right;">55</p> <p>1 virtual machine manager and image instances of the 2 software applications to be copied over. And 3 those image instances are stored in the software 4 repository. 5 There are other things that have to happen 6 in the application node for autonomic deployment 7 to work, but Claim 1 is talking about the 8 capabilities of the control node and the software 9 image repository. 10 Q So are you saying that if certain things 11 of the application node don't happen, that the 12 autonomic deployment functionality of the control 13 node can't work? 14 MR. LIANG: Objection to form. 15 BY THE WITNESS: 16 A That's not what I said. I said the claim 17 is limited to those aspects of what capabilities 18 are in the control node. 19 BY MR. YOUNG: 20 Q And my question is with respect to the 21 control node, the capabilities of the control node 22 with respect to the autonomic deployment of the</p>
<p style="text-align: right;">54</p> <p>1 deployment and copying image instances 2 simultaneously, so I cannot answer that question 3 without putting a substantial amount of thought 4 into it, as to what assumptions are being made in 5 this hypothetical assumption that you just provided. 6 BY MR. YOUNG: 7 Q So at this stage, you're not able to 8 answer that question, correct? 9 A I don't fully understand the assumptions 10 that are being made when that hypothetical example 11 was specified, so I cannot answer it at the 12 moment. 13 Q Does the control node as claimed in 14 Claim 1 simply have to -- does it simply have to 15 copy the image instances of the virtual machine 16 manager and copy the image instances of the 17 plurality of software applications onto an 18 application node? Is that the only capability the 19 control mode has to have in Claim 1? 20 A Claim 1 is providing a capability of 21 autonomic deployment, and it provides autonomic 22 deployment by causing image instances of the</p>	<p style="text-align: right;">56</p> <p>1 plurality of image instances of the software 2 applications simply limited to copying those 3 images onto an application node, is that the only 4 functionality that the control node has with 5 respect to the image instances of the software 6 applications? 7 A As far as Claim 1 is concerned, it only 8 talks about autonomic deployment of the software 9 applications by causing the image instances to be 10 copied. 11 Q So when it says autonomic deployment of 12 the plurality of image instances of the software 13 applications on the virtual machines, that's not a 14 part of that copying functionality? 15 A So the copying functionality is the 16 capability that provides autonomic deployment of 17 the plurality of image instances of the virtual 18 machines. That is what the claim says. 19 Q You also -- in your reply declaration, you 20 also gave opinions with respect to Claim 19 of the 21 Sundar patent, correct? 22 A I have provided opinions on Claim 19 as</p>

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<p>57</p> <p>1 well, but there's a specific part of my reply dec</p> <p>2 that they are referred to that I'd like to know</p> <p>3 which aspect you're asking.</p> <p>4 Q I was just asking a foundation question.</p> <p>5 You're familiar with Claim 19, correct, of</p> <p>6 the Sundar patent?</p> <p>7 A I am, yes.</p> <p>8 Q That's a method claim, correct?</p> <p>9 A Claim 19 is a method claim.</p> <p>10 Q What's your understanding of the method</p> <p>11 claimed in Claim 19 of the Sundar patent?</p> <p>12 A So this method claim has four steps which</p> <p>13 involves storing a plurality of image instances of</p> <p>14 the virtual machine manager, storing a plurality</p> <p>15 of image instance of a plurality of software</p> <p>16 applications, and then there are two steps</p> <p>17 starting while executing a rules engine.</p> <p>18 Q You're executing a rules engine to perform</p> <p>19 certain operations, correct?</p> <p>20 A Executing the rules engine to perform</p> <p>21 operations of autonomic deployment.</p> <p>22 Q So the operations of autonomic deployment</p>	<p>59</p> <p>1 Q Okay. So in order to understand Claim 19,</p> <p>2 you looked at the figures in order to give meaning</p> <p>3 to the claim, correct?</p> <p>4 A I looked at the figures, and I looked at</p> <p>5 the specification.</p> <p>6 Q Okay. And you would do the same thing</p> <p>7 with Claim 1, correct?</p> <p>8 A I read the patent, the figures, the</p> <p>9 specification and the claims to understand what</p> <p>10 the claims meant.</p> <p>11 Q So with respect to Claim 19, you</p> <p>12 understand that executing a rules engine is on the</p> <p>13 control node because Figure 21 provides that</p> <p>14 example, correct?</p> <p>15 A In this case, the example that I just</p> <p>16 showed in Exhibit 21 does show the rules engine</p> <p>17 running on the control node.</p> <p>18 Q And with respect to the two limitations</p> <p>19 that talk about executing a rules engine, the</p> <p>20 execution of the rules engine causes the</p> <p>21 performance of autonomic deployment, correct?</p> <p>22 A The rules engine performs operations of</p>
<p>58</p> <p>1 are encompassed within Claim 19, correct?</p> <p>2 A The operations that are specified in the</p> <p>3 claim?</p> <p>4 Q Correct.</p> <p>5 A Autonomic deployments that are specified</p> <p>6 in the claim are encompassed in the claim.</p> <p>7 Q The point is that you have to do these</p> <p>8 deployment operations in order to perform</p> <p>9 Claim 19, correct?</p> <p>10 A You have to perform those operations from</p> <p>11 the perspective of the control node.</p> <p>12 Q Where is the term "control node" cited in</p> <p>13 Claim 19?</p> <p>14 A So the words control node don't appear in</p> <p>15 Claim 19. It does talk about executing a rules</p> <p>16 engine, and the rules engine executes on the</p> <p>17 control node.</p> <p>18 Q How do you know that?</p> <p>19 A So I point to Figure 21 of the Sundar</p> <p>20 patent which shows an example of a control node</p> <p>21 12, and it shows an applications rules engine 355</p> <p>22 that is shown on the control node.</p>	<p>60</p> <p>1 autonomic deployment in those instances.</p> <p>2 Q In the last limitation for Claim 19, it</p> <p>3 talks about performing operations to autonomically</p> <p>4 deploy the image instances of the software</p> <p>5 applications on the virtual machines, correct? Do</p> <p>6 you see that?</p> <p>7 A I do see that, yes.</p> <p>8 Q What virtual machines is it referring to</p> <p>9 in Column 38, Line 19?</p> <p>10 A It's talking about the virtual machines</p> <p>11 that the virtual machine manager is capable of</p> <p>12 creating.</p> <p>13 Q Okay. So you can't perform the last</p> <p>14 limitation of Claim 19 until those virtual</p> <p>15 machines are created by the virtual machine</p> <p>16 manager, correct?</p> <p>17 MR. LIANG: Objection to form.</p> <p>18 BY THE WITNESS:</p> <p>19 A Again, this method claim talks about steps</p> <p>20 that are performed which include storing a</p> <p>21 plurality of image instances of the virtual</p> <p>22 machine manager and software applications, and it</p>

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<p style="text-align: right;">61</p> <p>1 <b>talks about executing a rules engine to perform</b>  2 <b>certain autonomic deployment operations. These</b>  3 <b>are limited to what is happening where the rules</b>  4 <b>engine is running. What happens on the</b>  5 <b>application node is a different method.</b>  6 <b>BY MR. YOUNG:</b>  7 Q I think we've just discussed that with the  8 execution of the rules engine limitations that you  9 execute the rules engine to perform operations to  10 autonomically deploy, correct?  11 <b>A You perform -- you execute the rules</b>  12 <b>engine to perform operations to autonomically</b>  13 <b>deploy image instances.</b>  14 Q So with respect to the second set of  15 execution limitations, you can't execute a rules  16 engine to perform the operation to autonomically  17 deploy the image instances of the software  18 applications on the virtual machines until the  19 virtual machines are created, correct?  20 MR. LIANG: Objection to form.  21 BY THE WITNESS:  22 <b>A There's nothing here that says that</b></p>	<p style="text-align: right;">63</p> <p>1 executed at exactly the same time and still  2 satisfy the limitations of Claim 19?  3 <b>A So a POSITA would understand that</b>  4 <b>performing them by copying the image instances of</b>  5 <b>the virtual machine manager and then copying the</b>  6 <b>image instances of the software application would</b>  7 <b>be one way to do it. Can you do it by performing</b>  8 <b>them together or at the same time, I would need to</b>  9 <b>think about that. Certainly you can just --</b>  10 <b>executing the rules engine to perform autonomic</b>  11 <b>deployment is copying the image instances on the</b>  12 <b>virtual machine manager and the software</b>  13 <b>applications.</b>  14 Q So you don't have an opinion of whether or  15 not you could perform both execution steps at the  16 same time and still be covered by Claim 19,  17 correct? You don't have an opinion one way or the  18 other?  19 <b>A As I said, I'd need to think about whether</b>  20 <b>you could do them at the same time and still</b>  21 <b>satisfy Claim 19. I haven't thought about that</b>  22 <b>aspect and haven't said anything about that in my</b></p>
<p style="text-align: right;">62</p> <p>1 <b>executing the rules engine to perform the</b>  2 <b>operations has to happen only after the virtual</b>  3 <b>machines are created. It's simply talking about</b>  4 <b>deploying the image instances of the software</b>  5 <b>application by causing the image instances to be</b>  6 <b>copied to the application nodes.</b>  7 <b>BY MR. YOUNG:</b>  8 Q But it specifically says you have to  9 deploy, autonomically deploy the image instances  10 of the software applications on the virtual  11 machines by causing the image instances of the  12 software applications to be copied, correct?  13 <b>A That's what the claim element says.</b>  14 Q Okay. So is it your opinion that you  15 could do the execution -- the first execution step  16 and the second execution step at exactly the same  17 time?  18 <b>A I never said that there is any requirement</b>  19 <b>that those two steps are to be performed</b>  20 <b>simultaneously.</b>  21 Q That's not my question.  22 The question is could, could they be</p>	<p style="text-align: right;">64</p> <p>1 <b>declaration that I've given here.</b>  2 Q Okay. But I think you said that a POSITA  3 would understand that you would normally do the  4 first execution step related to the virtual  5 machine manager first, and then you would do the  6 execution step related to the software  7 applications second, correct?  8 <b>A Here you're talking about executing a</b>  9 <b>rules engine to perform operations, and one way to</b>  10 <b>do it would be to first perform the operations to</b>  11 <b>deploy the image instances of the virtual machine</b>  12 <b>manager and then perform the operations to deploy</b>  13 <b>the image instances of the software applications.</b>  14 Q Would there be any way to do it with  15 respect to Claim 19 other than executing the rules  16 engine to perform the operations related to the  17 virtual machine managers first and then performing  18 the execution step related to the software  19 applications?  20 <b>A So certainly as far as copying is</b>  21 <b>concerned, you can copy the image instances over</b>  22 <b>to temporary storage on application nodes and then</b></p>

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<p style="text-align: right;">65</p> <p>1 perform deployment steps on the application node.</p> <p>2 There are certainly ways to do it, but as I said,</p> <p>3 one way a POSITA would understand you could do it</p> <p>4 is to deploy the image instance of the virtual</p> <p>5 machine manager and then deploy the image</p> <p>6 instances of the software applications.</p> <p>7 Q Is that order of steps required by</p> <p>8 Claim 19?</p> <p>9 MR. LIANG: Objection to form.</p> <p>10 BY THE WITNESS:</p> <p>11 A I don't say anything about the order of</p> <p>12 these steps. What I can say is the storing steps</p> <p>13 have to happen before the deployment steps because</p> <p>14 you cannot deploy unless you've stored the image</p> <p>15 instances. Whether there is any way for the</p> <p>16 system to deploy by copying them out on a</p> <p>17 different order, I haven't said there is an order</p> <p>18 required. It's certainly possible you can copy</p> <p>19 them in any order you want if the deployment of</p> <p>20 the application node then performed the right</p> <p>21 actions.</p> <p>22 BY MR. YOUNG:</p>	<p style="text-align: right;">67</p> <p>1 machines" mean to you?</p> <p>2 A It means that the software applications</p> <p>3 have been deployed to run on the virtual machines.</p> <p>4 Q How are the virtual machines created?</p> <p>5 MR. LIANG: Objection to form.</p> <p>6 BY THE WITNESS:</p> <p>7 A There's nothing in Claim 19 that talks</p> <p>8 about the creation of virtual machines. It's</p> <p>9 talking about deployment of image instances by</p> <p>10 executing the rules engine, and we talked about</p> <p>11 what happens on the control node and what happens</p> <p>12 on the application nodes are two different things.</p> <p>13 BY MR. YOUNG:</p> <p>14 Q The term "virtual machines" does appear</p> <p>15 early on -- earlier in Claim 19, correct?</p> <p>16 A So Claim 19 starts with a method</p> <p>17 comprising there is a storing step for the virtual</p> <p>18 machine manager, and it talks about the virtual</p> <p>19 machine manager providing a plurality of virtual</p> <p>20 machines.</p> <p>21 Q And those plurality of virtual machines</p> <p>22 mentioned in the first storing step are the same</p>
<p style="text-align: right;">66</p> <p>1 Q I apologize. I misunderstood your</p> <p>2 testimony. But is it your opinion that you don't</p> <p>3 have -- strike that.</p> <p>4 Is it your testimony that you do not have</p> <p>5 an opinion one way or the other with respect to</p> <p>6 the ordering of steps of the last -- of the two</p> <p>7 execution steps of Claim 19?</p> <p>8 A So as I said, deploying the image instance</p> <p>9 of the virtual machine manager first and then</p> <p>10 deploying the image instances of the virtual</p> <p>11 machines is one way you can perform the method</p> <p>12 claim of Claim 19. Is that order required, I</p> <p>13 haven't opined on that and I would need to think</p> <p>14 more about that.</p> <p>15 Q Okay. In the second execution step, the</p> <p>16 phrase "on the virtual machines" is included in</p> <p>17 that limitation, correct?</p> <p>18 A So the claim term says: "Executing the</p> <p>19 rules engine to perform operations to</p> <p>20 autonomically deploy image instances of software</p> <p>21 applications on the virtual machines."</p> <p>22 Q What does the phrase "on the virtual</p>	<p style="text-align: right;">68</p> <p>1 virtual machines that are referred to in the</p> <p>2 second execution step, correct?</p> <p>3 A So the final executing the rules engine</p> <p>4 step talks about the virtual machines, and as I</p> <p>5 said in my declaration, talks about the virtual</p> <p>6 machines that the VMM is capable of creating.</p> <p>7 Q It doesn't say virtual machine manager</p> <p>8 capable of creating. It says virtual machine</p> <p>9 manager provide a plurality of virtual machines,</p> <p>10 correct?</p> <p>11 MR. LIANG: Objection to form.</p> <p>12 BY THE WITNESS:</p> <p>13 A The claim says wherein the image instance</p> <p>14 of the virtual machine manager provide a plurality</p> <p>15 of virtual machines. These are virtual machines</p> <p>16 that the virtual machine manager is providing.</p> <p>17 BY MR. YOUNG:</p> <p>18 Q Would you interpret Claim 19 differently</p> <p>19 if in Column 38, Line 19 the phrase "on the</p> <p>20 virtual machines" was not in Claim 19?</p> <p>21 A I would need to think about that some more</p> <p>22 as to what happens in the claim if you start</p>

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<p style="text-align: right;">69</p> <p><b>1 taking out words that are already in the claim. I</b></p> <p><b>2 cannot answer that question without putting some</b></p> <p><b>3 more thought into it.</b></p> <p>4 Q Well, then, in your opinion, what does the</p> <p>5 phrase on the virtual machines add to the claim,</p> <p>6 Claim 19?</p> <p>7 <b>A Only talking about the software</b></p> <p><b>8 applications that can run on the virtual machines.</b></p> <p>9 Q Did you say can run on the virtual</p> <p>10 machines or do run on the virtual machines?</p> <p>11 <b>A The claim is only talking about autonomic</b></p> <p><b>12 deployment. It's not requiring execution as</b></p> <p><b>13 involved in the invention. So eventually, when</b></p> <p><b>14 the virtual machine is booted, they will run on</b></p> <p><b>15 the virtual machine, but that's not an aspect of</b></p> <p><b>16 the claim here.</b></p> <p>17 Q Well, my question to you is: Would the</p> <p>18 last execution step of Claim 19 occur before the</p> <p>19 virtual machines were running on the application</p> <p>20 node?</p> <p>21 <b>A Again, this is asking what needs to happen</b></p> <p><b>22 on the application node for the control node to</b></p>	<p style="text-align: right;">71</p> <p>1 steps, correct, two storing steps and two</p> <p>2 execution steps, correct?</p> <p>3 <b>A That's correct, yes.</b></p> <p>4 Q My question is: Can you perform the last</p> <p>5 execution step before you have virtual machines on</p> <p>6 the application nodes?</p> <p>7 <b>A I can say that one way you can perform the</b></p> <p><b>8 last step is after you have deployed the image</b></p> <p><b>9 instances of the virtual machine manager. What</b></p> <p><b>10 else needs to happen on the application nodes is</b></p> <p><b>11 really not part of the claim. It almost sounds</b></p> <p><b>12 like an inherency argument, that it is inherent</b></p> <p><b>13 that when you do this, something has to happen,</b></p> <p><b>14 and I have not provided any opinions on that.</b></p> <p>15 Q I didn't say anything about inherency. I</p> <p>16 simply said can you perform the last step of</p> <p>17 Claim 19 before there are virtual machines on the</p> <p>18 application nodes, yes or no?</p> <p>19 <b>A It's certainly possible to copy the image</b></p> <p><b>20 instances and then register the virtual machine</b></p> <p><b>21 with the virtual machine manager. In fact, the</b></p> <p><b>22 Khandekar patent actually describes such a</b></p>
<p style="text-align: right;">70</p> <p><b>1 perform its method claim. This method claim is</b></p> <p><b>2 only limited to steps that are talking about</b></p> <p><b>3 storing a plurality of image instances and</b></p> <p><b>4 executing a rules engine. And that is how you</b></p> <p><b>5 interpret this claim.</b></p> <p>6 Q Yes. So my question is: When you're</p> <p>7 trying to perform the last element of Claim 19,</p> <p>8 you're trying to perform that last execution step,</p> <p>9 can that happen before the virtual machines are</p> <p>10 running on the application node?</p> <p>11 <b>A The virtual machines are not running</b></p> <p><b>12 because they aren't even deployed in the software.</b></p> <p>13 Q So when can you possibly perform the last</p> <p>14 execution step of Claim 19?</p> <p>15 <b>A I don't understand the question.</b></p> <p>16 Q You agree with me that Claim 19 is a</p> <p>17 method claim, correct?</p> <p>18 <b>A Yes, it is a method claim.</b></p> <p>19 Q And method claims have steps to them,</p> <p>20 right?</p> <p>21 <b>A They do have steps.</b></p> <p>22 Q This particular method claim has four</p>	<p style="text-align: right;">72</p> <p>1 process, so you can do that.</p> <p>2 Q Dr. Shenoy, I'm not talking about the</p> <p>3 Khandekar patent. I'm talking about the Sundar</p> <p>4 patent, and in the Sundar patent, I'm talking</p> <p>5 about Claim 19. It's a very simple question.</p> <p>6 Can you perform the last execution step</p> <p>7 before there are virtual machines on the</p> <p>8 application nodes, yes or no?</p> <p>9 <b>A I can see a way to do this and first copy</b></p> <p><b>10 the application instances or image instances,</b></p> <p><b>11 rather, of software applications and then create</b></p> <p><b>12 the virtual machines on the virtual machine</b></p> <p><b>13 manager. I don't think the claim is saying</b></p> <p><b>14 anything about what other things have to happen on</b></p> <p><b>15 the application.</b></p> <p>16 Q How would you do that?</p> <p>17 <b>A That is exactly what I said. This shows</b></p> <p><b>18 how you can do it with the software, which is</b></p> <p><b>19 exactly the software that is used in this patent.</b></p> <p><b>20 You copy the image instances over. You would then</b></p> <p><b>21 register the VM with the virtual machine manager</b></p> <p><b>22 and then you would boot the VM, and that could</b></p>

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<p style="text-align: right;">73</p> <p>1 <b>cause the software to be installed onto the</b>  2 <b>virtual machines. It has a discussion of that in</b>  3 <b>the Sundar patent that shows the image software is</b>  4 <b>capable of doing that.</b>  5 Q Where in the Sundar patent does it say  6 that you copy the image instances of the software  7 applications onto the application nodes before a  8 virtual machine exists on the application nodes?  9 Where in the Sundar patent does it say that?  10 A So if you go to Column 21 of the Sundar  11 patent, and I'm looking at Line 50, and this is  12 talking about the provisioning engine that is  13 trying to provision or deploy virtual machines and  14 specifically Step 8 is a long process, but if you  15 look at Step 8, it says copy the VM's configure  16 files and disk files to the host that is deploying  17 the image instances to the host. And Step 9 says  18 call the API and the host to register this new VM.  19 So it's actually telling the virtual machine  20 manager to create a new VM in Step 9 after Step 8  21 has been performed.  22 Q I apologize, Dr. Shenoy. What column are</p>	<p style="text-align: right;">75</p> <p>1 Q Exactly. And my question was: Where does  2 it talk about that in Sundar? Where does it talk  3 about in Sundar that an image instance of a  4 software application is copied onto an application  5 node before a virtual machine exists on the  6 application?  7 A It does not – the example I just provided  8 is not mentioned in the specification of the  9 Sundar patent, but I again go back to the claim.  10 The claim is only talking about executing rules  11 engine to perform copying steps. It does not talk  12 about anything that's happening on the application  13 nodes.  14 Q Do you think a POSITA would try to  15 understand the scope of Claim 19 by reading the  16 specification of the Sundar patent?  17 A A POSITA would try to understand the scope  18 of the claim by reading the specification of the  19 Sundar patent and understanding what the art was  20 at that time, and the art certainly involved the  21 universe provisioning server, which is mentioned  22 specifically in the Sundar patent, and it had</p>
<p style="text-align: right;">74</p> <p>1 you referring to?  2 A Column 21 of the Sundar patent – excuse  3 me, of the Khandekar patent.  4 Q Dr. Shenoy, my question is not about the  5 Khandekar patent. My question was about the  6 Sundar patent. We haven't talked about Khandekar  7 yet. We'll get there.  8 Sundar patent. Where in the Sundar patent  9 does it talk about deploying or copying the image  10 instances of the software applications before a  11 virtual machine is created on the application  12 node?  13 A Again, I explained this previously.  14 Claim 19 does not talk about creating the virtual  15 machine. It's simply talking about copying image  16 instances. You are asking what other steps have  17 to be performed for this step to be successful, is  18 there an order, and I explained that a POSITA  19 would understand that there are other ways to do  20 it that don't require an order where you are to  21 create the virtual machine before copying the  22 image instances of the software applications.</p>	<p style="text-align: right;">76</p> <p>1 <b>capabilities that allowed you to deploy</b>  2 <b>application, and we spoke about that as well.</b>  3 Q Stop me if this is not right, but I think  4 I'm trying to summarize your opinions on this  5 matter.  6 I think what you're saying is that there's  7 nothing in Sundar that gives an example of where  8 you would copy an image instance of a software  9 application onto an application node before  10 there's a virtual machine created; is that true?  11 MR. LIANG: Objection to form.  12 BY THE WITNESS:  13 A So there's no express language that  14 appears in the examples that say you have to do it  15 in one order or the other. I just explained what  16 a POSITA would have understood is possible.  17 BY MR. YOUNG:  18 Q Do you believe that the claims of the  19 Sundar patent cover the examples described in the  20 specification of the Sundar patent?  21 A They would cover the examples in the  22 specification, but they're limited to what is in</p>

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<p style="text-align: right;">77</p> <p><b>1 the claim. I'm not trying to bring in aspects of</b></p> <p><b>2 the examples that are not in the claim.</b></p> <p>3 Q But the phrase "on the virtual machines"</p> <p>4 is in both Claim 1 and Claim 19, correct?</p> <p><b>5 A We went over this previously. The claim</b></p> <p><b>6 does include the wording on the virtual machine.</b></p> <p><b>7 I explained what that meant to a POSITA.</b></p> <p>8 Q And you understand, I believe, that</p> <p>9 Claim 1 and Claim 19 have a similar scope in the</p> <p>10 sense that you rely on the same evidence with</p> <p>11 respect to the prior art to cover both Claim 1 and</p> <p>12 Claim 19, correct?</p> <p><b>13 A So I provided an analysis of both Claim 1</b></p> <p><b>14 and Claim 19 with regards to prior art, and I</b></p> <p><b>15 discussed Claim 19 used some of the material that</b></p> <p><b>16 I used in Claim 1 to explain how the prior art</b></p> <p><b>17 taught this claim element. Any differences in</b></p> <p><b>18 wording I explained as well in my declaration,</b></p> <p><b>19 between Claim 1 and Claim 19.</b></p> <p>20 Q Do you think that there's any material</p> <p>21 differences in wording between Claim 1 and</p> <p>22 Claim 19 of the Sundar patent?</p>	<p style="text-align: right;">79</p> <p>1 described somewhere, anywhere in the Sundar</p> <p>2 patent?</p> <p><b>3 A The steps in the three-step process are</b></p> <p><b>4 described in the specification, but they're not</b></p> <p><b>5 referred to as a three-step process.</b></p> <p>6 Q How are they referred to in the Sundar</p> <p>7 patent?</p> <p><b>8 A So Figure 27A and 27B depict flowcharts of</b></p> <p><b>9 several steps. There are more than three steps</b></p> <p><b>10 when you put them together, and the three-step</b></p> <p><b>11 process that we are discussing here are some of</b></p> <p><b>12 those steps, not all of them.</b></p> <p>13 Q Do you believe that the three-step</p> <p>14 process -- what patent owner describes the</p> <p>15 three-step process is described in the Sundar</p> <p>16 patent but not claimed in Claim 1 or Claim 19 of</p> <p>17 the Sundar patent?</p> <p><b>18 A So, again, the three-step process that has</b></p> <p><b>19 been articulated is present as some of the steps</b></p> <p><b>20 in Figure 27 but not all of them, Claims 1 and 19</b></p> <p><b>21 talk about capabilities. The three-step process</b></p> <p><b>22 also involved actions or execution.</b></p>
<p style="text-align: right;">78</p> <p><b>1 A I don't know whether the word "material"</b></p> <p><b>2 means anything legal, but I will say as we</b></p> <p><b>3 discussed earlier, the words "control node" don't</b></p> <p><b>4 appear in the method Claim 19, neither does the</b></p> <p><b>5 term "software image repository."</b></p> <p>6 Q Earlier you, in this hour -- you described</p> <p>7 what you referred to as -- in your reply</p> <p>8 declaration as the patent owner's three-step</p> <p>9 process, correct?</p> <p><b>10 A Yes, I did.</b></p> <p>11 Q Do you believe that the three-step</p> <p>12 process, the patent owner's three-step process, is</p> <p>13 described in the specification of the Sundar</p> <p>14 patent?</p> <p><b>15 A So the three-step process that has been</b></p> <p><b>16 articulated by Broadcom's expert is present in</b></p> <p><b>17 Figures 27A and 27B, but I'll say that those</b></p> <p><b>18 figures also are other steps that are not in the</b></p> <p><b>19 three-step process.</b></p> <p>20 Q My question is a little simpler, and I</p> <p>21 think you answered it.</p> <p>22 Is the patent owner's three-step process</p>	<p style="text-align: right;">80</p> <p>1 Q Are any of the steps of the three-step</p> <p>2 process described by patent owner claimed as part</p> <p>3 of Claim 19?</p> <p>4 MR. LIANG: Objection to form.</p> <p>5 BY THE WITNESS:</p> <p><b>6 A The capabilities of those processes are</b></p> <p><b>7 present. As I said, the actual execution of the</b></p> <p><b>8 virtual machine manager is not in Claim 19.</b></p> <p><b>9 BY MR. YOUNG:</b></p> <p>10 Q Okay. So do you believe that Step 1 and</p> <p>11 Step 3 of the patent owner's three-step process is</p> <p>12 described in Claim 19?</p> <p>13 MR. LIANG: Objection to form.</p> <p>14 BY THE WITNESS:</p> <p><b>15 A So Claim 19 talks about executing a rules</b></p> <p><b>16 engine to perform autonomic deployment of the</b></p> <p><b>17 virtual machine manager and, again, executing the</b></p> <p><b>18 rules engine to perform autonomic deployment of</b></p> <p><b>19 image instance of software applications.</b></p> <p><b>20 The three-step process does not talk about</b></p> <p><b>21 any rules engine. It's simply talking about</b></p> <p><b>22 autonomic deployment of the virtual machine</b></p>

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<p style="text-align: right;">81</p> <p><b>1 manager and the software application.</b></p> <p><b>2 BY MR. YOUNG:</b></p> <p>3 Q But Claim 19 talks about that. It talks</p> <p>4 about it with a specific reference to a rules</p> <p>5 engine, but it definitely talks about deploying</p> <p>6 both the image instances of the virtual machine</p> <p>7 manager and the image instances of the software</p> <p>8 applications, correct?</p> <p>9 MR. LIANG: Objection to form.</p> <p>10 BY THE WITNESS:</p> <p><b>11 A As I said, Claim 19 talks about autonomic</b></p> <p><b>12 deployment but also talks about the rules engine.</b></p> <p><b>13 What I was saying is the three-step process does</b></p> <p><b>14 not talk about the rules engine when it talks</b></p> <p><b>15 about autonomic deployment.</b></p> <p><b>16 BY MR. YOUNG:</b></p> <p>17 Q So the autonomic -- I'll back up.</p> <p>18 If you can repeat to me your understanding</p> <p>19 of the patent owner's three-step process, please.</p> <p><b>20 A So I'm referring to the patent owner's</b></p> <p><b>21 expert declaration in describing the three-step</b></p> <p><b>22 process, and I'm referring specifically now to</b></p>	<p style="text-align: right;">83</p> <p>1 correct?</p> <p><b>2 A It's described in the context of executing</b></p> <p><b>3 the rules engine.</b></p> <p>4 Q Now, Step 2, what is Step 2 of the</p> <p>5 three-step process?</p> <p><b>6 A So here in Paragraph 68, it says that the</b></p> <p><b>7 virtual machine manager supports the virtual</b></p> <p><b>8 machines onto nodes. It provides virtual machines</b></p> <p><b>9 onto nodes.</b></p> <p>10 Q Is that covered in Claim 19?</p> <p><b>11 A So if that means that the virtual machine</b></p> <p><b>12 manager has to execute on the application nodes,</b></p> <p><b>13 as we've been discussing previously, that's an</b></p> <p><b>14 operation that happens on the application node,</b></p> <p><b>15 and that is not covered by Claim 19.</b></p> <p>16 Q But Claim 19 does discuss having virtual</p> <p>17 machines on the application nodes, correct?</p> <p>18 MR. LIANG: Objection to form.</p> <p>19 BY THE WITNESS:</p> <p><b>20 A It talks about executing the rules engine</b></p> <p><b>21 to perform operations to autonomic deploy image</b></p> <p><b>22 instances of the software applications on virtual</b></p>
<p style="text-align: right;">82</p> <p><b>1 Paragraph 68 in the declaration. It describes the</b></p> <p><b>2 three steps.</b></p> <p>3 And it says in Step 1, you begin the</p> <p>4 deployment process, and it says the control node</p> <p>5 deploys an image instance of the virtual machine</p> <p>6 manager to a node.</p> <p>7 Q Is that described in Claim 19?</p> <p><b>8 A So Claim 19 talks about executing a rules</b></p> <p><b>9 engine to perform operations to autonomic deploy</b></p> <p><b>10 image instances of the virtual machine manager on</b></p> <p><b>11 the application nodes.</b></p> <p>12 Q So do you think that describes Step 1 of</p> <p>13 the three-step process or no?</p> <p><b>14 A The three-step process -- Step 1 of the</b></p> <p><b>15 three-step process is talking about deployment of</b></p> <p><b>16 the image instance of the virtual machine manager</b></p> <p><b>17 on the application node that is performed by</b></p> <p><b>18 executing the rules engine in Claim 19, the</b></p> <p><b>19 operations.</b></p> <p>20 Q I'm not trying to put words in your mouth,</p> <p>21 but I think you just said that Step 1 of the</p> <p>22 three-step process is described in Claim 19,</p>	<p style="text-align: right;">84</p> <p><b>1 machines.</b></p> <p><b>2 BY MR. YOUNG:</b></p> <p>3 Q So you think that describes something</p> <p>4 different than Step 2 of the three-step process?</p> <p><b>5 A As I said, Step 2, if it's referring to</b></p> <p><b>6 executing the virtual machine manager that's not</b></p> <p><b>7 mentioned here when we're deploying the image</b></p> <p><b>8 instances of software applications.</b></p> <p>9 Q What is Step 3 of the three-step process?</p> <p><b>10 A Step 3 says subsequently, control node may</b></p> <p><b>11 deploy an image instance of virtual disk image</b></p> <p><b>12 files to an unallocated node.</b></p> <p><b>13 Step 3 says -- and I'm reading from</b></p> <p><b>14 Paragraph 68 of the patent owner's expert's</b></p> <p><b>15 declaration. It says: "Subsequently, control</b></p> <p><b>16 node will deploy an image instance of a virtual</b></p> <p><b>17 disk image file in one of the new unallocated</b></p> <p><b>18 nodes."</b></p> <p>19 (Reporter clarification.)</p> <p>20 BY MR. YOUNG:</p> <p>21 Q Just give me one second.</p> <p>22 So you're looking at -- if you could look</p>

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<p style="text-align: right;">85</p> <p>1 at Paragraph 67 of Dr. Rosenblum's declaration.  2 Do you see that?  3 <b>A I was looking at Paragraph 68.</b>  4 Q Can you look at Paragraph 67.  5 <b>A Sure.</b>  6 Q Are you there?  7 <b>A Yes, I am.</b>  8 Q Do you see at the bottom of Page 29 where  9 it says "finally," and at the end of that sentence  10 it has parenthetical Step 3?  11 <b>A Yes.</b>  12 Q Can you read that sentence for me, please.  13 <b>A Paragraph 67 of the declaration has the</b>  14 <b>sentence that says: "Finally, only when the</b>  15 <b>virtual machine manager has been provided can an</b>  16 <b>image instance of a software application be</b>  17 <b>deployed to the virtual machine."</b>  18 Q I think you said finally only when the  19 virtual machine manager --  20 <b>A I'll repeat the sentence because I made a</b>  21 <b>mistake.</b>  22 The sentence says: "Finally, only when</p>	<p style="text-align: right;">87</p> <p>1 Q Claim 19 says executing the rules engine  2 to perform operations to autonomically deploy,  3 correct?  4 MR. LIANG: Objection.  5 BY MR. YOUNG:  6 Q That's what it says, correct?  7 <b>A The claim terms as executing the rules</b>  8 <b>engine to perform operations to autonomically</b>  9 <b>deploy the image instances of the software</b>  10 <b>application.</b>  11 Q So you're deploying the image instances of  12 the software applications and you're deploying  13 them on the virtual machines, correct?  14 MR. LIANG: Objection.  15 BY THE WITNESS:  16 <b>A You deploy the image instances of the</b>  17 <b>software applications on the virtual machines by</b>  18 <b>causing the image instances of the software</b>  19 <b>applications to be copied on the application</b>  20 <b>nodes.</b>  21 Q So it's your opinion that that limitation  22 is something different than what you just read as</p>
<p style="text-align: right;">86</p> <p>1 the virtual machine has been provided can an image  2 instance of a software application be deployed to  3 the virtual machine."  4 Q Do you believe that step is covered by  5 Claim 19 of the Sundar patent?  6 MR. LIANG: Objection to form.  7 BY THE WITNESS:  8 <b>A No, I don't.</b>  9 <b>BY MR. YOUNG:</b>  10 Q Why is that?  11 <b>A Because it's saying that you have to have</b>  12 <b>the virtual machine running in order for the image</b>  13 <b>instance to be deployed, and I already mentioned</b>  14 <b>that you're talking about executing the rules</b>  15 <b>engine to perform operations, and this happens in</b>  16 <b>the control nodes.</b>  17 Q I think we also established in Claim 19  18 that the deployment operations have to occur,  19 correct? Didn't we just establish that a few  20 minutes ago?  21 <b>A The deployment operations are occurring</b>  22 <b>for executing the rules engine.</b></p>	<p style="text-align: right;">88</p> <p>1 Step 3 of the three-step deployment process in  2 Dr. Rosenblum's declaration, correct? You think  3 they're two different things?  4 <b>A Dr. Rosenblum's declaration says only when</b>  5 <b>the virtual machine has been provided can the step</b>  6 <b>occur, and I am disagreeing that there is any</b>  7 <b>requirement of what has to happen on the</b>  8 <b>application node for the third claim to work.</b>  9 MR. YOUNG: Let's take a break. We've  10 been on the record I'm not sure how long. And  11 let's -- I don't know. It should be 12:25, your  12 time. Let's go to, I don't know, 12:35. Does  13 that work?  14 THE WITNESS: That should be fine, yes.  15 (A recess was had.)  16 MR. YOUNG: Let's go back on the record.  17 Alex, can you please pull up what was already  18 marked as Exhibit 3, which was Dr. Shenoy's reply  19 declaration, please.  20 BY MR. YOUNG:  21 Q Dr. Shenoy, we have up on the screen a  22 portion of your reply declaration in this matter.</p>

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<p>89</p> <p>1 Do you see that?</p> <p>2 <b>A Yes, I do.</b></p> <p>3 Q And one of your opinions in this matter is</p> <p>4 that the Khandekar reference by itself discloses</p> <p>5 the patent owner's three-step deployment process;</p> <p>6 is that correct?</p> <p>7 <b>A Yes. I have explained that starting at</b></p> <p>8 <b>Paragraph 13 in my declaration, and it goes on</b></p> <p>9 <b>through Paragraph 19.</b></p> <p>10 Q So in Paragraph 19 is a summary of your</p> <p>11 opinion, correct, on this issue?</p> <p>12 <b>A Yes.</b></p> <p>13 Q And Paragraph 19 says: "In summary, a</p> <p>14 POSITA would have found it obvious from</p> <p>15 Khandekar's teachings to deploy VMM images to</p> <p>16 hosts, execute the VMM images and then deploy and</p> <p>17 execute VMs on hosts."</p> <p>18 Is that correct?</p> <p>19 <b>A Yes, that is correct. That's what I say</b></p> <p>20 <b>in that paragraph.</b></p> <p>21 Q When you say "execute VMs," do you mean</p> <p>22 virtual machines?</p>	<p>91</p> <p>1 on hosts, you believe that means the same thing as</p> <p>2 the patent owner's three-step deployment process?</p> <p>3 <b>A So this summary sentence wasn't meant for</b></p> <p>4 <b>each set of words to refer to a particular step</b></p> <p>5 <b>that has been articulated in the three-step</b></p> <p>6 <b>process. It's simply summarizing that performing</b></p> <p>7 <b>all of these actions, the three-step process that</b></p> <p>8 <b>has been articulated is taught by the Khandekar</b></p> <p>9 <b>reference, and a POSITA would have found it</b></p> <p>10 <b>obvious to perform those steps.</b></p> <p>11 Q But this summary sentence describes three</p> <p>12 steps, correct?</p> <p>13 <b>A It talks about teachings to deploy VM</b></p> <p>14 <b>images to host, talks about executing VMM images,</b></p> <p>15 <b>talks about deploying and executing VMs.</b></p> <p>16 Q And that's not a summary of the three-step</p> <p>17 deployment process as you understand it?</p> <p>18 <b>A Those are all of the steps that are also</b></p> <p>19 <b>described in the three-step process. The</b></p> <p>20 <b>three-step process that has been articulated</b></p> <p>21 <b>specifically says that the virtual machine manager</b></p> <p>22 <b>has to execute and provide the virtual machines</b></p>
<p>90</p> <p>1 <b>A I do mean virtual machines, yes.</b></p> <p>2 Q Do you mean the same virtual machines --</p> <p>3 let me say it this way.</p> <p>4 When you say "VMs" in Paragraph 19, does</p> <p>5 that have the same meaning as the term "virtual</p> <p>6 machine" in the Sundar patent?</p> <p>7 <b>A Yes, it does.</b></p> <p>8 Q So I believe we established earlier that</p> <p>9 the third step of the patent owner's three-step</p> <p>10 deployment process involves deploying image</p> <p>11 instances of software applications onto virtual</p> <p>12 machines; is that correct?</p> <p>13 MR. LIANG: Objection to form.</p> <p>14 BY THE WITNESS:</p> <p>15 <b>A So going back to Paragraph 67 of</b></p> <p>16 <b>Dr. Rosenblum's declaration, we read Step 3 that</b></p> <p>17 <b>was articulated there. I said only when the</b></p> <p>18 <b>virtual machine has been provided can an image</b></p> <p>19 <b>instance of the software application be deployed</b></p> <p>20 <b>through that virtual machine. So that's the</b></p> <p>21 <b>Step 3 that I have used in forming this opinion.</b></p> <p>22 Q When you say then deploy and execute VMs</p>	<p>92</p> <p>1 <b>and the software applications and deploy all those</b></p> <p>2 <b>virtual machines.</b></p> <p>3 Q So my question is: Where in the</p> <p>4 Paragraph 19 does it talk about the image</p> <p>5 instances of the software applications?</p> <p>6 <b>A So if you look at the previous paragraphs,</b></p> <p>7 <b>it talks about deploying image instances of</b></p> <p>8 <b>software applications, and this is simply</b></p> <p>9 <b>summarizing the three-step process. The word</b></p> <p>10 <b>"software applications" or "image instances of</b></p> <p>11 <b>software applications" doesn't appear in that</b></p> <p>12 <b>paragraph means that a POSITA would have found it</b></p> <p>13 <b>obvious that Khandekar teaches the three-step</b></p> <p>14 <b>process. That is what I meant to say there.</b></p> <p>15 Q So when it says execute VMs on hosts, when</p> <p>16 you say VMs, does that include image instances of</p> <p>17 software applications?</p> <p>18 <b>A So in that case, you're executing the</b></p> <p>19 <b>image instances of software applications on the VM</b></p> <p>20 <b>after their deployment.</b></p> <p>21 Q And that's encompassed within the term</p> <p>22 "VM"; is that correct?</p>

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<p style="text-align: right;">93</p> <p>1 A So, again, that's what this paragraph is  2 meant to say. That doesn't mean that I have used  3 a different definition of a VM or anything like  4 that there. I was just summarizing what a POSITA  5 would have understood and, of course, the claim --  6 Claim 1 and 19 in the Sundar patent used specific  7 language. I was replicating that language here.  8 Q In your Paragraph 19, where it says  9 "execute VMM images," do you see that?  10 A Yes, I do.  11 Q What's the significance of execute VMM  12 images as you stated that in Paragraph 19 of your  13 reply declaration?  14 A So, again, if you look at that discussion  15 starting from Paragraph 13 through 18, which is  16 then summarizing 19, what is happening is  17 executing the VMM images causes the virtual  18 machine manager to run on an application node,  19 execute on an application node.  20 Q What happens when the VMM runs on an  21 application node?  22 A So when it executes on the application</p>	<p style="text-align: right;">95</p> <p>1 instance of the software application on the VM.  2 And when I say "execute," I mean execute the image  3 instances of the software applications on the VM.  4 Q Is a virtual machine and a virtual machine  5 image two different things?  6 A So I've explained that is right in my  7 declaration. A virtual machine image is different  8 from a virtual machine. I've also explained that  9 Khandekar sometimes uses the shorthand when he  10 says VM, it's referring to the VM images, and  11 depending on the context, sometimes the VM means  12 the virtual machine itself.  13 Q Khandekar discloses a provisioning server,  14 correct?  15 A Yes, there is a provisioning server that  16 is discussed in the Khandekar patent.  17 Q You have opined the provisioning server is  18 a type of software image repository, correct, as  19 that claim is used in the Sundar patent?  20 A I have mentioned in my declaration that a  21 provisioning server is a type of software imaging  22 repository.</p>
<p style="text-align: right;">94</p> <p>1 nodes, it now has the ability to create and  2 execute virtual machine images -- create virtual  3 machines and execute virtual machine images.  4 Excuse me.  5 Q I might have misunderstood.  6 But what's the difference between creating  7 a virtual machine and executing virtual machine  8 images?  9 A So in this case, creating the virtual  10 machine is Step 2, which is providing the virtual  11 machine, and what I was referring to executing the  12 virtual machine images is what is referred to in  13 Step 3 as an instance of a software application is  14 deployed onto that virtual machine.  15 Q So when you say -- I'm not trying to put  16 words in your mouth, so stop me if this is not  17 right.  18 But when you say execute the VMs, you're  19 talking about executing the image instances of the  20 software applications; is that correct?  21 A Yes. So there's a deploy and execute.  22 When I say "deploy," I mean deploy the image</p>	<p style="text-align: right;">96</p> <p>1 Q You say that Khandekar by itself teaches  2 storing images of a VMM in the provisioning  3 server, correct?  4 A In this ground one, I have said that  5 Khandekar teaches or suggests storing images on  6 the virtual machine managers in the provisioning  7 server.  8 Q What specific parts of the Khandekar  9 reference do you rely on for that opinion?  10 A There was teachings about VMMs in multiple  11 places in the Khandekar patent. One of the places  12 that have used the teachings appear in Column 13,  13 and this is the paragraph that starts at Line 17  14 and goes on through Line 44.  15 Q Okay. In that section in Column 13 that  16 you just referred to, is there any discussion of  17 VMM image instances in that paragraph?  18 A The words "VMM image instances" don't  19 appear in that paragraph, but I've explained that  20 the teachings made it obvious to a POSITA that you  21 can install -- store and install VMM images.  22 Q Does the term "VMM image instance" appear</p>

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<p style="text-align: right;">97</p> <p>1 anywhere in the Khandekar reference?</p> <p>2 <b>A I don't recall it using the term VMM image</b></p> <p>3 <b>instance, but as I've said, the teachings are</b></p> <p>4 <b>there, and a POSITA would have found it obvious</b></p> <p>5 <b>that you can store VMM image instances in the</b></p> <p>6 <b>image repository.</b></p> <p>7 Q In Column 13, Line 19, it says: "In the</p> <p>8 preferred embodiment of the invention, a VMM is</p> <p>9 already preinstalled on each host 1000, 1001 so as</p> <p>10 to ensure compatibility and proper configuration."</p> <p>11 <b>A What line number are we talking about?</b></p> <p>12 Q Column 13, Line 19.</p> <p>13 <b>A Yes, it does talk about preinstalling</b></p> <p>14 <b>VMMs. It also talks about installing the VMM and</b></p> <p>15 <b>the VM is installed.</b></p> <p>16 Q Why do you believe it says the preferred</p> <p>17 embodiment is to preinstall the VMM on the host?</p> <p>18 <b>A There are reasons you may want to do the</b></p> <p>19 <b>preinstallation, and there are reasons you may not</b></p> <p>20 <b>want to do it that way. One of the reasons I can</b></p> <p>21 <b>think of is if you're preinstalling the VMM,</b></p> <p>22 <b>deploying the VM can be faster because you don't</b></p>	<p style="text-align: right;">99</p> <p>1 <b>preinstallation. It's simply saying that you</b></p> <p>2 <b>should preinstall the VM in that embodiment, so</b></p> <p>3 <b>you could do it in either way.</b></p> <p>4 Q Then in Line 25, in Column 13, it says:</p> <p>5 "It would also be possible, however, for the</p> <p>6 corresponding VMM to be included along with the</p> <p>7 staged VM as long as the characteristics of the</p> <p>8 host on which the VM is to be installed are</p> <p>9 known."</p> <p>10 Is that correct?</p> <p>11 <b>A Yes. That is what is mentioned in that</b></p> <p>12 <b>sentence.</b></p> <p>13 Q And then what would it mean to a POSITA to</p> <p>14 say that the VMM would be included along with each</p> <p>15 staged VM? What does that mean?</p> <p>16 <b>A So this is referring to the case where you</b></p> <p>17 <b>have not preinstalled the VMM on the host. So in</b></p> <p>18 <b>this case, you have to have a VMM on that host in</b></p> <p>19 <b>order to then subsequently install a VM.</b></p> <p>20 <b>So you are performing those steps as part</b></p> <p>21 <b>of the automated deployment that you would include</b></p> <p>22 <b>a virtual machine manager image and a staged VM</b></p>
<p style="text-align: right;">98</p> <p>1 <b>have to perform Step 1 of that three-step process.</b></p> <p>2 <b>It's already performed as a preinstallation step.</b></p> <p>3 Q What does it mean to a person of ordinary</p> <p>4 skill to mean preinstall? What does that mean?</p> <p>5 <b>A So preinstall, as it's used in this</b></p> <p>6 <b>sentence here, simply means that it's already</b></p> <p>7 <b>installed on the host. You don't have to perform</b></p> <p>8 <b>that step again.</b></p> <p>9 Q And how would a person of ordinary skill</p> <p>10 install a VMM on a host?</p> <p>11 <b>A So there are multiple ways you could</b></p> <p>12 <b>install a VMM. There is a manual installation</b></p> <p>13 <b>process where you would use a CD or a DVD</b></p> <p>14 <b>containing the VMM software, and you would install</b></p> <p>15 <b>it. And then there's an automated process, which</b></p> <p>16 <b>is what we've been discussing about here, where</b></p> <p>17 <b>you take an image and copy it to the host and then</b></p> <p>18 <b>install it.</b></p> <p>19 Q And you think a person of ordinary skill</p> <p>20 reading this would think that the VMM in the</p> <p>21 preinstallation case would be an image instance?</p> <p>22 <b>A It doesn't say how to do the</b></p>	<p style="text-align: right;">100</p> <p>1 <b>image, and you have performed autonomic deployment</b></p> <p>2 <b>of the VMM and the VM.</b></p> <p>3 Q So you believe that the sentence starting</p> <p>4 in Column 13, Line 25, a POSITA would read that to</p> <p>5 mean that you have a separate image of a VMM and</p> <p>6 the staged VM and that you deploy the VMM first</p> <p>7 and then the staged VMM second. That's what you</p> <p>8 believe that sentence says?</p> <p>9 <b>A I think we have actually covered this also</b></p> <p>10 <b>in the previous deposition, and I said that is</b></p> <p>11 <b>indeed what a POSITA would read from it because</b></p> <p>12 <b>that is how VMMs and VMs were deployed in the art</b></p> <p>13 <b>at that time. There are VMM images, and then</b></p> <p>14 <b>there are virtual machine images, and they are</b></p> <p>15 <b>separate. I've explained that in my declaration</b></p> <p>16 <b>as well.</b></p> <p>17 <b>I also explained why it would be a problem</b></p> <p>18 <b>to actually create a single image of both because</b></p> <p>19 <b>then that VM could then be deployed on the</b></p> <p>20 <b>physical host that corresponds to the VMM, and it</b></p> <p>21 <b>could then be installable anywhere else. It</b></p> <p>22 <b>defeats the whole purpose of virtualization. So</b></p>

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<p style="text-align: right;">101</p> <p><b>1 I've given a detailed analysis of why a POSITA</b>  <b>2 would understand that to be the case in my</b>  <b>3 declaration.</b>  4 Q So is it your opinion that this one  5 sentence in Column 13, Line 25 through 27  6 discloses the entire three-step deployment process  7 as articulated by the patent owner?  8 <b>A In that discussion of the three-step</b>  <b>9 process in my declaration starting in Paragraph 13</b>  <b>10 through 19, and I've explained several aspects of</b>  <b>11 the Khandekar patent in those paragraphs and how</b>  <b>12 those map onto the three-step process. This is</b>  <b>13 one of those sentences, but it's not the only one.</b>  14 Q That wasn't my question. I know you cite  15 to other things in your reply declaration. My  16 question is different.  17 My question is: Is it your opinion that  18 the sentence in Khandekar starting in Column 13,  19 Line 25 through 27 describes the entire three-step  20 deployment process as the patent owner has  21 articulated as set forth in the Sundar patent?  22 <b>A Again, I will repeat my answer, that one</b></p>	<p style="text-align: right;">103</p> <p>1 Claim 1 of the Sundar patent you should look at  2 the teaching of the Sundar patent as a whole to  3 understand the context of Claim 1?  4 MR. LIANG: Objection to form.  5 BY THE WITNESS:  6 <b>A That is not what I said. I'm now trying</b>  <b>7 to show that the Khandekar teaches the elements of</b>  <b>8 Claim 1.</b>  9 BY MR. YOUNG:  10 Q You said you need to look at Khandekar  11 patent as a whole to understand that disclosure,  12 correct?  13 <b>A I said there are many teachings in the</b>  <b>14 Khandekar patent, so you can't just look at that</b>  <b>15 one sentence. That's what I meant.</b>  16 Q So my question is: As a correlator to  17 that opinion that you would look at the Sundar  18 patent as a whole to understand the claims?  19 MR. LIANG: Objection to form.  20 BY THE WITNESS:  21 <b>A So broadly speaking, if you are looking at</b>  <b>22 a patent, you read the specification to understand</b></p>
<p style="text-align: right;">102</p> <p><b>1 sentence discloses some aspects of the three-step</b>  <b>2 process, but there are other teachings in</b>  <b>3 Khandekar also that map onto the three-step</b>  <b>4 process.</b>  5 Q Maybe I understand it better now.  6 What parts of the three-step deployment  7 process does the sentence in Khandekar starting in  8 Column 13, Line 25 through 27, what elements of  9 the three-step process did that sentence disclose  10 and what elements of the three-step process does  11 that sentence not disclose?  12 <b>A So I'm going to say that the Khandekar</b>  <b>13 patent teaches the three-step process. You're</b>  <b>14 asking what aspect does this one sentence say or</b>  <b>15 does not say. You have to look at the teaching as</b>  <b>16 a whole and look at the entire teaching to say is</b>  <b>17 the three-step process discussed and there are</b>  <b>18 certain elements of the deployment that is taught</b>  <b>19 here and other aspects that are taught elsewhere,</b>  <b>20 and I've explained that in these different</b>  <b>21 paragraphs in my declaration.</b>  22 Q Do you believe when you're looking at</p>	<p style="text-align: right;">104</p> <p><b>1 the claims in the light of the specification.</b>  2 BY MR. YOUNG:  3 Q So when you're looking at Claim 1 of the  4 Sundar patent, you should look at the  5 specification as a whole, correct?  6 <b>A I don't understand what that means. If</b>  <b>7 you want to understand the claims of a patent,</b>  <b>8 you've got to read the patent. You've got to</b>  <b>9 understand the figures. You want to understand</b>  <b>10 the material and then understand what the claims</b>  <b>11 is.</b>  12 Q So getting back then to the Khandekar  13 patent, Column 13, Line 25, does this sentence  14 refer to separate image instances of a virtual  15 machine manager and software applications; is that  16 your understanding?  17 <b>A I have said that the VMM image is separate</b>  <b>18 from the VM image. That is how a POSITA would</b>  <b>19 have understood that sentence.</b>  20 Q So even though it says to be included  21 along with, you think a POSITA would understand  22 that those actually -- it actually means two</p>

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<p>105</p> <p>1 separate images?</p> <p>2 <b>A A POSITA would absolutely understand them</b></p> <p>3 <b>to be two separate images. That is how the art</b></p> <p>4 <b>would, that is how VMs were deployed, that is how</b></p> <p>5 <b>VMMs were deployed, that's how my students</b></p> <p>6 <b>understand deploying these things. I don't think</b></p> <p>7 <b>anybody would think that you would want to put a</b></p> <p>8 <b>VM image, a Type 1 VMM image as a single image for</b></p> <p>9 <b>deployment. That is not how the deployment</b></p> <p>10 <b>process has worked at that time.</b></p> <p>11 Q Is there any prior art that you've cited</p> <p>12 in any of your opinions in this matter that</p> <p>13 disclose an image instance of a virtual machine</p> <p>14 manager in a software repository?</p> <p>15 <b>A There is the Le patent which talks about</b></p> <p>16 <b>image instances of the virtual machine manager.</b></p> <p>17 Q By themselves, only the virtual machine</p> <p>18 manager? You think Le discloses that?</p> <p>19 <b>A Yes. Le discloses stating physical images</b></p> <p>20 <b>of a disk, the general operating system, and I</b></p> <p>21 <b>explained that is an arbitrary operating system.</b></p> <p>22 <b>If you take a physical image of a disk containing</b></p>	<p>107</p> <p>1 Q So with respect to the limitation of a</p> <p>2 software image repository storing image instances</p> <p>3 of a virtual machine manager, just that, what part</p> <p>4 of -- for that limitation, do you rely on</p> <p>5 Khandekar or do you rely on Le?</p> <p>6 <b>A In ground 1, I really rely on the</b></p> <p>7 <b>teachings of Khandekar and some obviousness</b></p> <p>8 <b>analysis. In ground 2, I'm relying on the</b></p> <p>9 <b>combined teachings of Khandekar and Le.</b></p> <p>10 <b>And I'll also explain that Le has explicit</b></p> <p>11 <b>teachings of how to make VMM images, which when</b></p> <p>12 <b>you combine with Khandekar, you can store them and</b></p> <p>13 <b>deploy them using the image repository.</b></p> <p>14 Q In the combined teachings of Khandekar and</p> <p>15 Le, what are you relying on for the provisioning</p> <p>16 server? Are you relying on teachings of Le or are</p> <p>17 you relying on teachings of Khandekar?</p> <p>18 <b>A So Khandekar has a provisioning server.</b></p> <p>19 <b>Le has a component called a UCMS, which is very</b></p> <p>20 <b>similar to a provisioning server. The teachings</b></p> <p>21 <b>are similar. It doesn't matter which one is the</b></p> <p>22 <b>provisioning server because they are combining the</b></p>
<p>106</p> <p>1 <b>a VMM, that is a VMM image. There is plenty of</b></p> <p>2 <b>discussion of this in my declaration, both</b></p> <p>3 <b>declarations.</b></p> <p>4 Q You believe that Le discloses storing</p> <p>5 image instance of a VMM by itself. That's your</p> <p>6 opinion?</p> <p>7 <b>A I don't understand the question.</b></p> <p>8 Q I'll try to ask a better question, then.</p> <p>9 It's your opinion that Le discloses</p> <p>10 storing image instances of a VMM by itself in a</p> <p>11 software repository?</p> <p>12 <b>A So my analysis has combined the teachings</b></p> <p>13 <b>of Khandekar and Le. In ground 2, I have</b></p> <p>14 <b>explained that Le teaches how to make VMM images,</b></p> <p>15 <b>and I've said that these are physical images.</b></p> <p>16 <b>I've also explained that Le has as an equivalent</b></p> <p>17 <b>of a prevailing server which it calls UCMS that it</b></p> <p>18 <b>restores images to do autonomic deployment, so</b></p> <p>19 <b>there is teachings there that show how to capture</b></p> <p>20 <b>VMM images, how to store them, how to deploy them,</b></p> <p>21 <b>but for my analysis in ground 2, I have combined</b></p> <p>22 <b>the teachings of Khandekar and Le.</b></p>	<p>108</p> <p>1 <b>teachings. They are not combining the components.</b></p> <p>2 <b>So the teachings of a provisioning server are</b></p> <p>3 <b>present in either of those references and their</b></p> <p>4 <b>combinations.</b></p> <p>5 Q Do you believe that Le teaches storing</p> <p>6 separate images of a virtual machine manager and</p> <p>7 separate images of software applications in a</p> <p>8 software repository? Do you believe Le teaches</p> <p>9 that?</p> <p>10 <b>A Le certainly teaches creating these images</b></p> <p>11 <b>and they are separate because one is a physical</b></p> <p>12 <b>image, one is a virtual image, and the combination</b></p> <p>13 <b>allows you to store them in a software image</b></p> <p>14 <b>depository. Khandekar's provisioning server is</b></p> <p>15 <b>one such repository.</b></p> <p>16 Q So is it your opinion that a POSITA would</p> <p>17 use Le to create the two sets of images and then</p> <p>18 store those in the software -- in the provisioning</p> <p>19 server of Khandekar; is that your opinion?</p> <p>20 <b>A That could be one where you could combine</b></p> <p>21 <b>the teachings. As I also mentioned, Le has the</b></p> <p>22 <b>equivalent of a provisioning server that it calls</b></p>

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<p style="text-align: right;">109</p> <p>1 a UCMS as well, but in the combined teachings 2 here, I simply used Khandekar provisioning server 3 as the way you can store these image instances in 4 an image repository. 5 Q Where does Le teach the creation of 6 physical images and virtual images? 7 A There is a significant amount of 8 discussion of this in my previous declaration, 9 which I don't have in front of me, but I can pull 10 it out and we can go through it. There's quite a 11 bit of discussion of capturing physical images and 12 capturing virtual images in Le. So I'm relying on 13 the teachings of capturing physical images to 14 capture VMM images. 15 A physical image takes an image of an 16 actual disk without having any arbitrary operating 17 system and a Type 1 hypervisor is an arbitrary 18 operating system. If you have a machine that is 19 running a VMM alone, you could take a physical 20 image of that disk of that machine, and you have 21 got a VMM image. So that's the teaching I relied 22 on for physical images.</p>	<p style="text-align: right;">111</p> <p>1 paragraph that says ground 2 ^ uses Le's teaching 2 to initialize ^ physically host computers, and 3 that paragraph there says Le teaches techniques 4 for writing a physical image on the host hard 5 drive which includes the host OS, and then I have 6 several citations of Le: Column 54, Column 10, 7 Column 62, Figure 5. 8 And then I also mention here that when the 9 host OS is the VMM for Type 1 hypervisors such as 10 the ESX and I explain that Le teaches that during 11 the imaging process, the disk is wiped clean and 12 whatnot. So it's just talking about taking an 13 image, a physical image of a disk that has a host 14 OS and the host OS is a Type 1 hypervisor in this 15 case. 16 Q I could be wrong, but the term "physical 17 image" doesn't appear anywhere in the Le patent, 18 correct? 19 A I've got to look at the patent to see if 20 the word physical image appears, but the teachings 21 are very clear and there is a significant amount 22 of discussions on taking physical images and</p>
<p style="text-align: right;">110</p> <p>1 Q So that's my question. 2 So where does it say in Le that you would 3 put down just a VMM on a computer and take an 4 image of just that? Where does it say it in Le? 5 A I just explained it. It teaches a general 6 concept of making physical images from a disk, and 7 it says that process works for any arbitrary 8 operating system. And I also explained that a 9 POSITA would have understood an OS to be an 10 operating system that is running on the machine. 11 Q I'm just asking, can you point to me a 12 column and line number that supports that position 13 in Le? 14 A So I want to cite two things, one is 15 Paragraphs 149 to 153 of my first declaration, 16 which, as I said, I don't have in front of me, but 17 I have cited that in my reply declaration in 18 Paragraph 21. And then -- 19 Q Which paragraphs are you citing to in your 20 original declaration? 21 A If you go to Paragraph 21 of my reply 22 declaration, I think I have a sentence or</p>	<p style="text-align: right;">112</p> <p>1 making virtual images. 2 Q So where do you get the term physical 3 image from? Is that just your own understanding 4 or is that from reading Khandekar or Le? 5 A A POSITA would have known those terms, 6 physical and virtual images. They are known in 7 the art. A physical image is an image of a 8 physical computer's disk and a virtual image is an 9 image of a virtual machine. That is how a POSITA 10 would have understood it. The discussion in Le is 11 very clearly talking about those two types of 12 images. 13 Q So when you take a disk image of a 14 computer, you believe a disk image of a computer 15 can be just a VMM? 16 A That is the physical imaging process 17 discussed in Le, so if you have a VMM installed on 18 a machine, that's the OS and nothing else is 19 installed on it, if you take a physical image of 20 that computer, you would get a VMM image. That is 21 what would boot if you installed that image on 22 some other machine.</p>

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<p>113</p> <p>1 Q So what I'm trying to -- I'm sorry for 2 being dense on this. 3 What I'm trying to understand is, is it 4 your opinion that Le actually discloses taking a 5 physical image of just a VMM or is your opinion 6 that a person of ordinary skill reading Le would 7 understand how to do that even if that specific 8 example is not disclosed in Le? 9 <b>A So Le talks about taking a physical image 10 off of a computer that runs any arbitrary 11 operating system, and I explained that could 12 include any OS that is known in the art. It could 13 be Windows. It could be Linux. It could be a 14 hypervisor Type 1 OS such as ESX, so there is a 15 teaching in Le that explicitly says that you can 16 do this for any operating system that was known at 17 that time.</b> 18 Q Where is that explicit teaching in Le? 19 <b>A I think that I would refer to 20 Paragraph 21. It cites to Paragraphs 149 and 153 21 of the previous declaration where I explained why 22 I -- I don't have that right now, but if you could</b></p>	<p>115</p> <p>1 Q I want to go to Paragraph 149. 2 Dr. Shenoy, have you gotten to review 3 Paragraphs 149 through 153 of your provisional 4 declaration? 5 <b>A I have a PDF.</b> 6 Q Is there any discussion in Paragraph 149 7 through 153 of your declaration that talks about 8 physical images? 9 <b>A In Paragraph 149, I said: "As explained 10 previously, a POSITA would have found it obvious 11 to use Le's disk imaging techniques to install a 12 VMM, including the operating system and software 13 applications as Type 1 and Type 2 VMM respectively 14 on the remote computers, and it talks about the 15 previous section, 6831C.</b> 16 Q Are you going to that section? 17 <b>A I'm looking at that section right now.</b> 18 Q Okay. 19 <b>A So if you look at Paragraph 58 of the 20 declaration, it talks about Le using imaging 21 techniques that a POSITA would have used. It 22 talks about a VMM is a program running on a</b></p>
<p>114</p> <p>1 <b>pull that up, I could go through that paragraph 2 and explain that I showed that teaching.</b> 3 MR. YOUNG: Alex, if you could please pull 4 up on the screen and mark as Exhibit 4 Document 5 No. 1, which should be Petition Exhibit 1003, 6 please. 7 (A certain document was marked Shenoy 8 Deposition Exhibit 4 for identification, as of 9 10/27/2021.) 10 MR. LIANG: Dr. Shenoy, I do believe you 11 have clean electronic copies of all the relevant 12 exhibits, right? So if we are about to go to your 13 declaration and you want a copy in front of you, I 14 think you can pull it up. 15 THE WITNESS: I do have a PDF, yes. I 16 don't have a hard copy, but I have an electronic 17 copy. 18 BY MR. YOUNG: 19 Q I think we have on the screen here your 20 declaration, your first declaration in this case, 21 correct? 22 <b>A Yes, my first declaration.</b></p>	<p>116</p> <p>1 physical computer and talks about Type 1 2 hypervisor, OS and talks about Type 2. 3 It says Le teaches techniques for 4 physically imaging the hard disk of the remote 5 computer to deploy a cloned image with an 6 operating system which would include a Type 1 VMM. 7 Q It says a cloned image with an operating 8 system and applications, correct? 9 <b>A Well, when it says "applications," that's 10 referring to the Type 2 VM, because a Type 2 VMM 11 is an application from an operating system's 12 perspective.</b> 13 Q All the citations for Le that you rely on 14 for your opinions talk about cloning an image with 15 an operating system and applications. There's no 16 disclosure in Le of just cloning an operating 17 system by itself; is that true? 18 <b>A Le talks about taking a physical image of 19 a computer. What I mentioned is if you just have 20 installed a fresh VMM onto a computer, then we 21 just have that as the operating system. And if 22 you take physical image of it, you would get a VMM</b></p>

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<p style="text-align: right;">117</p> <p><b>1 image.</b></p> <p>2 Q So this goes back to my original question</p> <p>3 that started this whole line of discussion.</p> <p>4 My question is simply this: Does Le</p> <p>5 expressly teach imaging a physical image of just a</p> <p>6 VMM by itself and storing that image separately,</p> <p>7 is that an express teaching or is it your opinion</p> <p>8 that a person of ordinary skill reading Le could</p> <p>9 understand the teachings of Le in order to do that</p> <p>10 even though that's not expressly taught?</p> <p><b>11 A Okay. So Le does not talk about taking a</b></p> <p><b>12 physical image of a VMM. It talks about taking a</b></p> <p><b>13 physical image with an arbitrary operating system,</b></p> <p><b>14 so from that teaching, a POSITA would have</b></p> <p><b>15 understood how to take an image of a VM.</b></p> <p>16 Q Is there express teaching in Le where you</p> <p>17 would take an image of just an operating system?</p> <p>18 Is that expressly taught in Le?</p> <p>19 MR. LIANG: Objection to form.</p> <p>20 BY THE WITNESS:</p> <p><b>21 A So in Column 7 of Le, starting at Line 10,</b></p> <p><b>22 it talks about contemporary disk imaging systems,</b></p>	<p style="text-align: right;">119</p> <p><b>1 image containing Windows 2000 operating system.</b></p> <p><b>2 It doesn't say the applications there.</b></p> <p>3 Q What else would the image contain in</p> <p>4 addition to the Windows operating system in this</p> <p>5 example?</p> <p><b>6 A If it was freshly installed, it would</b></p> <p><b>7 contain the Windows 2000 operating system. If it</b></p> <p><b>8 was an image that was taken later on, maybe in</b></p> <p><b>9 this case, the user would have installed other</b></p> <p><b>10 application, then it could be an OS ^ and an</b></p> <p><b>11 application. But in this sentence, we are only</b></p> <p><b>12 talking about the Windows 2000 operating system.</b></p> <p>13 Q The whole purpose of Le is discussing</p> <p>14 whole disk imaging; is that correct?</p> <p><b>15 A So Le talks about disk imaging of various</b></p> <p><b>16 claims and using it for performing various tasks</b></p> <p><b>17 which include deployment.</b></p> <p>18 Q Where in Le -- or strike that.</p> <p>19 Does Le disclose anywhere a deployment</p> <p>20 process where you would deploy two sets of images</p> <p>21 in sequence on a single host?</p> <p><b>22 A So as I said, you have to combine</b></p>
<p style="text-align: right;">118</p> <p><b>1 this is what I've been referring to as physical</b></p> <p><b>2 images, and there is discussion of taking images</b></p> <p><b>3 of operating systems by itself, and there is quite</b></p> <p><b>4 a bit of discussion of that.</b></p> <p>5 And if you go to Column 8, Line 29, it</p> <p>6 says: "For example, an imaging containing Windows</p> <p>7 2000 operating system may be named Bob's Windows</p> <p>8 2000 or Alice's Win2k computer. It's talking</p> <p>9 about taking an image of the Windows 2000</p> <p><b>10 operating system.</b></p> <p>11 Q By itself or is the image contained other</p> <p>12 software applications in addition to that</p> <p>13 operating system?</p> <p><b>14 A If there was a fresh install of Windows</b></p> <p><b>15 2000, it could be an OS image.</b></p> <p>16 Q But that part is not disclosed in Le,</p> <p>17 right? That's what you're saying that a person of</p> <p>18 ordinary skill would understand that reading Le,</p> <p>19 but that's not disclosed in Le; is that correct?</p> <p>20 MR. LIANG: Objection to form.</p> <p>21 BY THE WITNESS:</p> <p><b>22 A I think it is disclosed. It is saying an</b></p>	<p style="text-align: right;">120</p> <p><b>1 Khandekar and Le. And I wouldn't have relied on</b></p> <p><b>2 Le alone to make any presumptions to explain any</b></p> <p><b>3 such teachings. I always explain this using the</b></p> <p><b>4 combination of Khandekar and Le.</b></p> <p>5 Q With respect to the combination of</p> <p>6 Khandekar and Le, can you please articulate to me</p> <p>7 your opinions as to how the combination of</p> <p>8 Khandekar and Le discloses the three-step</p> <p>9 deployment process as articulated by the patent</p> <p>10 owner and that the patent owner claims as set</p> <p>11 forth in the Sundar claims?</p> <p><b>12 A I describe that in Section 4 of my reply</b></p> <p><b>13 dec, starting at Paragraph 20 through</b></p> <p><b>14 Paragraph 27. So Le teaches taking physical</b></p> <p><b>15 images of VMMs, so you would use that to create</b></p> <p><b>16 virtual machine managers, image instances. You</b></p> <p><b>17 would store those in the image repository. And Le</b></p> <p><b>18 also teaches taking virtual disk images, so you</b></p> <p><b>19 would store images of software applications in the</b></p> <p><b>20 software repository.</b></p> <p>21 When you combine the teachings of</p> <p><b>22 Khandekar and Le, you can deploy the VMM image and</b></p>

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<p style="text-align: right;">121</p> <p>1 the VM image. You can then run the VMM image.  2 You can copy the VMM image -- sorry. You can copy  3 the image of the software applications onto the  4 virtual machines, and you can boot the virtual  5 machines.  6 Those are all teachings that are there in  7 the combinations of Khandekar and Le that map onto  8 that three-step process that has been articulated,  9 and I explained this, as I said, in Paragraphs 20  10 through 28 of the declaration.  11 Q Let me try to step through this to make  12 sure I understand it.  13 With the combination of Le and Khandekar,  14 the software image repository is what?  15 A That would be the provisioning server of  16 Khandekar that stores the VMM images as physical  17 images and images of software application as  18 virtual disk images.  19 Q And those separate image instances are  20 created through the teachings of Le; is that your  21 opinion?  22 A There are teachings in Le that show you</p>	<p style="text-align: right;">123</p> <p>1 shows that you would be deploying the VMM image  2 first.  3 Q In that sentence in Paragraph 23, that's  4 the teaching of Le, correct?  5 A That is the teaching of Le that is  6 combined with Khandekar.  7 Q So you're relying on Le for the disclosure  8 that the image instance of the VMM would be  9 deployed by itself; is that your opinion?  10 A I said I'm relying on the combined  11 opinion. This is just one example that I've said  12 provided that says that a POSITA would have  13 understood that the VMM image would be deployed  14 first. There are other teachings as well, but  15 this is one that explains why that is the case.  16 Q The purpose of the deposition is so that I  17 understand the entirety of your opinions.  18 So with respect to Paragraph 23, other  19 than the one citation to Le, what else are you  20 relying on that the image instance of the VMM are  21 deployed to the application node by itself first?  22 A That is the sentence in Khandekar that we</p>
<p style="text-align: right;">122</p> <p>1 how to do that, yes.  2 Q In the combined teachings of Khandekar and  3 Le, what is the control mode?  4 A As I explained, the provisioning server  5 also plays the role of the control node.  6 Q And in the combined teachings, where is  7 the teaching of copying the image instances of the  8 VMM to an application node? Where is that taught?  9 Is that Le or Khandekar?  10 A I think it's both because Khandekar talks  11 about deploying the VMM images, Le talks about  12 taking physical images for deployments. And there  13 are teachings in both references that have been  14 combined in that teaching.  15 Q Where is the teaching in the combined  16 reference that the image instances of the VMM are  17 deployed first by themselves?  18 A That is explained in Paragraph 23 of my  19 declaration because it says that when you deploy  20 the physical VMM image, it overrides the entire  21 disk drive, leaving only the hypervisor OS. And  22 I'm reading a sentence from Paragraph 23 which</p>	<p style="text-align: right;">124</p> <p>1 talked about that talked about including the VMM  2 image and the VM image. There is this teaching  3 here that is present in Le as well, and then there  4 is a citation to Column 29 of Le -- sorry, 27 of  5 Le, Lines 1 through 9 as well.  6 Q The Column 27, Lines 1 through 9, what  7 that says is that when you deploy the whole disk  8 image, it destroys what's on the application node,  9 correct?  10 A It talks about copying the image and  11 destroys whatever is on that image. It also talks  12 about other steps that can perform including  13 rebooting the computer, which causes the VMM to  14 start executing.  15 Q But if you were going to use Le in your  16 deploying image, disk image, and destroy whatever  17 is on the disk, why would you deploy an image that  18 just had a VMM in it? Where is that teaching in  19 Le?  20 A You would deploy an operating system  21 first. That's how deployments work. So if you're  22 deploying VMM as the OS, you would deploy a VMM</p>

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<p style="text-align: right;">125</p> <p><b>1 operating system.</b></p> <p>2 Q I think we've established that Le doesn't</p> <p>3 teach deploying images in sequence. It only</p> <p>4 deploys a single image at a time; is that correct?</p> <p>5 MR. LIANG: Objection to form.</p> <p>6 BY THE WITNESS:</p> <p>7 <b>A If you deploy a single image at a time,</b></p> <p>8 <b>you are deploying them in sequence.</b></p> <p>9 <b>BY MR. YOUNG:</b></p> <p>10 Q Where in Le does it disclose deploying two</p> <p>11 images in sequence for a single deployment of a</p> <p>12 disk image?</p> <p>13 <b>A I don't understand the question.</b></p> <p>14 Q Where in Le does it disclose deploying two</p> <p>15 sets of images in sequence?</p> <p>16 <b>A I still don't understand the question.</b></p> <p>17 Q I think we've established that Claim 1</p> <p>18 requires two sets of images to be stored, correct?</p> <p>19 We've established that?</p> <p>20 <b>A Yes, we have.</b></p> <p>21 Q Where in Le does it disclose having two</p> <p>22 sets of images that are deployed one after the</p>	<p style="text-align: right;">127</p> <p><b>1 it teaches that you can deploy the VMM image and</b></p> <p><b>2 then the VM image.</b></p> <p>3 Q And for the deployment of the VMM image,</p> <p>4 you're relying on Khandekar's teaching that you</p> <p>5 would deploy an image of a physical machine,</p> <p>6 that's for the VMM. That's your opinion?</p> <p>7 <b>A I explained that VMM images in Khandekar</b></p> <p>8 <b>are physical images, and I also explained that Le</b></p> <p>9 <b>teaches making these physical images, so in the</b></p> <p>10 <b>context of Khandekar and Le deploying a VMM image,</b></p> <p>11 <b>there would be a physical image of the virtual</b></p> <p>12 <b>machine.</b></p> <p>13 Q As taught by Le?</p> <p>14 <b>A As taught by Le, but is well understood</b></p> <p>15 <b>also in the art, so a POSITA would have known that</b></p> <p>16 <b>as well.</b></p> <p>17 Q And then it's your opinion that the image</p> <p>18 instances of the software applications, that</p> <p>19 deployment, is that done by Khandekar or is that</p> <p>20 done by Le? Which teachings do you rely on?</p> <p>21 <b>A Again, I rely on the combination, but</b></p> <p>22 <b>there are teachings in Khandekar that talk about</b></p>
<p style="text-align: right;">126</p> <p>1 other?</p> <p>2 <b>A So I'm relying on the combination. I</b></p> <p>3 <b>think we spoke about this, the combined teachings</b></p> <p>4 <b>of Khandekar and Le.</b></p> <p>5 Q So I think what you're saying, then, is Le</p> <p>6 does not disclose it, but in combination with</p> <p>7 Khandekar, you believe it is disclosed?</p> <p>8 <b>A That is correct, yes.</b></p> <p>9 Q So it's your opinion that you would</p> <p>10 deploy -- strike that.</p> <p>11 With respect to the combination of</p> <p>12 Khandekar and Le, which reference are you relying</p> <p>13 on for the deployment of the VMM image by itself</p> <p>14 onto an application node?</p> <p>15 <b>A Both of them. I explained that already.</b></p> <p>16 <b>There are teachings in Le that talk about taking</b></p> <p>17 <b>an image of the OS by itself, which in this case</b></p> <p>18 <b>would be a VMM image. It also talks about</b></p> <p>19 <b>deploying images.</b></p> <p>20 <b>And then Khandekar talks about autonomic</b></p> <p>21 <b>deployment of images of VMs and VMM. So when you</b></p> <p>22 <b>combine the two, you can get in the combination,</b></p>	<p style="text-align: right;">128</p> <p><b>1 VM images which are, in this case, image instances</b></p> <p><b>2 of software applications and how to deploy them.</b></p> <p>3 Q So just to recap to make sure I'm not off</p> <p>4 track on this.</p> <p>5 For the deployment of the image instances</p> <p>6 of the VMM, you rely on Le, and for the deployment</p> <p>7 of the image instances of the software</p> <p>8 applications, you rely on Khandekar; is that</p> <p>9 correct?</p> <p>10 MR. LIANG: Objection to form.</p> <p>11 BY THE WITNESS:</p> <p>12 <b>A I think I explained clearly how I used the</b></p> <p>13 <b>combination and what aspects are taught in Le and</b></p> <p>14 <b>what aspects are taught in Khandekar. You can go</b></p> <p>15 <b>back and step through it, but I would not</b></p> <p>16 <b>characterize it the way you said.</b></p> <p>17 <b>BY MR. YOUNG:</b></p> <p>18 Q What part of my characterization was</p> <p>19 incorrect?</p> <p>20 <b>A Because I'm using the combination and the</b></p> <p>21 <b>combined teachings of Khandekar and Le. I</b></p> <p>22 <b>explained that Le teaches taking physical images.</b></p>

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<p style="text-align: right;">129</p> <p>1 It talks about deploying physical images.</p> <p>2 <b>Khandekar talks about autonomic deployment. It</b></p> <p>3 <b>talks about deploying VMM image and VM images, so</b></p> <p>4 <b>you have to look at the combination and the</b></p> <p>5 <b>teachings of the two. When you combine them, you</b></p> <p>6 <b>get VMM images being deployed and VM images being</b></p> <p>7 <b>deployed.</b></p> <p>8 Q Is it your opinion that you rely on -- for</p> <p>9 the combination of Khandekar and Le, your</p> <p>10 ground 2, is it your opinion that you rely on both</p> <p>11 references for each limitation of Claim 1?</p> <p>12 <b>A We can go through my first declaration.</b></p> <p>13 <b>We can go step by step. Each paragraph I can</b></p> <p>14 <b>explain what that paragraph relies on. I cannot</b></p> <p>15 <b>make such a broad characterization without going</b></p> <p>16 <b>through my detailed analysis.</b></p> <p>17 Q I'm trying to understand your opinions as</p> <p>18 to the combination of Khandekar and Le.</p> <p>19 Maybe in your own words, can you describe</p> <p>20 for me how the combination of those two references</p> <p>21 disclose the three-step deployment process? Just</p> <p>22 walk through each step and say which reference</p>	<p style="text-align: right;">131</p> <p>1 Q So with respect to the image instances of</p> <p>2 the software applications, you're saying that the</p> <p>3 provisioning server in Le teaches that as well?</p> <p>4 <b>A The provisioning server of Khandekar</b></p> <p>5 <b>teaches that.</b></p> <p>6 Q So does Le teach anything about the image</p> <p>7 instances of the software applications?</p> <p>8 <b>A So Le has this UCMS server which includes</b></p> <p>9 <b>both physical and virtual machine images, so Le</b></p> <p>10 <b>would also have teachings of deploying virtual</b></p> <p>11 <b>disk files which are image instances of software</b></p> <p>12 <b>applications.</b></p> <p>13 Q If you could go to Paragraph 22 of your</p> <p>14 reply declaration, please.</p> <p>15 <b>A Okay.</b></p> <p>16 Q Do you see the second sentence where it</p> <p>17 says "the combination uses"?</p> <p>18 <b>A Yes.</b></p> <p>19 Q So that says: "The combination uses</p> <p>20 separate images for VMMs and VMs because VMM</p> <p>21 images are a physical disks while VM images</p> <p>22 include images of virtual disks," right?</p>
<p style="text-align: right;">130</p> <p>1 you're relying on for each of those steps.</p> <p>2 <b>A So Le teaches creating VMM images. It</b></p> <p>3 <b>also teaches creating VM images. Khandekar also</b></p> <p>4 <b>has this teaching. And then you store them in</b></p> <p>5 <b>image repository. It's not part of the three-step</b></p> <p>6 <b>process, but it's certainly part of Claim 1, the</b></p> <p>7 <b>software image repository, and then would deploy</b></p> <p>8 <b>the VMM image onto the host, using provisioning</b></p> <p>9 <b>server of Khandekar to do that.</b></p> <p>10 <b>I also explain that there are some</b></p> <p>11 <b>teachings in Le which is the UCMS that allow for</b></p> <p>12 <b>deployment. I rely on both, but Khandekar's</b></p> <p>13 <b>provisioning server teaches that.</b></p> <p>14 <b>There is the issue of creating virtual</b></p> <p>15 <b>machines onto the VMMs. That is taught, again, in</b></p> <p>16 <b>Khandekar, but there are teachings in Le as well</b></p> <p>17 <b>about VMM capabilities.</b></p> <p>18 <b>And then there is the deployment of the</b></p> <p>19 <b>software applications themselves to deploying the</b></p> <p>20 <b>image instances, a software application. So there</b></p> <p>21 <b>is, again, the provisioning server of Le that</b></p> <p>22 <b>allows you to do that.</b></p>	<p style="text-align: right;">132</p> <p>1 <b>A Yes.</b></p> <p>2 Q My question is: Are you saying that the</p> <p>3 VMM images, that part comes from Le because it's</p> <p>4 the physical disks, and the VM images including</p> <p>5 images of virtual disks, is that Khandekar?</p> <p>6 <b>A The VMM images of physical disks aren't in</b></p> <p>7 <b>Le. We went over that. VM images are taught in</b></p> <p>8 <b>both references because you have both Khandekar</b></p> <p>9 <b>and Le talking about virtual disk images.</b></p> <p>10 Q Where in Le does it discuss images of</p> <p>11 software applications by themselves?</p> <p>12 <b>A So in Column 14, there is a discussion of</b></p> <p>13 <b>virtual disk images, and it even discusses the</b></p> <p>14 <b>difference between virtual disk images and</b></p> <p>15 <b>conventional disk images. So virtual disk image</b></p> <p>16 <b>file is one example of an image instance of a</b></p> <p>17 <b>software application.</b></p> <p>18 Q I'm sorry. Column 14, what line?</p> <p>19 <b>A It starts at Line 13 and goes on to</b></p> <p>20 <b>Line 44.</b></p> <p>21 Q You believe this disclosure of Le talks</p> <p>22 about making an image instance of software</p>

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<p style="text-align: right;">133</p> <p>1 applications by themselves without a VMM or --  2 without a VMM included, correct? That's your  3 opinion?  4 <b>A Virtual disk image files have particularly</b>  5 <b>not included VMMs at all. That is not how any</b>  6 <b>POSITA would understand what a virtual disk image</b>  7 <b>file is when you're talking about things like</b>  8 <b>hypervisor and ESX ^ .</b>  9 <b>So when Le talks about virtual disk image</b>  10 <b>files, you would understand that it would include</b>  11 <b>a guest operating system and applications in that</b>  12 <b>virtual disk image file, and that is the teaching</b>  13 <b>of image instances of software applications in</b>  14 <b>Claim 1 of the Sundar patent.</b>  15 <b>Q So my question is: Where in your original</b>  16 <b>declaration do you disclose using Le for the</b>  17 <b>deployment of physical disks followed by the</b>  18 <b>teachings of Khandekar and Le for the deployment</b>  19 <b>of virtual disks? Where do you cite to that in</b>  20 <b>your original declaration?</b>  21 <b>A This is the discussion of Claim 1 in the</b>  22 <b>original declaration, so you have to go through</b></p>	<p style="text-align: right;">135</p> <p>1 <b>Q Right. But in each of those paragraphs</b>  2 <b>starting on Paragraph 99 going through</b>  3 <b>Paragraph 111, where it talks about Le, it's</b>  4 <b>talking about disk images including an operating</b>  5 <b>system and software applications, for example, in</b>  6 <b>Paragraph 101 and Paragraph 102, correct?</b>  7 <b>A It talks about using disk imaging</b>  8 <b>techniques to take -- to provision a -- software</b>  9 <b>stack. That's the provisioning part, but there is</b>  10 <b>also the disk imaging part that we've been</b>  11 <b>discussing previously.</b>  12 <b>Q Like, as an example, in Paragraph 101 of</b>  13 <b>your original declaration, it says: "Disk images</b>  14 <b>include the operating system and software</b>  15 <b>applications," correct?</b>  16 <b>A That paragraph is talking broadly about</b>  17 <b>disk imaging technology. Plus a POSITA would</b>  18 <b>understand that a disk imaging technology can</b>  19 <b>take an image of whatever is on the disk, just an</b>  20 <b>operating system, a fresh clean start operating</b>  21 <b>system on a disk, you would take an image of an</b>  22 <b>OS. If you're on a disk that comprises of an OS</b></p>
<p style="text-align: right;">134</p> <p>1 <b>each claim element to answer the question that you</b>  2 <b>just asked.</b>  3 <b>So 1C, which starts around Paragraph 81,</b>  4 <b>is talking about a plurality of image instances of</b>  5 <b>the virtual machine manager. The initial part of</b>  6 <b>the discussion talks about ground 1, which is</b>  7 <b>Khandekar; and then ground 2, which is the</b>  8 <b>combination of Khandekar and Le, starts around 95,</b>  9 <b>and that is the discussion of how Le's teachings</b>  10 <b>are combined with Khandekar's teaching to get VMM</b>  11 <b>image instances.</b>  12 <b>Q So I'll stop you right there.</b>  13 <b>Where in this section of your original</b>  14 <b>declaration starting on Paragraph 95 does it talk</b>  15 <b>about using Le to get a physical disk image of</b>  16 <b>just a VMM?</b>  17 <b>A So that would be Paragraph 99 and on,</b>  18 <b>where I talk about Le provided disk imaging</b>  19 <b>techniques that compliment and elaborate on</b>  20 <b>Khandekar's teaching, further rendering it obvious</b>  21 <b>for a plurality of VMM images to be stored in the</b>  22 <b>provisioning software.</b></p>	<p style="text-align: right;">136</p> <p>1 <b>and applications, you would take an image of both</b>  2 <b>of those, and that is what this is explaining.</b>  3 <b>Q That's my question.</b>  4 <b>If you look at Paragraph 99 through 111,</b>  5 <b>where in your original declaration, where do you</b>  6 <b>disclose that a POSITA would understand Le to be</b>  7 <b>teaching that you could take an image of just an</b>  8 <b>application on a bear mode computer by itself,</b>  9 <b>where is that disclosed in those paragraphs?</b>  10 <b>A Previously, we talked about Paragraph 58,</b>  11 <b>where I had some discussion of Le teaching</b>  12 <b>techniques for physically imaging the hard disk of</b>  13 <b>a computer, and I talked about using image of just</b>  14 <b>an operating system which will be a Type 1</b>  15 <b>operating system. So that paragraph describes the</b>  16 <b>broad teachings of Le.</b>  17 <b>Q In Paragraph 58, it says: "Le teaches</b>  18 <b>techniques for physically imaging the hard drive</b>  19 <b>remote computer to deploy a cloned image with an</b>  20 <b>operating system which would include a Type 1 VMM</b>  21 <b>and applications."</b>  22 <b>A We did talk about the applications in the</b></p>

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<p style="text-align: right;">137</p> <p><b>1 context of a Type 2 VMM.</b></p> <p><b>2 Q</b> You think that that teaching is then</p> <p><b>3</b> disclosed as part of your opinions for ground 2 in</p> <p><b>4</b> Paragraphs 99 through 111?</p> <p><b>5 A</b> I'm just giving one example of that</p> <p><b>6 teaching of physical images. I'm just going</b></p> <p><b>7 through the declaration to look for other</b></p> <p><b>8 paragraphs.</b></p> <p><b>9 In Paragraph 102, it talks about Type 1</b></p> <p><b>10 hypervisor, also referred to as the hypervisor OS</b></p> <p><b>11 acting as the operating system, and then a few</b></p> <p><b>12 sentences down, it says: "A POSITA would have</b></p> <p><b>13 found it obvious and be motivated to use the disk</b></p> <p><b>14 emersion techniques to install a VMM in a host</b></p> <p><b>15 computer."</b></p> <p><b>16 Q</b> It says rapid deployment of disk images</p> <p><b>17</b> including the operating system in software</p> <p><b>18</b> applications, correct?</p> <p><b>19 A</b> Yes, because I have always mentioned what</p> <p><b>20 Type 1 and Type 2 hypervisor deployments as part</b></p> <p><b>21 of the teaching of Khandekar. Type 2, that's a</b></p> <p><b>22 software application. If you're just talking</b></p>	<p style="text-align: right;">139</p> <p><b>1 BY THE WITNESS:</b></p> <p><b>2 A</b> So VMM images are being captured using</p> <p><b>3 Le's process for -- Le teaches capturing VMM</b></p> <p><b>4 images by imaging physical disks. I did not use</b></p> <p><b>5 the term "physical disks" necessarily, but that is</b></p> <p><b>6 what a POSITA would have understood from whatever</b></p> <p><b>7 I've cited in the original declaration. Here, I'm</b></p> <p><b>8 just providing additional rebuttal explanations as</b></p> <p><b>9 to why a POSITA would have understood them to be</b></p> <p><b>10 different.</b></p> <p><b>11 BY MR. YOUNG:</b></p> <p><b>12 Q</b> What I'm trying to figure out is where in</p> <p><b>13</b> your original declaration do you disclose as part</p> <p><b>14</b> of ground 2 that a POSITA would understand those</p> <p><b>15</b> references such that you would deploy an image</p> <p><b>16</b> instance of a Type 1 VMM. You would deploy that,</p> <p><b>17</b> you would execute it, and then you would deploy an</p> <p><b>18</b> image -- the VM images disclosed in Khandekar.</p> <p><b>19</b> Where is that disclosure in your original</p> <p><b>20</b> declaration?</p> <p><b>21 A</b> So this reply dec talks about how the</p> <p><b>22</b> three-step process that has been articulated by</p>
<p style="text-align: right;">138</p> <p><b>1 about Type 1, that would be the operating system</b></p> <p><b>2 only.</b></p> <p><b>3 Q</b> So you believe that your disclosure in</p> <p><b>4</b> Paragraph 102 is the basis for your opinion now</p> <p><b>5</b> that in Paragraph 22 of your reply declaration</p> <p><b>6</b> that the image instances of physical disks is</p> <p><b>7</b> what's disclosed in Le and you're using for</p> <p><b>8</b> ground 2 of your opinions in this matter?</p> <p><b>9 A</b> So in Paragraph 22 of my reply dec, I cite</p> <p><b>10 multiple paragraphs from my declaration to form</b></p> <p><b>11 that opinion to include Paragraph 68, 155 to 63,</b></p> <p><b>12 Paragraphs 58, which we just spoke about,</b></p> <p><b>13 Paragraphs 149 to 153.</b></p> <p><b>14 So there are several places that I have</b></p> <p><b>15 cited various paragraphs from the original</b></p> <p><b>16 declaration. Those paragraphs do have additional</b></p> <p><b>17 teachings in addition to what I've cited here.</b></p> <p><b>18 Q</b> And the phrase VMM images are images of</p> <p><b>19</b> physical disks don't appear anywhere in any of</p> <p><b>20</b> those paragraphs of the original declaration,</p> <p><b>21</b> correct?</p> <p><b>22 MR. LIANG:</b> Objection to form.</p>	<p style="text-align: right;">140</p> <p><b>1 Broadcom is taught by the combination of Khandekar</b></p> <p><b>2 and Le in ground 2. I've used references from my</b></p> <p><b>3 original declaration and also provided additional</b></p> <p><b>4 explanations to show how the three-step process is</b></p> <p><b>5 satisfied.</b></p> <p><b>6 MR. YOUNG:</b> Let's go ahead and take an</p> <p><b>7</b> hour break for lunch, and then we'll come back, so</p> <p><b>8</b> it will be 2:07 -- let's round it off. Let's go</p> <p><b>9</b> to 2:10, your time. How about that?</p> <p><b>10 THE WITNESS:</b> Okay.</p> <p><b>11 (A lunch recess was had from 1:07 p.m. to</b></p> <p><b>12</b> 2:10 p.m. CST.)</p> <p><b>13</b></p> <p><b>14</b></p> <p><b>15</b></p> <p><b>16</b></p> <p><b>17</b></p> <p><b>18</b></p> <p><b>19</b></p> <p><b>20</b></p> <p><b>21</b></p> <p><b>22</b></p>

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<p style="text-align: right;">141</p> <p>1 AFTERNOON SESSION</p> <p>2 DR. PRASHANT SHENOY,</p> <p>3 called as a witness herein, having been previously</p> <p>4 duly sworn and having testified, was examined and</p> <p>5 testified further as follows:</p> <p>6 EXAMINATION (Resumed)</p> <p>7 MR. YOUNG: Welcome back, Dr. Shenoy.</p> <p>8 Pending any questions from your counsel on this</p> <p>9 matter, I'm done with my questions with respect to</p> <p>10 the first Sundar IPR.</p> <p>11 THE WITNESS: Thank you.</p> <p>12 EXAMINATION</p> <p>13 BY MR. LIANG:</p> <p>14 Q Good afternoon, Dr. Shenoy. I would just</p> <p>15 like to clarify a few of the questions that you</p> <p>16 had been asked about.</p> <p>17 So earlier you recall you had a pretty</p> <p>18 lengthy discussion with counsel about Claim 19 of</p> <p>19 the '138 patent.</p> <p>20 Do you recall that discussion?</p> <p>21 <b>A Yes, I do.</b></p> <p>22 Q At one point, I don't have access to the</p>	<p style="text-align: right;">143</p> <p>1 <b>in my declaration.</b></p> <p>2 Q Thank you, Dr. Shenoy. I also wanted to</p> <p>3 take look, then, at Le, Column 9 -- Column 8,</p> <p>4 Line 19. Do you recall there was a discussion you</p> <p>5 had with counsel about this passage?</p> <p>6 <b>A We had a discussion of Le in the context</b></p> <p>7 <b>of imaging.</b></p> <p>8 Q Okay. So looking at Le, Column 8,</p> <p>9 Line 19. Let me know when you can see that, when</p> <p>10 you're there.</p> <p>11 <b>A I'm there.</b></p> <p>12 Q In this passage, Le Column 8, Line 19</p> <p>13 reads: "In particular, before a deployment</p> <p>14 operation, a user may want to search the image</p> <p>15 library for a disk image that satisfies specific</p> <p>16 requirements such as an operating system type, an</p> <p>17 operating system version and possibly a number of</p> <p>18 software applications."</p> <p>19 Do you see that sentence?</p> <p>20 <b>A Yes, I do.</b></p> <p>21 Q What would that sentence indicate to a</p> <p>22 person of ordinary skill in the art regarding</p>
<p style="text-align: right;">142</p> <p>1 realtime feed, but I recall at one point there was</p> <p>2 a discussion regarding Claim 19 where there may</p> <p>3 have been a reference about something about a VMM</p> <p>4 providing a plurality of VMs.</p> <p>5 Do you recall that discussion, generally?</p> <p>6 <b>A At a high level.</b></p> <p>7 Q Where does Claim 19 mention anything about</p> <p>8 the virtual machine manager providing a plurality</p> <p>9 of virtual machines? Withdrawn. Let me reask the</p> <p>10 question.</p> <p>11 Is there a portion of Claim 19 that states</p> <p>12 where in the image instances of the virtual</p> <p>13 machine manager provide a plurality of virtual</p> <p>14 machines?</p> <p>15 <b>A Yes. I was about to point that language</b></p> <p>16 <b>in Claim 19. It appears in the first storing of a</b></p> <p>17 <b>plurality image instances of a virtual machine</b></p> <p>18 <b>manager step.</b></p> <p>19 Q The step of storing a plurality of image</p> <p>20 instances of a virtual machine manager requires</p> <p>21 actual execution of the virtual machine manager?</p> <p>22 <b>A No, it does not, and I've explained that</b></p>	<p style="text-align: right;">144</p> <p>1 whether software applications are required for a</p> <p>2 physical disk image?</p> <p>3 MR. YOUNG: Objection. Form.</p> <p>4 BY THE WITNESS:</p> <p>5 <b>A So it clearly states that a disk image can</b></p> <p>6 <b>include just an operating system type and a</b></p> <p>7 <b>version, and optionally, it could include software</b></p> <p>8 <b>application, but it doesn't have to.</b></p> <p>9 <b>BY MR. LIANG:</b></p> <p>10 Q When Le references software applications</p> <p>11 in this context, is Le referring to software</p> <p>12 applications installed on a physical machine or is</p> <p>13 Le referring to virtual machine images?</p> <p>14 <b>A For these software applications, it would</b></p> <p>15 <b>be virtual machine applications.</b></p> <p>16 Q I'm sorry. Are you referring to Column 8,</p> <p>17 Line 19 here, the disk imaging?</p> <p>18 MR. LIANG: Objection. Form.</p> <p>19 BY THE WITNESS:</p> <p>20 <b>A Okay. So in the context of this</b></p> <p>21 <b>particular sentence that we've been talking about,</b></p> <p>22 <b>the software applications refer to the physical</b></p>

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<p>145</p> <p>1 <b>disk image.</b></p> <p>2 MR. LIANG: Okay. No further questions.</p> <p>3 MR. YOUNG: I don't have any further</p> <p>4 questions.</p> <p>5 THE REPORTER: Shall we go off the record?</p> <p>6 MR. YOUNG: Yes, that would be great, and</p> <p>7 then we'll switch over.</p> <p>8 (Deposition concluded at 2:19 p.m. CST.)</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p>	
<p>146</p> <p>1 CERTIFICATE OF COURT REPORTER - NOTARY PUBLIC</p> <p>2 I, Theresa A. Vorkapic, Certified</p> <p>3 Shorthand Reporter No. 084-2589, CSR, RMR, CRR,</p> <p>4 RPR, and a Notary Public in and for the County of</p> <p>5 Kane, State of Illinois, the officer before whom</p> <p>6 the foregoing deposition was taken, do hereby</p> <p>7 certify that the foregoing transcript is a true</p> <p>8 and correct record of the testimony given; that</p> <p>9 said testimony was taken by me and thereafter</p> <p>10 reduced to typewriting under my direction; that</p> <p>11 reading and signing was not requested; and that I</p> <p>12 am neither counsel for, related to, nor employed</p> <p>13 by any of the parties to this case and have no</p> <p>14 interest, financial or otherwise, in its outcome.</p> <p>15 IN WITNESS WHEREOF, I have hereunto set my</p> <p>16 hand and affixed my notarial seal this 29th day of</p> <p>17 October, 2021.</p> <p>18 My commission expires November 6, 2023.</p> <p>19 </p> <p>20 _____</p> <p>21 THERESA A. VORKAPIC</p> <p>22 NOTARY PUBLIC IN AND FOR ILLINOIS</p>	

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