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Transcript of Prashant Shenoy, Ph.D.

Date: May 14, 2021

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

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Transcript of Prashant Shenoy, Ph.D.
Conducted on May 14, 2021

1 (1 to 4)

1	2
1 UNITED STATES PATENT AND TRADEMARK OFFICE	1 A P P E A R A N C E S
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD	2 ON BEHALF OF THE PETITIONER:
3 -----x	3 JEFFREY LIANG, ESQUIRE
4 NETFLIX, INC., :	4 STEPHEN W. TANG, ESQUIRE
5 Petitioner, :	5 SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
6 v. :	6 379 Lytton Avenue
7 AVAGO TECHNOLOGIES : Review No.	7 Palo Alto, California 94301
8 INTERNATIONAL SALES PTE. : IPR2020-01582	8 650.815.2600
9 LIMITED, :	9
10 Patent Owner. :	10 ON BEHALF OF THE RESPONDENT:
11 -----x	11 DANIEL S. YOUNG, ESQUIRE
12	12 CHAD E. KING, ESQUIRE
13 Virtual Deposition of PRASHANT SHENOY, Ph.D.	13 ADSERO IP LLC
14 Friday, May 14, 2021	14 8210 Southpark Terrace
15 9:00 a.m. CST	15 Littleton, Colorado 80120
16	16 303.268.0066
17	17
18	18 ALSO PRESENT:
19	19 Enrique Casas, Planet Depos Remote
20 Job No.: 367591	20 Technician
21 Pages: 1 - 139	21
22 Reported by: Tiffany M. Pietrzyk, CSR RPR CRR	22
2	4
1 Virtual deposition of PRASHANT SHENOY,	1 C O N T E N T S
2 Ph.D., pursuant to notice, before Tiffany M.	2 EXAMINATION OF PRASHANT SHENOY, Ph.D. PAGE
3 Pietrzyk, a Certified Shorthand Reporter,	3 By Mr. Young 6
4 Registered Professional Reporter, Certified	4
5 Realtime Reporter, and a Notary Public in and for	5 E X H I B I T S
6 the State of Illinois.	6 (Attached to transcript.)
7	7 DEPOSITION EXHIBITS PAGE
8	8 Exhibit 1 Declaration of Prashant 9
9	9 Shenoy
10	10 Exhibit 2 U.S. Patent 8,572,138 B2, 10
11	11 Sundar, et al.
12	12 Exhibit 3 U.S. Patent 7,577,722 B1, 11
13	13 Khandekar, et al.
14	14 Exhibit 4 U.S. Patent 8,209,680 B1, Le, 11
15	15 et al.
16	16
17	17
18	18
19	19
20	20
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<p>5</p> <p>1 PROCEEDINGS</p> <p>2 (Witness sworn.)</p> <p>3 MR. YOUNG: Enrique, do you want us to</p> <p>4 enter our appearances on the record or just -- to</p> <p>5 just begin?</p> <p>6 PLANET DEPOS REMOTE TECHNICIAN: Tiffany,</p> <p>7 do you want him to go ahead and do that on the</p> <p>8 record?</p> <p>9 COURT REPORTER: Sure. I'd appreciate it.</p> <p>10 Thank you.</p> <p>11 MR. YOUNG: This is Dan Young, and with me</p> <p>12 is Chad King, from the law firm of Adsero IP, and</p> <p>13 we are representing Broadcom in this matter.</p> <p>14 Broadcom and Avago Technologies.</p> <p>15 MR. LIANG: And this is Jeffrey Liang, and</p> <p>16 with me is my colleague Stephen Tang, with</p> <p>17 Sheppard Mullin, representing Netflix.</p> <p>18 MR. YOUNG: Okay.</p> <p>19 ///</p> <p>20 ///</p> <p>21 ///</p> <p>22 ///</p>	<p>7</p> <p>1 Q Okay. If you don't understand my</p> <p>2 question, you can always ask me to clarify. And</p> <p>3 we'll try to take a break roughly every hour or</p> <p>4 so. We'll try to break at -- logically among</p> <p>5 subjects, but we'll try to break every hour or so.</p> <p>6 A Okay.</p> <p>7 Q But if you need a break in the interim</p> <p>8 period, just let me know, and we'll go off the</p> <p>9 record. Okay?</p> <p>10 A Thank you. Yes.</p> <p>11 Q Okay. Just for these types of</p> <p>12 depositions, if you can please confirm that you</p> <p>13 don't have any other windows or electronic devices</p> <p>14 open while you're testifying. Can you please</p> <p>15 confirm that?</p> <p>16 A I do not have any windows open.</p> <p>17 Q Okay.</p> <p>18 A I do want to mention that I have a folder</p> <p>19 with clean copies of the exhibit -- all the</p> <p>20 exhibits. If we need to use the folder, I can</p> <p>21 mention that I'm using it. But other than that, I</p> <p>22 don't have anything open on my computer.</p>
<p>6</p> <p>1 WHEREUPON:</p> <p>2 PRASHANT SHENOY, Ph.D.,</p> <p>3 called as a witness herein, having been first duly</p> <p>4 sworn, was examined and testified as follows:</p> <p>5 EXAMINATION</p> <p>6 BY MR. YOUNG:</p> <p>7 Q Good morning, Dr. Shenoy. How are you?</p> <p>8 A I'm doing well. Thank you. Good morning.</p> <p>9 Q I'm just going to go over a couple basics</p> <p>10 with you, and then we'll get started, if that's</p> <p>11 okay with you. Have you ever been deposed before?</p> <p>12 A Yes, I have.</p> <p>13 Q Okay. All right. So I'll skip through a</p> <p>14 lot of these things, but just the very basics.</p> <p>15 Please listen to the question. After the question</p> <p>16 is over, give -- wait a second or two so that your</p> <p>17 counsel can put an objection on the record if they</p> <p>18 want. If your counsel objects, you still need to</p> <p>19 answer, unless they instruct you not to answer</p> <p>20 based on attorney-client privilege.</p> <p>21 Do you understand that?</p> <p>22 A Yes, I do.</p>	<p>8</p> <p>1 Q Okay. That's fine. During the testimony,</p> <p>2 we'll put up the exhibit on the screen. But if</p> <p>3 you'd rather look at your paper copy of the</p> <p>4 exhibit, that's perfectly fine as well.</p> <p>5 A Thank you.</p> <p>6 Q And then lastly, once -- now that the</p> <p>7 deposition has started, you can't speak to your</p> <p>8 counsel regarding the substance of your testimony.</p> <p>9 Obviously, you can ask him logistics questions,</p> <p>10 that kind of thing, but just not the substance.</p> <p>11 Is that clear?</p> <p>12 A Yes. Thank you.</p> <p>13 Q Okay. So just in order to save some time,</p> <p>14 I'm going to introduce four different exhibits so</p> <p>15 we can mark them and you can just testify that</p> <p>16 you're familiar with them. We're not -- I'm not</p> <p>17 going to ask substantive questions on them just</p> <p>18 yet. I'm just going to mark them all.</p> <p>19 MR. YOUNG: So, Enrique, if we can please</p> <p>20 pull up the first exhibit.</p> <p>21 Q And, Dr. Shenoy, if you can identify that</p> <p>22 for the record please?</p>

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<p>9</p> <p>1 PLANET DEPOS REMOTE TECHNICIAN: Will that</p> <p>2 be the one labeled number 1, correct?</p> <p>3 MR. YOUNG: Number 1. The first exhibit.</p> <p>4 The doctor's declaration.</p> <p>5 PLANET DEPOS REMOTE TECHNICIAN: Very</p> <p>6 good. And I will mark that as Shenoy 1.</p> <p>7 MR. YOUNG: If you can just put it up on</p> <p>8 the screen so he can identify it.</p> <p>9 PLANET DEPOS REMOTE TECHNICIAN: Yes. One</p> <p>10 second, please.</p> <p>11 (Exhibit 1 was marked for identification</p> <p>12 and is attached to the transcript.)</p> <p>13 MR. YOUNG: Enrique, if you can just</p> <p>14 scroll down a bit so he can see the full -- sorry.</p> <p>15 Just go up a little bit, please. Just the first</p> <p>16 page so he can see his name on the front page of</p> <p>17 it.</p> <p>18 BY MR. YOUNG:</p> <p>19 Q Okay. So, Dr. Shenoy, are you familiar</p> <p>20 with this document?</p> <p>21 A Yes. This is the declaration I provided,</p> <p>22 the first page of the declaration I provided. But</p>	<p>11</p> <p>1 PLANET DEPOS REMOTE TECHNICIAN: Stand by.</p> <p>2 (Exhibit 3 was marked for identification</p> <p>3 and is attached to the transcript.)</p> <p>4 BY MR. YOUNG:</p> <p>5 Q And, Dr. Shenoy, are you familiar with</p> <p>6 this document that's been marked Exhibit 3 -- I'm</p> <p>7 sorry -- Exhibit Shenoy 3?</p> <p>8 A Yes. This is the Khandekar patent.</p> <p>9 Q Okay.</p> <p>10 MR. YOUNG: And then the last one for this</p> <p>11 introductory set, Enrique, if you could pull up</p> <p>12 Exhibit 4, which is a patent to Le.</p> <p>13 PLANET DEPOS REMOTE TECHNICIAN: Okay.</p> <p>14 Stand by.</p> <p>15 (Exhibit 4 was marked for identification</p> <p>16 and is attached to the transcript.)</p> <p>17 BY MR. YOUNG:</p> <p>18 Q And, Dr. Shenoy, are you familiar with the</p> <p>19 document that's been labeled Exhibit Shenoy 4?</p> <p>20 A Yes. This is the Le patent.</p> <p>21 Q Okay. Great. Okay. Great. So one</p> <p>22 last -- or two more introductory kind of</p>
<p>10</p> <p>1 as you mean, this is the PDF copy of my</p> <p>2 declaration.</p> <p>3 MR. YOUNG: So we'll mark this as</p> <p>4 Exhibit 1.</p> <p>5 Okay. If we could put up Exhibit 2, which</p> <p>6 is the Sundar patent, please.</p> <p>7 PLANET DEPOS REMOTE TECHNICIAN: Stand by.</p> <p>8 (Exhibit 2 was marked for identification</p> <p>9 and is attached to the transcript.)</p> <p>10 BY MR. YOUNG:</p> <p>11 Q And, Dr. Shenoy, are you familiar with</p> <p>12 this document that's been marked Exhibit Shenoy 2?</p> <p>13 A Yes. This is the '138 patent. The</p> <p>14 inventor is Sundar, et al.</p> <p>15 Q Okay. So if I refer to this document as</p> <p>16 the Sundar patent, you'll know what I'm referring</p> <p>17 to; correct?</p> <p>18 A Yes, I will.</p> <p>19 Q Okay. All right.</p> <p>20 MR. YOUNG: Enrique, if we could please</p> <p>21 pull up Exhibit 3, which is the patent to</p> <p>22 Khandekar.</p>	<p>12</p> <p>1 questions. I'd just like to confirm with you that</p> <p>2 you're familiar with the term "person of ordinary</p> <p>3 skill in the art." Is that correct?</p> <p>4 A Yes. And I did have an explanation of a</p> <p>5 POSITA in my declaration as it relates to this</p> <p>6 matter.</p> <p>7 Q Okay. Just so that -- for the record,</p> <p>8 when we talk about a person of ordinary skill,</p> <p>9 we'll assume that that's a person of ordinary</p> <p>10 skill in 2006 when the Sundar patent was filed,</p> <p>11 unless we say otherwise. Is that fair?</p> <p>12 A Yes, that will be fine.</p> <p>13 Q Okay. And if you have any questions about</p> <p>14 that, just let me know in my question. But if my</p> <p>15 question says "a person of ordinary skill," we're</p> <p>16 going to assume that's a person of ordinary skill</p> <p>17 in 2006, unless we say otherwise.</p> <p>18 A Okay.</p> <p>19 Q Okay. And then -- and we can -- I'm not</p> <p>20 trying to test your memory here, but -- and we can</p> <p>21 look at your declaration if we need to, but the</p> <p>22 challenged claims of the Sundar patent in this</p>

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<p>13</p> <p>1 matter are claims 1 through 5, 9, 10, 17, 19 2 through 21, and 26; is that correct? That's your 3 recollection?</p> <p>4 A I would look at my declaration, but that 5 seems reasonable -- I mean, that seems correct.</p> <p>6 Q Okay. So if I refer to the challenged 7 claims, those are the claims I'm going to be 8 referring to.</p> <p>9 A Okay.</p> <p>10 Q Okay. Great.</p> <p>11 MR. YOUNG: Okay. Enrique, if we can put 12 up the Sundar patent, which is Exhibit 2 in this 13 matter, please.</p> <p>14 PLANET DEPOS REMOTE TECHNICIAN: You want 15 control, Counsel?</p> <p>16 MR. YOUNG: Yes, please.</p> <p>17 PLANET DEPOS REMOTE TECHNICIAN: Okay. 18 You have control, Counsel.</p> <p>19 MR. YOUNG: Thank you.</p> <p>20 BY MR. YOUNG:</p> <p>21 Q Dr. Shenoy, in the Sundar patent, it uses 22 terminology and the term executing on the node --</p>	<p>15</p> <p>1 A Yes, I do.</p> <p>2 Q Okay. So if we go up to -- okay. So this 3 is figure 24 that was referring to in that quote. 4 So in this case, virtual machine manager 402 is 5 executing or running on physical node 400; is that 6 correct?</p> <p>7 A I'm going to look at the patent and then 8 my hard copy to answer that question.</p> <p>9 Q Okay. So the quote that we were just 10 reading is in column 32, lines 59 through 60. And 11 that's what I just showed you. Now we're looking 12 at the figure that it was referring to in that 13 quote.</p> <p>14 A So as I stated in the column 32, line 59, 15 it refers to figure 24 that we are just looking on 16 the screen here. And the virtual machine manager 17 402 is executing on a physical node 400.</p> <p>18 Q Okay. Great. Thank you.</p> <p>19 And node 400 in figure 24 of the Sundar 20 patent can be what the patent refers to as an 21 application node; is that correct?</p> <p>22 A Well, physical nodes, in the context of</p>
<p>14</p> <p>1 or on a node is used in the Sundar patent. Do you 2 know what -- how you view -- strike that question. 3 What does the term "executing on a node" 4 mean to you as a person of ordinary skill?</p> <p>5 MR. LIANG: Objection to form.</p> <p>6 A So executing on the node for a person of 7 ordinary skill would mean a program that's running 8 on a node.</p> <p>9 Q Okay. So would it be fair to say 10 executing on a node means, like, operating on or 11 running on a node?</p> <p>12 MR. LIANG: Objection to form.</p> <p>13 A Well, I think for a person of ordinary 14 skill, executing on a node means running on a 15 node. And operating and running mean the same -- 16 they mean the same thing. In the context of 17 execution, that would mean running on the node.</p> <p>18 Q Okay. Okay. So this is the Sundar 19 patent. We're now in column 32. And so right 20 here, do you see where it says "as illustrated in 21 figure 24, a virtual machine manager 402 is 22 executing on node 400"? Do you see that?</p>	<p>16</p> <p>1 the Sundar patent, do run applications. So in 2 this example that we are just talking about, the 3 physical node could be referred to as an 4 application node.</p> <p>5 Q Okay. And I think you just mentioned 6 this, but I want to make sure we're clear. 7 When -- as used in the Sundar patent, application 8 node is a physical computing device; is that 9 correct?</p> <p>10 A So, again, in the context of this figure 11 that we are talking about, an application node is 12 a physical node.</p> <p>13 Q And my only question is, just so that 14 we're clear, a physical node refers to a physical 15 computing device; is that correct?</p> <p>16 A In this example, a physical node would 17 refer to a physical computing device or physical 18 computer.</p> <p>19 Q Okay. As used in Sundar -- well, 20 actually, are -- in your review of Sundar, are you 21 familiar with the term "virtual machine manager"? A The Sundar patent does discuss virtual</p>

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<p>17</p> <p>1 machine manager. It's shown in figure 24 as a</p> <p>2 block 402.</p> <p>3 Q And as used in Sundar, is a virtual</p> <p>4 machine manager a software program that is capable</p> <p>5 of managing one or more virtual machines?</p> <p>6 Just for your reference, I'm referring to</p> <p>7 column 32, line 60 through 62. I can put it up on</p> <p>8 the screen if you'd like.</p> <p>9 A As column 32, line 60 states, "As used</p> <p>10 herein, a virtual machine manager is a software</p> <p>11 program that's capable of managing one or more</p> <p>12 virtual machines."</p> <p>13 So in the Sundar patent, the virtual</p> <p>14 machine manager is a software program that manages</p> <p>15 virtual machines.</p> <p>16 Q Okay. So I think, based on our -- how we</p> <p>17 arrived here so far, figure 24, which is up on</p> <p>18 your screen, in part, depicts a virtual machine</p> <p>19 manager that's executing on an application node;</p> <p>20 correct?</p> <p>21 A So in figure 24 of-- the physical node is</p> <p>22 an application node on a physical computing</p>	<p>19</p> <p>1 plurality of virtual machine -- I apologize. I</p> <p>2 don't want to misquote the text here. Strike that</p> <p>3 question, please.</p> <p>4 The claim 1 of the Sundar patent has an</p> <p>5 element that says "each of the plurality of</p> <p>6 virtual machine operable to provide an environment</p> <p>7 that emulates computer platform"; correct?</p> <p>8 A So in claim 1, there is a phrase that says</p> <p>9 that. It says "each of the plurality of the</p> <p>10 virtual machines operable to provide an</p> <p>11 environment that emulates a computer platform."</p> <p>12 Q Okay. And as used in Sundar, the</p> <p>13 "terminology create an environment" and "provide</p> <p>14 an environment" are used interchangeably; is that</p> <p>15 correct?</p> <p>16 MR. LIANG: Objection to form.</p> <p>17 Q And just to speed things up, I'm referring</p> <p>18 to column 32, line 68 through 33, line 6.</p> <p>19 A So I haven't opined on whether</p> <p>20 "providing," as stated in the claims, means</p> <p>21 "creating." I would have to think about that to</p> <p>22 make the -- to -- to equate the two.</p>
<p>18</p> <p>1 device. The virtual machine manager is executing</p> <p>2 on that computer or physical node.</p> <p>3 Q Okay. Great. And the Sundar patent also</p> <p>4 uses the term "virtual machine"; correct?</p> <p>5 A The patent does use the term "virtual</p> <p>6 machine." In this figure, it is shown as</p> <p>7 boxes 404A, 404B, and so on.</p> <p>8 Q Okay. And, again, in the Sundar patent, a</p> <p>9 virtual machine refers to software that creates an</p> <p>10 environment that emulates a computer platform;</p> <p>11 correct? And I'm referring to Sundar 32, lines 68</p> <p>12 through 33, line 6.</p> <p>13 A As stated in the Sundar patent, starting</p> <p>14 at column 33, line 1, it says "A virtual machine</p> <p>15 is used herein to refer to a software that creates</p> <p>16 an environment that emulates a computing</p> <p>17 platform."</p> <p>18 So virtual machine in the context of the</p> <p>19 patent, and this example is software that creates</p> <p>20 an environment to emulate a computing platform.</p> <p>21 Q Okay. And claim 1 of the Sundar patent</p> <p>22 includes an element that says each of the</p>	<p>20</p> <p>1 Q Okay. So do you see what's on the screen,</p> <p>2 Dr. Shenoy? This is a part of the Sundar patent.</p> <p>3 It's the very bottom of column 32 and the very top</p> <p>4 of column 33. Do you see that?</p> <p>5 A Yes, I do.</p> <p>6 Q Okay. I can actually find the highlighter</p> <p>7 this time. So I'm going to highlight a section of</p> <p>8 the patent. And I'd just like you to take a</p> <p>9 minute on your own and just read that highlighted</p> <p>10 section to yourself. And, for the record, I'm</p> <p>11 highlighting column 32, line 68 through column 33,</p> <p>12 line 6.</p> <p>13 A Yes, I read the highlighted sentences.</p> <p>14 Q Okay. So the first sentence says "The</p> <p>15 term virtual machine is used herein to refer to</p> <p>16 software that creates an environment that emulates</p> <p>17 a computer platform."</p> <p>18 Do you see that?</p> <p>19 A I do see that sentence, yes.</p> <p>20 Q And what does the phrase "creates an</p> <p>21 environment that emulates a computer platform"</p> <p>22 mean to you as a person of ordinary skill?</p>

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<p>21</p> <p>1 MR. LIANG: Objection to form.</p> <p>2 A So here the term, it's explaining what</p> <p>3 virtual machines mean, and they're a piece of</p> <p>4 software that -- an environment to emulate a</p> <p>5 computer platform. Here it says it creates an</p> <p>6 environment -- of course, virtual machines are</p> <p>7 more than just creating an environment. Virtual</p> <p>8 machines could be used to run software on that</p> <p>9 computer platform and -- and so on. But here the</p> <p>10 sentence says that it's software that creates an</p> <p>11 environment to emulate a computer platform.</p> <p>12 Q Okay. And then the very next sentence</p> <p>13 says "For example, virtual machines 40 provide</p> <p>14 environments on which guest operating systems (OS)</p> <p>15 execute as -- as though the operating systems were</p> <p>16 operating directly on a physical computing</p> <p>17 platform."</p> <p>18 Do you see that?</p> <p>19 A Yes, I do.</p> <p>20 Q Okay. So this gives an example of what</p> <p>21 the preceding sentence refers to; correct?</p> <p>22 A The sentence here that we are just talking</p>	<p>23</p> <p>1 A I haven't opined on that one way or the</p> <p>2 other. I'm going to leave it at that.</p> <p>3 Q And as you sit here today, you have no</p> <p>4 plans to further opine on that matter, as you sit</p> <p>5 here today; is that correct?</p> <p>6 A Right now, I have not met -- not conducted</p> <p>7 any further analysis to provide an opinion.</p> <p>8 Subsequent to this deposition, if the Netflix</p> <p>9 lawyers ask me to opine on this matter, I may</p> <p>10 conduct further analysis.</p> <p>11 Q Okay. And Sundar used -- and I think</p> <p>12 we've already seen examples of this -- but Sundar</p> <p>13 uses the term "computer platform"; is that</p> <p>14 correct?</p> <p>15 A It does use the term "computer platform."</p> <p>16 The sentence that we were discussing just now</p> <p>17 referring to virtual machines has that term in it</p> <p>18 saying the virtual machines used herein to refer</p> <p>19 to software that creates an environment that</p> <p>20 emulates a computer platform.</p> <p>21 Q And as used in Sundar, the term "computer</p> <p>22 platform" simply means an environment on which</p>
<p>22</p> <p>1 about does say "For example, virtual machines 40</p> <p>2 provide environments on which guest operating</p> <p>3 systems execute."</p> <p>4 Q So to get back to my original question, as</p> <p>5 used in Sundar, the term "create an environment"</p> <p>6 or "provide an environment" are used</p> <p>7 interchangeably; correct?</p> <p>8 A In these two sentences, the word "create"</p> <p>9 and "provide" do appear. It does say "for</p> <p>10 example." However, in my opinion, "providing an</p> <p>11 environment" and "creating the environment" are</p> <p>12 not necessarily the same thing. And I haven't</p> <p>13 opined on that in my declaration either. There</p> <p>14 are two example sentences here that use these</p> <p>15 terms. Whether that is what the rest of the</p> <p>16 patents say or the claims say, I'm not able to</p> <p>17 opine on that without much more deliberation.</p> <p>18 Q Okay. So as you sit here today, are you</p> <p>19 aware of anything in the Sundar patent itself that</p> <p>20 would lead a person of ordinary skill in the art</p> <p>21 to believe that "create an environment" and</p> <p>22 "provide an environment" are not the same thing?</p>	<p>24</p> <p>1 software can execute; is that correct?</p> <p>2 A So in this example that we were just</p> <p>3 talking about, it's an environment which emulates</p> <p>4 a platform on which application software can run.</p> <p>5 Q And, I apologize, Dr. Shenoy. I didn't</p> <p>6 hear that last -- that last part. You said</p> <p>7 software can what?</p> <p>8 A The environment -- as I -- in the example</p> <p>9 that we were talking about, the sentence that we</p> <p>10 were talking about, the environment emulates a</p> <p>11 computer platform on which software can run.</p> <p>12 Q Okay. Okay. And Sundar gives an example</p> <p>13 of an x86 machine being an example of a computer</p> <p>14 platform; is that correct?</p> <p>15 A So in column 33, line 11 that's still on</p> <p>16 the screen, it says "For example, if the virtual</p> <p>17 machine emulates an x86 machine, an instance of</p> <p>18 the Microsoft Windows operating system execute on</p> <p>19 the virtual machine."</p> <p>20 So this is an example where an x86</p> <p>21 platform is a computer platform on which Windows</p> <p>22 is running.</p>

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<p>25</p> <p>1 Q So I'm going to highlight for you claim 5</p> <p>2 of the Sundar patent. Do you -- do you see that</p> <p>3 on your screen?</p> <p>4 A Yes, I do.</p> <p>5 Q Okay. And claim 5 has the limitation --</p> <p>6 it obviously depends on claim 1, but it states</p> <p>7 "wherein a first one of the virtual machines</p> <p>8 provides an environment that emulates an x86</p> <p>9 platform."</p> <p>10 Do you see that?</p> <p>11 A Yes, I do.</p> <p>12 Q So, in your opinion, what would a person</p> <p>13 of ordinary skill in the art understand that --</p> <p>14 just that specific limitation in claim 5 to mean</p> <p>15 to them?</p> <p>16 A So I have opined on this matter in my</p> <p>17 declaration. So this claim element is describing</p> <p>18 a virtual machine that is providing an x86</p> <p>19 environment, which is an Intel -- Intel platform.</p> <p>20 Q And this Intel platform would be used for</p> <p>21 other software to run on or execute on; is that</p> <p>22 correct?</p>	<p>27</p> <p>1 Q And as used in the Sundar patent, the</p> <p>2 virtual machines -- the virtual machines are</p> <p>3 created on the application nodes; correct?</p> <p>4 A Again, in the context of figure 27A that I</p> <p>5 was just describing, the virtual machines are</p> <p>6 created on the physical node on which the virtual</p> <p>7 machine manager runs in that example.</p> <p>8 Q And those -- in that example, those are</p> <p>9 also referred to as application nodes in the</p> <p>10 Sundar patent; correct?</p> <p>11 A So, in that example, it says that each of</p> <p>12 the virtual machines appear to be physical nodes</p> <p>13 available for use as application nodes when</p> <p>14 needed.</p> <p>15 Q Okay.</p> <p>16 A So it's talking about virtual machines</p> <p>17 appearing to be physical nodes that are available</p> <p>18 for use as application nodes.</p> <p>19 Q And the -- the Sundar patent describes or</p> <p>20 teaches that software applications can execute on</p> <p>21 the virtual machine; correct?</p> <p>22 MR. LIANG: Objection to form.</p>
<p>26</p> <p>1 MR. LIANG: Objection to form.</p> <p>2 A So, again, reading this claim, the virtual</p> <p>3 machine provides an emulation of an x86 platform,</p> <p>4 and you can run software in the virtual machine</p> <p>5 that runs on the emulator of the x86 platform.</p> <p>6 Q Okay. And as used in the Sundar patent --</p> <p>7 well, strike that.</p> <p>8 The Sundar patent teaches that the virtual</p> <p>9 machine manager creates the virtual machine; is</p> <p>10 that correct?</p> <p>11 MR. LIANG: Objection.</p> <p>12 A So -- so I'm going to refer to figure 27A,</p> <p>13 which is described in column 35, line -- starting</p> <p>14 line 33. And the sentence there says "After these</p> <p>15 physical nodes boot with the virtual machine</p> <p>16 manager image instance, each of the nodes creates</p> <p>17 virtual machine as specified by the imaged</p> <p>18 instances."</p> <p>19 So in the context of figure 27A, it is</p> <p>20 describing a virtual machine manager instance,</p> <p>21 which allows the node to create virtual machines</p> <p>22 as specified.</p>	<p>28</p> <p>1 Q And, Dr. Shenoy, just -- I mean, this is</p> <p>2 not a memory test. So, just, I can refer you to</p> <p>3 where I'm -- where I'm referring to. So if you</p> <p>4 look at column 33 -- and I'm going to delete this</p> <p>5 highlighting, and then I'm going to highlight</p> <p>6 another section of the patent.</p> <p>7 So I've -- for the record, I've</p> <p>8 highlighted column 33, lines 6 through 11.</p> <p>9 And, Dr. Shenoy, I'll reask the question</p> <p>10 so there's no confusion. But as taught in Sundar,</p> <p>11 software applications can execute or -- execute on</p> <p>12 the virtual machine; correct?</p> <p>13 A So in column 33, starting line 6, it -- it</p> <p>14 says "Multiple operating systems and software</p> <p>15 applications 406A through 406N may execute on</p> <p>16 virtual machines."</p> <p>17 So in this example that we are discussing,</p> <p>18 operating systems and software applications can</p> <p>19 execute on virtual machines.</p> <p>20 Q Okay. So I'm going back now to figure 24</p> <p>21 of the Sundar patent. And in this case it's</p> <p>22 showing, as you've already highlighted earlier,</p>

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<p>29</p> <p>1 virtual machine, in this case, 404A. And in this</p> <p>2 diagram, it shows operating system and</p> <p>3 applications 406A executing on the virtual machine</p> <p>4 404A; correct?</p> <p>5 A So in this figure --</p> <p>6 MR. LIANG: Sorry. Objection to form.</p> <p>7 A So in this figure, there is a box -- there</p> <p>8 are boxes labeled virtual machines, 404A, 404B,</p> <p>9 404 -- through 404N. There are boxes labeled</p> <p>10 operating system, OS/applications, 406A, B through</p> <p>11 N. And it is showing that the OS and applications</p> <p>12 are executing on the virtual machines in this</p> <p>13 figure.</p> <p>14 Q Okay. So as taught in the Sundar patent,</p> <p>15 the virtual machine must be established before the</p> <p>16 image instances of the software applications can</p> <p>17 be executed on the virtual machines; correct?</p> <p>18 MR. LIANG: Objection to form.</p> <p>19 A Could you repeat the question, please?</p> <p>20 Q Yes.</p> <p>21 As used in the Sundar patent or as taught</p> <p>22 in the Sundar patent, the virtual machine must be</p>	<p>31</p> <p>1 A So just to be clear, the sentence that</p> <p>2 appears in column 35 is referring to figure 26.</p> <p>3 The figure on the screen is figure 24. So the</p> <p>4 figure 26 is a flow chart, and it does say that</p> <p>5 virtual machine manager 402 can create a virtual</p> <p>6 machine.</p> <p>7 Q And I note -- and you are absolutely</p> <p>8 correct, that that section in column 35 is</p> <p>9 referring to figure 26, but it's also using the</p> <p>10 numbers 402 to designate virtual machine manager</p> <p>11 and 404 for virtual machine, and those numbers are</p> <p>12 exactly the same numbers being used in column --</p> <p>13 I'm sorry -- in figure 24; correct?</p> <p>14 A So the virtual machine manager's numbers</p> <p>15 are the same across the two figures, and so are</p> <p>16 the numbers for the virtual machine. But figure</p> <p>17 24 is describing an example of a distributed</p> <p>18 computing system, whereas figure 26 is a flow</p> <p>19 chart of example procedures for creating and</p> <p>20 capturing a virtual disk image, which are two</p> <p>21 different things.</p> <p>22 Q Dr. Shenoy, do you think a person of</p>
<p>30</p> <p>1 established before the image instances of the</p> <p>2 software applications can be executable on the</p> <p>3 virtual machines; correct?</p> <p>4 MR. LIANG: Objection to form.</p> <p>5 A So I don't understand the question fully.</p> <p>6 I did explain earlier that in this figure there's</p> <p>7 a virtual machine on which the OS and the</p> <p>8 applications are executing.</p> <p>9 Q And I think we've already established</p> <p>10 earlier that the virtual machine manager 402</p> <p>11 creates the virtual machine 404; correct?</p> <p>12 A So that was a different figure that we</p> <p>13 were discussing, which was figure 27A. In the</p> <p>14 context of figure 27A, we did look at some</p> <p>15 sentences that explain that the virtual machine</p> <p>16 manager creates a virtual machine.</p> <p>17 Q And that's the same for this figure,</p> <p>18 right? If we look at, as an example, look at</p> <p>19 column 35, lines 6 through 10, in that section, it</p> <p>20 states that the virtual machine manager creates</p> <p>21 the virtual machine. For example, virtual machine</p> <p>22 404 on node 400; correct?</p>	<p>32</p> <p>1 ordinary skill reading this patent would think</p> <p>2 that when column 35, lines 6 through 10, is</p> <p>3 referring to virtual machine manager 402 and</p> <p>4 virtual machine 404, that that person would think</p> <p>5 that that sentence does not apply to figure 24?</p> <p>6 A So that sentence appears in figure 26.</p> <p>7 Figure 24 is just an example. It doesn't talk</p> <p>8 about what the functions of capturing a virtual</p> <p>9 disk image are. So I think in the context of</p> <p>10 figure 26, certainly a virtual machine manager is</p> <p>11 creating a virtual machine. And they also discuss</p> <p>12 that for figure 27A.</p> <p>13 Q So as you sit here today, Dr. Shenoy, do</p> <p>14 you have any reason to believe that, as set forth</p> <p>15 in figure 24, the virtual machine manager 402 did</p> <p>16 not create virtual machine 404?</p> <p>17 A Figure 24 is just showing an example of a</p> <p>18 distributed computing system and its components,</p> <p>19 physical nodes, virtual machine manager, virtual</p> <p>20 machines, OSM applications. It doesn't say</p> <p>21 anything about creating virtual machines,</p> <p>22 capturing images of virtual machines, or anything</p>

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<p style="text-align: right;">33</p> <p>1 like that. It is just to be seen as an example of</p> <p>2 a distributed computing system.</p> <p>3 Q Okay. So you don't have an opinion one</p> <p>4 way or the other, with respect to figure 24, as to</p> <p>5 how virtual machine 404A was created; is that</p> <p>6 true?</p> <p>7 A Figure 24's description does not say</p> <p>8 anything about virtual machines creation. Those</p> <p>9 are described in other figures. And in that</p> <p>10 context, I have already said that the virtual</p> <p>11 machine manager creates virtual machines.</p> <p>12 Q Are you aware of anything in the Sundar</p> <p>13 patent that refers to a way that a virtual machine</p> <p>14 is created, other than being created by a virtual</p> <p>15 machine manager?</p> <p>16 A The two examples that we just discussed</p> <p>17 were ones where the virtual machine manager was</p> <p>18 creating the virtual machine. Those were figures</p> <p>19 26 and 27A. I have not read the patent, but I</p> <p>20 cannot recall other disclosures that say otherwise</p> <p>21 from those two figures.</p> <p>22 Q Okay. I'm going back, then, now to</p>	<p style="text-align: right;">35</p> <p>1 Box 400, as shown in figure 24, yes.</p> <p>2 Q Okay. And we've already established that</p> <p>3 when used in the Sundar patent, virtual machines</p> <p>4 refers to software that creates an environment</p> <p>5 that emulates a computer platform; right?</p> <p>6 A So we discussed in the context of the --</p> <p>7 this figures, that there are sentences here that</p> <p>8 use virtual machines to refer to software that</p> <p>9 create environments to emulate computer platforms.</p> <p>10 We also discussed an example of a platform is an</p> <p>11 x86 machine.</p> <p>12 Q Okay. So as used in figure 24, the</p> <p>13 virtual machine -- well, I take that back. Strike</p> <p>14 that question.</p> <p>15 As used in figure 24, the software</p> <p>16 applications which are in boxes 406A through N</p> <p>17 execute on the virtual machines 404A through 404N;</p> <p>18 correct? And that's what I'm highlighting here in</p> <p>19 column 32, lines 6 through 9.</p> <p>20 A Yeah. The sentence in column 33 that you</p> <p>21 just highlighted do say that the operating system</p> <p>22 and software applications execute -- may execute</p>
<p style="text-align: right;">34</p> <p>1 Sundar, the bottom of -- the bottom of column 32</p> <p>2 and the top of column 33. Do you see that?</p> <p>3 A Yes, I do.</p> <p>4 Q I'm going to get rid of this previous</p> <p>5 highlighting so we can highlight different stuff.</p> <p>6 Now, this particular section of the Sundar</p> <p>7 patent is referring to figure 24, as I've</p> <p>8 highlighted in column 32, line 59; correct?</p> <p>9 A Yes, it does.</p> <p>10 Q Okay. And you remember what figure 24</p> <p>11 looks like? Or if you can't, then just pull up a</p> <p>12 copy of it on your hard copy so that we can -- so</p> <p>13 you can both be looking at the figure and looking</p> <p>14 at the text simultaneously.</p> <p>15 A Okay.</p> <p>16 Q Okay. So in column 32, line 65, it says</p> <p>17 "when deployed on physical node 200," and I think</p> <p>18 that is a typographical error and should say</p> <p>19 physical node 400, but it says "virtual machine</p> <p>20 manager 402 hosts virtual machines 404A through</p> <p>21 404N"; correct?</p> <p>22 A Assuming that the physical node is</p>	<p style="text-align: right;">36</p> <p>1 on virtual machines.</p> <p>2 Q And are you familiar with the term "image</p> <p>3 instance" as used in the Sundar patent?</p> <p>4 A So the term "image instance" does appear</p> <p>5 in the patent.</p> <p>6 Q And what does the term "image instance" --</p> <p>7 well, strike that.</p> <p>8 What would the term "image instance," as</p> <p>9 used in Sundar, mean to a person of ordinary</p> <p>10 skill?</p> <p>11 MR. LIANG: Objection to form.</p> <p>12 A So I haven't provided construction of that</p> <p>13 term in my declaration. I did provide some</p> <p>14 constructions for a term that relates instances to</p> <p>15 software and so on. We can go through some text</p> <p>16 in the patent to get an understanding of that</p> <p>17 term.</p> <p>18 Q Let's --</p> <p>19 MR. YOUNG: Enrique, if you could pull up</p> <p>20 Exhibit 1, and if you could go to page 11,</p> <p>21 paragraph 16, please. And if you can go down just</p> <p>22 a little bit further, please. Okay.</p>

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<p>37</p> <p>1 Q Dr. Shenoy, you're familiar with this</p> <p>2 document labeled Exhibit 1; correct?</p> <p>3 A Yes, this is my declaration.</p> <p>4 Q Okay.</p> <p>5 MR. YOUNG: And, Enrique, if you could</p> <p>6 give me control for a moment, that would be great.</p> <p>7 Okay.</p> <p>8 PLANET DEPOS REMOTE TECHNICIAN: You have</p> <p>9 control, Counsel.</p> <p>10 MR. YOUNG: Okay. Thank you.</p> <p>11 BY MR. YOUNG:</p> <p>12 Q So, Dr. Shenoy, what I'd like to ask you</p> <p>13 about is the last sentence on the bottom of page</p> <p>14 11 that I've highlighted, and it goes -- continues</p> <p>15 to the next page.</p> <p>16 Do you see that sentence?</p> <p>17 A Yes, I do.</p> <p>18 Q And this is -- this sentence is -- and,</p> <p>19 again, this is the last sentence on page 11, and</p> <p>20 it goes to the top of page 12 of your declaration</p> <p>21 marked as Exhibit 1.</p> <p>22 And in this sentence you use the term</p>	<p>39</p> <p>1 Q Okay. And then there would be -- as you</p> <p>2 used in this sentence, there would be a separate</p> <p>3 image instance of the software applications;</p> <p>4 correct?</p> <p>5 A There will be image instances of software</p> <p>6 applications as well, yes.</p> <p>7 Q And both sets of those images would be</p> <p>8 stored in the software image repository; correct?</p> <p>9 A In this example -- or the sentence that</p> <p>10 we're talking about, the software image repository</p> <p>11 would store image instances of the virtual machine</p> <p>12 managers and image instances of software</p> <p>13 applications.</p> <p>14 Q Okay. Great. Well, I think we've been on</p> <p>15 the record for just about an hour. So let's take</p> <p>16 a break, if that's okay with you, Dr. Shenoy.</p> <p>17 A Yes, that should be fine. Thank you.</p> <p>18 Q So let's go back on the record at -- well,</p> <p>19 Mountain Time would be 9:10. I'm not sure where</p> <p>20 you're located, Dr. Shenoy. If it's East Coast,</p> <p>21 then it would be 11:10.</p> <p>22 A Thank you. Yes, I am on the East Coast.</p>
<p>38</p> <p>1 "image instances"; correct?</p> <p>2 A Yes, I do.</p> <p>3 Q Okay. What do you mean by the term "image</p> <p>4 instances" in this sentence of your declaration?</p> <p>5 MR. LIANG: Objection to form.</p> <p>6 A So here it's just talking about software</p> <p>7 image repository that stores image instances of</p> <p>8 virtual machine managers and software</p> <p>9 applications. So they are -- these are images of</p> <p>10 VMMs, virtual machine managers, and software</p> <p>11 applications.</p> <p>12 Q Right.</p> <p>13 And so my question is, what is an image</p> <p>14 instance of a virtual machine manager, for</p> <p>15 example?</p> <p>16 MR. LIANG: Objection to form.</p> <p>17 A So as I said, I haven't given a definition</p> <p>18 of the term "image instance." It would be -- for</p> <p>19 the virtual machine manager, it will be a copy of</p> <p>20 the virtual machine manager or -- that has all its</p> <p>21 files. Could also be a snapshot of the virtual</p> <p>22 machine manager or the software applications.</p>	<p>40</p> <p>1 Thanks.</p> <p>2 MR. YOUNG: Okay. Thank you so much.</p> <p>3 (A short break was had.)</p> <p>4 MR. YOUNG: Enrique, if you can put back</p> <p>5 up Exhibit 2 for me and just hand me back control</p> <p>6 of the document. Okay.</p> <p>7 BY MR. YOUNG:</p> <p>8 Q So welcome back, Dr. Shenoy. Just to --</p> <p>9 we're going to -- I have on the screen the Sundar</p> <p>10 patent. The Sundar patent discloses a way to</p> <p>11 capture image instances of the virtual machine</p> <p>12 manager; correct?</p> <p>13 A There are disclosures in the Sundar patent</p> <p>14 about capturing images of virtual machine</p> <p>15 managers, yes.</p> <p>16 Q Okay. And it also discloses ways to</p> <p>17 capture image instances of the operating system</p> <p>18 and software applications as well; correct?</p> <p>19 A There are disclosures in the Sundar patent</p> <p>20 about capturing the operating system and</p> <p>21 application images as well.</p> <p>22 Q Okay. And the Sundar patent refers to</p>

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<p style="text-align: right;">41</p> <p>1 this process as a two-phase capture process; is 2 that correct? And I can highlight for you where 3 I'm referring to. I'm referring to specifically 4 column 33, line 42, which I've highlighted. 5 A Yes. In this embodiment that we are 6 discussing, it does refer to a two-phase capture 7 process for capturing the virtual machine manager 8 and the applications. 9 Q Okay. And it states that the first 10 capture is of the image instance of the virtual 11 machine manager; correct? 12 A So at line 46, it does talk about control 13 node 12 would capture -- would first capture an 14 image of the virtual machine manager installed on 15 physical node 400. So in this particular example, 16 it talks about doing that first. 17 Q And that capture is done prior to the 18 installation and configuration of any guest 19 operating system and applications; correct? 20 A So, again, that sentence goes on and says 21 it's prior to the installation and configuration 22 of any guest operating system and applications</p>	<p style="text-align: right;">43</p> <p>1 image that is used to create other image 2 instances. For instance, in this example, it is a 3 master image. 4 Q How would a person of ordinary skill use 5 an a master image of a virtual machine manager? 6 MR. LIANG: Objection to form. 7 A So, again, in this example, it does talk 8 about using the golden image from which other 9 image instances can be created. So it is used to 10 create other image instances as the master image, 11 in this example. 12 Q And why would a person of ordinary skill 13 want a specific master image of a virtual machine 14 manager? 15 MR. LIANG: Objection to form. 16 A So, again, in this example, the golden 17 image is used as a master image to create lots of 18 other instances. So it is being used as the 19 master image for other installation -- or for 20 other image instance creations, as is stated in 21 line starting 50. 22 Q Right. And -- and we've established that</p>
<p style="text-align: right;">42</p> <p>1 406. So in this particular example, yes. 2 Q Okay. So to put this in laymen's terms, 3 the virtual machine manager 402 is installed on a 4 physical node 400, and the control node 12 5 captures an image instance of that particular 6 virtual machine manager; correct? 7 A So, in this example, the control node is 8 capturing an image of the virtual machine manager 9 where there is no OS or applications installed. 10 Q Okay. Okay. 11 And this section goes on to talk about 12 that the captured image of the virtual machine 13 manager 402 can be captured as what's called a, 14 quote, golden image; is that correct? 15 A So the following sentence does refer to 16 the captured image of the virtual machine manager 17 402 as the golden image, yes. 18 Q What would a person of ordinary skill 19 consider a golden image of a virtual machine 20 manager to be, back in 2006? 21 MR. LIANG: Objection to form. 22 A So, in this case, the golden image is an</p>	<p style="text-align: right;">44</p> <p>1 in this particular example, the golden image of 2 the V -- of the virtual machine manager does not 3 include an operating system or applications; 4 correct? 5 MR. LIANG: Objection to form. 6 A So as we discussed earlier, the virtual 7 machine manager itself does not include any guest 8 operating system or applications. Virtual machine 9 managers are themselves a type of a special 10 operating systems. 11 Q So my question then becomes, why would a 12 person -- in your opinion, why would a person of 13 ordinary skill want to create a golden image or a 14 master image of just the virtual machine manager? 15 MR. LIANG: Objection to form. 16 A So, in this example, this golden image is 17 being used for autonomic deployment of the virtual 18 machine manager. 19 Q And we established earlier in the 20 deposition that the virtual machine manager 21 creates the virtual machine; correct? 22 MR. LIANG: Objection to form.</p>

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<p style="text-align: right;">45</p> <p>1 A So we saw some embodiments where the 2 virtual machine manager creates the virtual 3 machine. We also talked about virtual machine 4 manager executing a virtual machine. 5 Q So -- I apologize. I didn't mean to -- 6 did you -- I'm sorry. I didn't mean you cut you 7 off. I apologize. 8 A Yeah, I was going to say virtual machine 9 managers that are running a virtual machine don't 10 necessarily have to have created that virtual 11 machine because virtual machines can be migrated 12 from one host to the other. So just because 13 you're running a virtual machine doesn't mean that 14 that virtual machine manager created the virtual 15 machine. But, certainly, we have discussed figure 16 and examples where you create the virtual machine 17 and you run the virtual machine. 18 Q Do you -- do you -- in your opinion, would 19 a person of ordinary skill reading the Sundar 20 patent think that a -- that creating a golden 21 image of a virtual machine manager would allow 22 them to autonomically deploy the virtual machine</p>	<p style="text-align: right;">47</p> <p>1 describes capturing a virtual machine manager 2 image. 3 Q Okay. And if you could for me -- I'll try 4 to get this a little smaller so you can see it. I 5 have figure 25 up on the screen. And if you 6 wouldn't mind, in your own words, walk us through 7 what figure 25 is showing us. 8 MR. LIANG: Objection to form. 9 A Okay. Figure 25 is describing a specific 10 embodiment where you first set aside or choose a 11 node for imaging as an image host, that's step 12 410. Then you install a virtual machine manager 13 on that host, which is 4 -- step 412. You can 14 then configure the virtual machine manager with a 15 desired number of VMs that you want to run on it. 16 That's the next step. You can perform additional 17 configuration of networking and storage area 18 network, SAN, configuration. That's step 416. 19 And in the final step, you capture using the 20 control node -- or you specify, rather, the 21 capture of the virtual machine manager that is 22 being installed on that host.</p>
<p style="text-align: right;">46</p> <p>1 manager in order to create a virtual machine on an 2 application node? 3 MR. LIANG: Objection to form. 4 A So in this example we are talking about, 5 you have a golden image of a virtual machine 6 manager that is being used for autonomic 7 deployment. Once the autonomic deployment is 8 done, the virtual machine manager can perform a 9 number of tasks. 10 Q And would one of those tasks be to create 11 a virtual machine on an application node? 12 MR. LIANG: Objection to form. 13 A Again, that -- we looked at figure 26 and 14 27, where the virtual machine manager was creating 15 virtual machines. We also talked about executing 16 virtual machines. 17 Q Okay. And -- and I will put it up on the 18 screen in a second, but Sundar discloses a flow 19 chart that talks about how to create an image 20 instance of a virtual machine manager; correct? 21 And I will put it up on the -- on the machine now. 22 A So figure 25 is a flow chart that</p>	<p style="text-align: right;">48</p> <p>1 Q And then after that captured image of the 2 virtual machine manager, the control node then 3 stores that captured image for subsequent use for 4 autonomic deployment; is that correct? 5 A That is not shown in this flow chart, but 6 we saw some sentences earlier which said that the 7 images are used for autonomic deployment. 8 Q Yeah, and I'll pull those up in a second 9 here. So we're looking at now -- we're going to 10 look at column 34. And as you see in this column 11 34 starting at line 48, it's referring to figure 12 25 that we just looked at; correct? 13 A Yes, that's right. 14 Q Okay. And then -- and you're welcome to 15 read the whole paragraph on your own, but what my 16 question is, with respect to the storage, occurs 17 in the very last sentence, which I've now 18 highlighted it. And that's going to be column 34, 19 lines 64 through 67. 20 A So in the context of figure 25 and the 21 highlighted text, it does say that the control 22 node will store the captured image as a golden</p>

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<p style="text-align: right;">49</p> <p>1 image and will use it subsequently for autonomic 2 deployment. 3 Q Okay. And then up above -- and I'm going 4 to highlight this as starting in line 52, it talks 5 about an administrator, which is part of control 6 node 12, may then install particular type of 7 virtual machine manager 402 on -- on node 400. 8 Do you see that? 9 A Yes, I do. 10 Q Okay. And why does it say install -- or 11 why do you believe it says "install a particular 12 type of virtual machine manager"? 13 A So the sentence -- or, rather, the figure 14 description starts -- and in line 47, starts off 15 by saying "It's an example procedure for creating 16 and capturing a golden image for a particular 17 machine, virtual machine manager." So to capture 18 the golden image of that virtual machine manager, 19 the administrator is installing that virtual 20 machine manager on node 400. 21 Q So I would understand that to mean that 22 you could have many different types of virtual</p>	<p style="text-align: right;">51</p> <p>1 A You can also have a different 2 configuration of the physical node and capture a 3 virtual machine manager image of that node on a 4 particular virtual -- virtual machine manager. 5 Q So then if a person of ordinary skill 6 had -- in this -- I'll give you a hypothetical 7 example -- two different physical configurations 8 of two different applications nodes, that person 9 may want to have two different image instances of 10 a virtual machine to apply one specifically to 11 each application node; right? 12 A Your question said virtual machine, but 13 I'm assuming it meant virtual machine manager. 14 Q I apologize. I'll restate the 15 hypothetical. Thank you for clarifying. 16 So in a hypothetical example, a person of 17 ordinary skill may have two different physical 18 configurations for two different application nodes 19 and, therefore, want to have two different image 20 instances of a virtual machine manager to be 21 specific to each of those particular nodes; 22 correct?</p>
<p style="text-align: right;">50</p> <p>1 machine managers; is that correct? 2 A In this example, if you want to capture an 3 image of a particular machine -- virtual machine 4 manager, you will install it. If you wanted to 5 capture the golden image of a different virtual 6 machine manager, you will install that other 7 virtual machine manager on the node and then 8 capture it. 9 Q Why would a person of ordinary skill want 10 to have different types of image instances of a 11 virtual machine manager? 12 A So there were many products for virtual 13 machine managers, just as there are many different 14 kinds of operating systems. You have Windows and 15 Unix. There's similarly different types of 16 virtual machine managers. And this flow chart is 17 just describing how to create a golden image of 18 each of those types of virtual machine managers. 19 Q So it would be possible to have a 20 virtual -- a different virtual machine manager for 21 each physical configuration of an application 22 node, for example; is that correct?</p>	<p style="text-align: right;">52</p> <p>1 A In this hypothetical example where there 2 are two different application nodes with different 3 configurations, you can capture images of the 4 virtual machine manager for each of those 5 application nodes. 6 Q Okay. And Sundar also refers to a second 7 capture process; correct? For image instances. I 8 apologize. 9 A It talks about, in a different figure, 10 capturing images of software applications. 11 Q And that second capture period for the 12 operating systems and software applications occurs 13 after the capture of the image instances of the 14 virtual machine manager; correct? 15 MR. LIANG: Objection to form. 16 A The capture process has no dependency at 17 all. You can capture images of software 18 applications before you capture the image instance 19 of a virtual machine manager. 20 Q Okay. In column -- I'm going to 21 highlight -- I'm looking now at column 33 of the 22 Sundar patent, and I am looking at, starting at</p>

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<p>53</p> <p>1 line 55. And this -- in this particular 2 description in Sundar, it says that the capture of 3 the operating system and applications occurs after 4 the capture of the virtual machine manager; 5 correct?</p> <p>6 A So it's talking about an administrator 7 installing one or more virtual machines to virtual 8 machine manager and then configuring a guest 9 operating system and then capturing the virtual -- 10 the software image of the virtual machine. It's 11 not talking about capturing those virtual machine 12 managers before you capture the software 13 applications.</p> <p>14 You could have two application nodes: one 15 has a virtual machine manager, no operating 16 system; a second node that has a virtual machine 17 manager and operating systems, like is shown in 18 this example. And it's perfectly fine to capture 19 the image instance of the second node first. And 20 then you capture a golden image of the virtual 21 machine manager afterwards.</p> <p>22 So there is no dependency, based on this</p>	<p>55</p> <p>1 ways, just as it discloses capturing many 2 different types of virtual machine managers, many 3 different types of application images, and so on. 4 One would assume there are many nodes that are 5 used to capture all of these different types of 6 images, not just one machine to do them all.</p> <p>7 Q And in this second capture process that's 8 described in Sundar, with respect to the operating 9 systems and the applications, it also refers to 10 the ability to create a golden image of the 11 particular operating system and applications; 12 correct? And I'll highlight that for you. It's 13 just here on -- it's in column 33, starting on 14 line 60 and going to, I believe, 64.</p> <p>15 A So in this case, it does describe the 16 captured images of the operating system and 17 applications as golden images for the captured 18 software.</p> <p>19 Q Okay. And in that sentence in column 33, 20 starting at line 60 and going to line 64, why does 21 it say -- or why do you believe it says it also 22 captures the specific configuration of the virtual</p>
<p>54</p> <p>1 sentence or anywhere else that I recall, that you 2 are to capture the images in a certain order.</p> <p>3 Q Right. But in this particular example in 4 column 33, starting at line 52, it says after the 5 first capture is complete. And then it describes 6 the process to then capture, in a second process, 7 the application -- I'm sorry -- the operating 8 systems and the applications as an image instance; 9 correct?</p> <p>10 A So in this particular example of the 11 two-phase capture process, it's using the same 12 application node to perform both captures. And 13 it's capturing the virtual machine manager image 14 first, then installing additional software, and 15 then capturing the software applications. But as 16 I said, there are many other ways to do it where 17 the dependency doesn't exist.</p> <p>18 Q And are you familiar if any of those ways 19 are disclosed in the Sundar patent?</p> <p>20 A I'd have to look at it, but, I mean, this 21 is such a straightforward concept that I think it 22 would have been obvious to capture many different</p>	<p>56</p> <p>1 machine?</p> <p>2 A So it is capturing the configuration of 3 the virtual machine so that you can produce 4 bootable instances of virtual machines, based on 5 line 65.</p> <p>6 Q And those virtual disk images are then 7 bootable on the virtual machines; correct?</p> <p>8 A So the golden image can be used to produce 9 image instances that are bootable, as is mentioned 10 on line 64.</p> <p>11 Q And they're bootable on the virtual 12 machine; correct?</p> <p>13 A It does say they're bootable on the 14 virtual machine in that sentence, yes.</p> <p>15 Q And those image instances of the operating 16 systems and the applications, those image 17 instances are then stored for later autonomic 18 deployment; correct?</p> <p>19 A So in this example, starting at line 66, 20 it does say that the image instances may likewise 21 be stored in application metrics for autonomic 22 deployment. So they are stored in the application</p>

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<p>57</p> <p>1 matrix for autonomic deployment.</p> <p>2 Q Okay. And then the Sundar patent then</p> <p>3 describes a figure 26, which is a flow chart for</p> <p>4 creating and capturing a virtual disk file, which</p> <p>5 is a golden image of a guest operating system and</p> <p>6 application for execution on a virtual machine;</p> <p>7 correct? And that is at the top of column 34,</p> <p>8 starting at -- oh, I apologize -- top of 35,</p> <p>9 starting at lines 1 through 5.</p> <p>10 A Yes. Figure 26 does describe an example</p> <p>11 procedure for creating and capturing a virtual</p> <p>12 disk image file, which is referred to as a golden</p> <p>13 image, of the guest operating system and</p> <p>14 applications and for execution on the virtual</p> <p>15 machine.</p> <p>16 Q Okay. So I'm going to go, then, to</p> <p>17 figure 26. I have figure 26 on the screen. If</p> <p>18 you could, then, as you did with figure 27, kind</p> <p>19 of walk us through your understanding of what this</p> <p>20 flow chart describes.</p> <p>21 A Okay. So this is an example procedure for</p> <p>22 capturing image instance of software applications.</p>	<p>59</p> <p>1 A Step -- the first step, there is a</p> <p>2 physical node running a virtual machine manager</p> <p>3 that is chosen for the capture process.</p> <p>4 Q And then, in this example, in the next</p> <p>5 step, the virtual machine manager is used to</p> <p>6 create the virtual machine; correct?</p> <p>7 A So you do create at virtual machine on the</p> <p>8 node. You would use a virtual machine manager,</p> <p>9 but there is an administrator that is requesting</p> <p>10 the virtual machine manager to clear the virtual</p> <p>11 machine, as we had seen in that example.</p> <p>12 Q And the administrator is part of the</p> <p>13 control node 12; correct?</p> <p>14 MR. LIANG: Objection to form.</p> <p>15 A The administrator is a human</p> <p>16 administrator. It's a person. It's not on the</p> <p>17 control node.</p> <p>18 Q So the administrator uses the control node</p> <p>19 to configure the virtual machine manager to create</p> <p>20 the virtual machine; correct?</p> <p>21 MR. LIANG: Objection to form.</p> <p>22 A So in column 35, starting at line 6, it</p>
<p>58</p> <p>1 So it starts off by choosing or setting aside a</p> <p>2 node that is running a virtual machine manager.</p> <p>3 And it creates a virtual machine on that node.</p> <p>4 That's the second step. It then installs an</p> <p>5 operating system and applications and performs any</p> <p>6 configurations for the OS and applications as</p> <p>7 needed. Then it takes a snapshot of the virtual</p> <p>8 disk, of the virtual -- of the VM, and it captures</p> <p>9 the virtual disk image onto the control node.</p> <p>10 Q And then, similar to figure 25, but with</p> <p>11 figure 26, once that image instance of the</p> <p>12 software applications is captured, then it is then</p> <p>13 stored for later autonomic deployment; correct?</p> <p>14 A That is not shown in the flow chart, but</p> <p>15 the text that we had discussed earlier does talk</p> <p>16 about storing this image or autonomic deployment.</p> <p>17 Q Okay. So then, just looking at step 420,</p> <p>18 I think you've already described this, I just want</p> <p>19 to make sure that I have a clear understanding.</p> <p>20 In step 420, there is a physical node, which we've</p> <p>21 described as an application node, that's running a</p> <p>22 virtual machine manager; correct?</p>	<p>60</p> <p>1 says that administrator may configure the virtual</p> <p>2 machine manager to create a virtual machine on</p> <p>3 node 400.</p> <p>4 Q Okay.</p> <p>5 And after Sundar describes this two-phase</p> <p>6 capture process, where it captures image instances</p> <p>7 of the virtual machine manager and captures image</p> <p>8 instances of the software applications, it talks</p> <p>9 about a two-step deployment process of those image</p> <p>10 instances; correct?</p> <p>11 A So it talks about a two-phase capture</p> <p>12 process. That's the two figures of the two flow</p> <p>13 charts that we have discussed. There are two flow</p> <p>14 charts, 27A and 27B, that talk about deployment.</p> <p>15 They don't use the term "two-phase deployment</p> <p>16 process" or anything like that.</p> <p>17 Q Okay. So we're going to go back, now, to</p> <p>18 the Sundar patent. And we're going to look</p> <p>19 specifically at column 34, lines 1 through 15,</p> <p>20 which I will highlight for you on the screen.</p> <p>21 I'll make it larger as well. Okay. And if you</p> <p>22 can just read that yourself for a moment, then</p>

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<p>61</p> <p>1 I'll ask you questions about it.</p> <p>2 A Okay.</p> <p>3 Q So the first sentence says "After</p> <p>4 generation of the image instances of the virtual</p> <p>5 machine manager 402 and the virtual disk image</p> <p>6 files 408" -- I'm going to stop there -- but that</p> <p>7 is what we just discussed in connection with</p> <p>8 figures 25 and 26; correct?</p> <p>9 A So figures 25 and 26 did talk about</p> <p>10 capturing and storing image instances of the</p> <p>11 virtual machine manager and software applications</p> <p>12 as virtual disk files.</p> <p>13 Q So after that occurs, this sentence goes</p> <p>14 on to say the "control node 12 may deploy the</p> <p>15 image instance of virtual machine manager 402 to</p> <p>16 one or more nodes in free pool 13"; correct?</p> <p>17 A That sentence does say that, yes.</p> <p>18 Q Okay. And the free pool 13 is a place</p> <p>19 where there are a number of unallocated nodes;</p> <p>20 correct? And that's shown in the top right of</p> <p>21 figure 1.</p> <p>22 A Yes. So figure 1 has a box labeled "13,"</p>	<p>63</p> <p>1 executing.</p> <p>2 Q Okay. And then it talks about, in the</p> <p>3 next sentence, that the image instance of the</p> <p>4 virtual machine manager can be configured to</p> <p>5 support one or more virtual machines; correct?</p> <p>6 A So in this particular example, it's</p> <p>7 talking about using the image instance of the</p> <p>8 virtual machine manager to support five virtual</p> <p>9 machines.</p> <p>10 Q Okay. And then in the last sentence, it</p> <p>11 says "Subsequently, control node 12 may deploy an</p> <p>12 image instance of a virtual disk image files 408</p> <p>13 to one of the new unallocated nodes"; correct?</p> <p>14 A So in this particular example that we've</p> <p>15 been talking about, it does talk about using the</p> <p>16 control node to deploy image instances of the</p> <p>17 virtual disk image file that were captured earlier</p> <p>18 to one of the unallocated nodes.</p> <p>19 Q So in this particular example that we've</p> <p>20 just discussed in column 34, lines 1 through 13 of</p> <p>21 the Sundar patent, it talks about deploying the</p> <p>22 image instances of the virtual machine manager and</p>
<p>62</p> <p>1 which are a set of unallocated nodes in the</p> <p>2 distributed computing system.</p> <p>3 Q Okay. And then the second sentence in the</p> <p>4 paragraph in column 31, lines 1 through 13, of</p> <p>5 Sundar then says "The control node 12 -- once the</p> <p>6 control node 12 deploys the image instances of the</p> <p>7 virtual machine manager to a node, the node</p> <p>8 appears to be one or more new unallocated nodes";</p> <p>9 correct?</p> <p>10 A So in the -- in column 34, starting line</p> <p>11 5, it does talk about deploying the image instance</p> <p>12 of the virtual machine manager to a node in the</p> <p>13 free pool. And then the node appears to be one or</p> <p>14 more unallocated nodes.</p> <p>15 Q Okay. So at that point, the image</p> <p>16 instance of the virtual machine manager is</p> <p>17 executing on a node; correct?</p> <p>18 MR. LIANG: Objection to form.</p> <p>19 A So in this particular sentence, it doesn't</p> <p>20 actually say that the virtual machine manager is</p> <p>21 executing, but there are other examples where it</p> <p>22 does talk about the virtual machine manager</p>	<p>64</p> <p>1 the image instances of the software applications</p> <p>2 in two different steps; correct?</p> <p>3 A So in this particular example, it does</p> <p>4 talk about deploying the virtual machine manager</p> <p>5 node and then deploying image instances of virtual</p> <p>6 disk image files to an unallocated node.</p> <p>7 Q Okay. And you had earlier mentioned</p> <p>8 figures 27A and 27B; correct?</p> <p>9 A I did refer to figures 27A and B, yes.</p> <p>10 Q And before we go there, column 35 of the</p> <p>11 Sundar patent, starting at line 25, starts a</p> <p>12 description of those two figures; correct?</p> <p>13 A So, yes, column 35 does talk about</p> <p>14 figure 27A and figure 27B that are example</p> <p>15 procedures for deploying a virtual machine manager</p> <p>16 and deploying an operating system and application</p> <p>17 image.</p> <p>18 Q Okay. And 27A is the chart that talks</p> <p>19 about autonomic deployment of a virtual machine</p> <p>20 manager to a node; correct?</p> <p>21 A Figure 27A does talk about autonomic</p> <p>22 deployment of the virtual machine manager, yes.</p>

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<p>65</p> <p>1 Q And then 27B is a flow chart that talks</p> <p>2 about an exemplary procedure for deploying an</p> <p>3 operating system and application image to a node</p> <p>4 that is executing a virtual machine manager;</p> <p>5 correct?</p> <p>6 A Figure 27B does talk about an example</p> <p>7 procedure for deploying an OS image to a node</p> <p>8 that's executing virtual machine manager, yes.</p> <p>9 Q Okay. And then in column 35, starting at</p> <p>10 line 33, it says "After these physical nodes boot</p> <p>11 with the virtual machine manager image instance,</p> <p>12 each of the nodes creates a set of virtual</p> <p>13 machines as specified by the image instances";</p> <p>14 correct?</p> <p>15 A So in the sentence that you just</p> <p>16 highlighted from column 35, it does talk about</p> <p>17 booting the virtual machine manager instance and</p> <p>18 then the nodes creating a set of virtual machines</p> <p>19 as specified by the image instances.</p> <p>20 Q Okay. So to summarize, this part of</p> <p>21 figure 27A says you deploy the image instance of</p> <p>22 the virtual machine manager to a node, the virtual</p>	<p>67</p> <p>1 highlighted essentially talks about the goals on</p> <p>2 the state of the distributed computing system and</p> <p>3 then the control node allocating one or more</p> <p>4 virtual machines to the slots of the tier, and</p> <p>5 that is similar to the process by which nodes are</p> <p>6 initially deployed from the free pool.</p> <p>7 Q What do you think a person of ordinary</p> <p>8 skill would understand the phrase "based on the</p> <p>9 current state and goals of the distributing</p> <p>10 computer system 10" to mean?</p> <p>11 A So the state -- the goal of the</p> <p>12 distributed computing system is to -- or one of</p> <p>13 the goals is to perform autonomic deployment. And</p> <p>14 that figure 27A is talking about autonomic</p> <p>15 deployment. And the state of the distributed</p> <p>16 computing system refers to the state of the nodes</p> <p>17 in that distributed computing system. And in this</p> <p>18 particular example, an example of a state is</p> <p>19 whether the node is allocated or unallocated.</p> <p>20 Q And I skipped a sentence I wanted to ask</p> <p>21 you a question on, so I'm going to go up a little</p> <p>22 bit. Where it says "In this manner, each of the</p>
<p>66</p> <p>1 machine manager is used to create a set of virtual</p> <p>2 machines on those nodes; correct?</p> <p>3 MR. LIANG: Objection to form.</p> <p>4 A So in this flow chart, there are steps</p> <p>5 where you deploy a virtual machine manager. And</p> <p>6 then when the physical node boots the virtual</p> <p>7 machine manager instance, it creates a set of</p> <p>8 virtual machines.</p> <p>9 And I should say that these are blank</p> <p>10 virtual machines, because there is nothing on them</p> <p>11 yet. So they are just an abstraction of a virtual</p> <p>12 machine, but they can't execute it.</p> <p>13 Q Okay. And then in the last sentence in</p> <p>14 the paragraph talking about figure 27A of the</p> <p>15 Sundar patent, it says "Finally, based on the</p> <p>16 current state and goals of the distributing</p> <p>17 computing system 10, control node 12 may allocate</p> <p>18 one or more of the virtual machines to the slots</p> <p>19 within the tier, similar to the process by which</p> <p>20 the nodes are deployed from free pool 13 to a tier</p> <p>21 as needed"; correct?</p> <p>22 A So in column 35, the text that you</p>	<p>68</p> <p>1 virtual machines appear to be physical nodes</p> <p>2 available for use as application nodes when</p> <p>3 needed."</p> <p>4 Do you see that?</p> <p>5 A Yes, I do.</p> <p>6 Q What do you think that sentence would mean</p> <p>7 to a person of ordinary skill?</p> <p>8 A Well, it's simply saying that the virtual</p> <p>9 machine is emulating a physical machine, and hence</p> <p>10 they appear to be physical nodes on which</p> <p>11 applications can be installed.</p> <p>12 Q Okay. So in this process, once the image</p> <p>13 instance of the virtual machine manager is</p> <p>14 deployed to a node in the free pool and the</p> <p>15 virtual machine manager is used to create a</p> <p>16 virtual machine, then that physical machine then</p> <p>17 becomes available for use as an application node</p> <p>18 14; correct?</p> <p>19 MR. LIANG: Objection to form.</p> <p>20 A So in this case, once the virtual machine</p> <p>21 manager has been installed on the physical node</p> <p>22 and a virtual machine has been created, the</p>

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<p style="text-align: right;">69</p> <p>1 virtual machine appears to be a physical node for 2 use as application nodes. 3 Q And in figure 1, there's two places -- or 4 there's two different boxes. One that says "free 5 pool unallocated nodes 13," and then there's a 6 separate one that says "application nodes 14"; 7 correct? 8 A So figure 1 does have unallocated nodes 9 shown as in Box 13 labeled free pool and 10 application nodes shown in Box 15, which are 11 allocated tiers. 12 Q So then upon the deployment of the virtual 13 machine manager and the creation of the virtual 14 machine, the nodes, then, in this particular 15 example, move from the free pool to the 16 application and become an application node 14; 17 correct? 18 MR. LIANG: Objection to form. 19 A So the word "application node 14" is used 20 in figure 1. But earlier we talked about physical 21 nodes being application nodes. Here we are 22 talking where virtual machines appearing to be</p>	<p style="text-align: right;">71</p> <p>1 been marked Exhibit 2, please. Okay. 2 PLANET DEPOS REMOTE TECHNICIAN: You have 3 control, Counsel. 4 MR. YOUNG: Okay. Thank you. Okay. 5 BY MR. YOUNG: 6 Q So we're going to go further down, 7 Dr. Shenoy, in column 35, starting at line 48. 8 And there is a description of figure 27B; correct? 9 Starting at line 48? 10 A Yes, it does talk about a flow chart 11 that's depicted in figure 27B. 12 Q Okay. And that first sentence talks about 13 the flow chart that illustrates an exemplary 14 procedure for deploying an operating system and 15 application image instance to a node that is 16 executing a virtual machine manager; correct? 17 A So this is an example procedure for 18 deploying an OS and an application image to a node 19 that's executing a virtual machine manager. 20 Q So in this particular example, the node is 21 running a virtual machine manager, and this flow 22 chart is talking about a procedure for deploying</p>
<p style="text-align: right;">70</p> <p>1 physical nodes for use as application nodes. 2 So just looking at figure 15, when you 3 look at application nodes, they could mean a 4 physical node that's running a virtual machine, or 5 they could mean the virtual machine that's 6 emulating a physical node. I would have to think 7 more about what box 14 means in figure 1, because 8 the word "physical application node" is used to 9 mean a physical node. Here, it's saying that the 10 virtual machine appears to be a physical node. 11 MR. YOUNG: Okay. Well, I think we've 12 been on the record for another hour, so we can 13 take a break. 14 (A short break was had.) 15 BY MR. YOUNG: 16 Q So, Dr. Shenoy, you were talking about 17 figure 27A of the Sundar patent when we broke for 18 this break; correct? 19 A Correct, yes. 20 Q So now I want to transition to figure 27B. 21 MR. YOUNG: And, Enrique, if you could put 22 back up the Sundar patent, which is exhibit --</p>	<p style="text-align: right;">72</p> <p>1 the operating system and the application image 2 instance on top of that node that's running the 3 virtual machine manager; correct? 4 A So in this example, you are deploying an 5 OS and an application image to a node that is 6 running a virtual machine manager. 7 Q Okay. And then here in -- starting in 8 line 59, it says "After administrator 20 activates 9 the tier, based on the current state and goals of 10 the distributed computing system 10, control node 11 12 then autonomically selects a virtual machine 12 from the free pool 13, associates the virtual 13 machine with a slot in the tier, identifies the 14 virtual disk image file," then skipping down a 15 little bit more, "copies the virtual disk image 16 file to the physical node"; is that correct? 17 A So the sentence that you read from the 18 column that starts around line 59 does talk about 19 several of those steps, including selecting the 20 virtual machine, associating the virtual machine 21 with a slot in the tier, identifying a virtual 22 disk image file, and then finally copying the</p>

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<p style="text-align: right;">73</p> <p>1 virtual disk image file.</p> <p>2 Q Okay. And this is an example, I believe,</p> <p>3 of what we talked about earlier in column 34, line</p> <p>4 12, where it says "Subsequently, control node 12</p> <p>5 may deploy an image instance of a virtual disk</p> <p>6 image file 408 to one of the new unallocated</p> <p>7 nodes"; correct?</p> <p>8 A So the steps shown in figure 27B do</p> <p>9 describe a control node that's deploying an image</p> <p>10 instance of a virtual disk file to an unallocated</p> <p>11 node like the one that was chosen for deployment.</p> <p>12 Q So in these examples -- or this example</p> <p>13 that we've shown in Sundar, it appears that Sundar</p> <p>14 teaches that you store the image instances of the</p> <p>15 virtual machine manager and the image instance of</p> <p>16 the applications separately so they can be</p> <p>17 deployed in two different steps; correct?</p> <p>18 MR. LIANG: Objection to form.</p> <p>19 A So certainly the virtual machine manager</p> <p>20 image and the image of the software applications</p> <p>21 are stored separately in this example on the image</p> <p>22 repository, and then they are deployed. In this</p>	<p style="text-align: right;">75</p> <p>1 test, and I appreciate your answer.</p> <p>2 MR. YOUNG: So, Enrique, if you could</p> <p>3 please pull up Exhibit 1 for me, which is</p> <p>4 Dr. Shenoy's declaration. That's Exhibit 4.</p> <p>5 Exhibit 1, please.</p> <p>6 PLANET DEPOS REMOTE TECHNICIAN: You have</p> <p>7 control, Counsel.</p> <p>8 MR. YOUNG: Okay. Thank you.</p> <p>9 BY MR. YOUNG:</p> <p>10 Q So the -- my last question was based on</p> <p>11 this sentence in your declaration, which appears</p> <p>12 on page 222. It says "I understand that because</p> <p>13 the specification is the primary basis for</p> <p>14 construing the claims, a correct construction must</p> <p>15 align with the specification."</p> <p>16 Do you still agree with that sentence?</p> <p>17 A That is my overall general understanding</p> <p>18 of how a claim should be read, but I explained</p> <p>19 other things that I did take into account at the</p> <p>20 time to interpret the claims in offering my</p> <p>21 opinions.</p> <p>22 MR. YOUNG: Enrique, if we could please go</p>
<p style="text-align: right;">74</p> <p>1 example, the virtual machine manager image is</p> <p>2 deployed, and then the virtual disk image is</p> <p>3 deployed.</p> <p>4 Q Okay. In rendering your opinions in this</p> <p>5 case, you considered and gave opinions on the</p> <p>6 challenged claims that we defined at the outset of</p> <p>7 this deposition; correct?</p> <p>8 A Yes, I did.</p> <p>9 Q Okay. And is it your understanding that</p> <p>10 the specification of a patent is the primary basis</p> <p>11 for construing the claims and the correct</p> <p>12 construction must align with the specification?</p> <p>13 A So I don't know if that's a legal</p> <p>14 question. My understanding as a technical expert</p> <p>15 is that the claims should be given their plain and</p> <p>16 ordinary meaning and should be read in the light</p> <p>17 of the specification. And there is obviously</p> <p>18 going to be -- a person of ordinary skill is going</p> <p>19 to have other knowledge that they can bring to</p> <p>20 bear when interpreting the claim in the light of</p> <p>21 the specification.</p> <p>22 Q Okay. And, again, this is not a memory</p>	<p style="text-align: right;">76</p> <p>1 back to the Sundar patent, which is Exhibit 2,</p> <p>2 please? Okay.</p> <p>3 Q Dr. Shenoy, I've highlighted -- or I'm</p> <p>4 showing you, in column 36 of the Sundar patent,</p> <p>5 starting on line 26, claim 1 of the patent.</p> <p>6 Do you see that?</p> <p>7 A Yes, I do.</p> <p>8 Q Okay. And are you familiar with claim 1</p> <p>9 of the Sundar patent?</p> <p>10 A Yes. I've offered an opinion about that</p> <p>11 claim in my declaration.</p> <p>12 Q Okay. So the first portion of the claim,</p> <p>13 which is called the preamble, talks about a</p> <p>14 distributed computing system.</p> <p>15 Do you see that?</p> <p>16 A Yes, I do.</p> <p>17 Q Okay. Is -- would figure 1 of the Sundar</p> <p>18 patent be an example of a distributed computing</p> <p>19 system?</p> <p>20 A Yes. Figure 1 of the patent does show an</p> <p>21 example of a distributed computing system.</p> <p>22 Q And the next line, starting on line 27 of</p>

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<p>77</p> <p>1 column 36, talks about a software image repository 2 comprising nontransitory computer-readable media 3 operable to store. 4 Do you see that? 5 A I do, yes. 6 Q And would image repository 26, in figure 1 7 of the Sundar patent, be an example of such a 8 software image repository? 9 A So figure 1 does show in box 26 an image 10 repository, and that could or would be an example 11 of a software image repository that is mentioned 12 in the claim. 13 Q And the image repository stores a 14 plurality of image instances of a virtual machine 15 manager; correct? 16 A The claim does talk about an image 17 repository that stores a plurality of image 18 instances of virtual machine managers. 19 Q Okay. And it also stores, starting at 20 line 35, a plurality of image instances of a 21 plurality of software applications that are 22 executable on a plurality of virtual machines;</p>	<p>79</p> <p>1 software image repository? 2 A So first of all, figures 25 and 26 are 3 flow charts or processes of depicting methods. It 4 says claim 1 is talking about a system. Having 5 said that, it does talk about storing a plurality 6 of image instances of VMMs and a plurality of 7 image instances of software applications. 8 Q And based on these claim elements, those 9 two sets of image instances are separate images; 10 correct? 11 MR. LIANG: Objection to form. 12 A In the context of what we've been 13 discussing, the image instances of the virtual 14 machine manager are separate from the image 15 instances of software applications, at least in 16 the example embodiment that we have been 17 discussing. 18 Q Okay. And there's nothing that would 19 indicate in claim 1 that it is something different 20 than in the embodiments that we've been discussing 21 that are set forth in the Sundar patent; correct? 22 A So in this case, the image instances of</p>
<p>78</p> <p>1 correct? 2 A The image repository does store a 3 plurality of image instances of software 4 applications that are executable on a plurality of 5 VMs, yes. 6 Q Okay. And in figures 25 and 26 of the 7 Sundar patent that we discussed earlier, those 8 both describe processes to capture and store image 9 instances of a virtual machine manager with 10 respect to figure 25 and an image instance of a 11 software application with respect to figure 26; 12 correct? 13 A So figures 25 and 26 are flow charts that 14 describe capturing images of virtual machine 15 managers and software applications. 16 Q So based on what we've discussed in the 17 Sundar patent and these two particular elements of 18 claim 1, does it appear to you, as a person of 19 ordinary skill, that there are a plurality of 20 image instances of the virtual machine manager and 21 then a separate set of image instances of the 22 software applications that are both stored on the</p>	<p>80</p> <p>1 VMMs are different from the image instances of 2 software applications. 3 Q Okay. And then when the -- when the image 4 instances of the virtual machine manager are 5 executed on the application nodes, the virtual 6 machine manager provides or creates the plurality 7 of virtual machines; correct? 8 MR. LIANG: Objection to form. 9 A So the second part of the claim describes 10 a control node that provides autonomic deployment 11 of a plurality of image instances of the VMM by 12 causing the image instances to be copied from the 13 repository to the application nodes. 14 Q And up above -- and I'll highlight it for 15 you, starting at line 31 in column 36 of the 16 Sundar patent, it says "Wherein when executing the 17 application nodes, the image instances of the 18 virtual machine manager provide" -- or create -- 19 "a plurality of virtual machines"; correct? 20 A So the sentence you highlighted says "When 21 executed on the application nodes, the image 22 instances provide a plurality of virtual</p>

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<p style="text-align: right;">81</p> <p>1 machines." That sentence doesn't say that the</p> <p>2 image instances are actually executing virtual</p> <p>3 machine managers. It just says, when executed,</p> <p>4 they would provide a plurality of virtual</p> <p>5 machines, which is consistent with what we talked</p> <p>6 about when we discussed the capture process.</p> <p>7 Q Okay. And then the plurality of image</p> <p>8 instances of the plurality of software</p> <p>9 applications are executed on a plurality of</p> <p>10 virtual machines, which I've highlighted for you</p> <p>11 in line 37; correct?</p> <p>12 MR. LIANG: Objection to form.</p> <p>13 A No, that's not what it says. It says that</p> <p>14 they are executable. Being executable is not the</p> <p>15 same as executing. It just means it's capable of</p> <p>16 being executed.</p> <p>17 Q But they are executable on the virtual</p> <p>18 machines; correct?</p> <p>19 A Here, it does say that they're executable</p> <p>20 on the plurality of virtual machines.</p> <p>21 Q So in order to be -- for the virtual</p> <p>22 machines to exist, the image instances of the</p>	<p style="text-align: right;">83</p> <p>1 capable of providing an environment that emulates</p> <p>2 a computer platform.</p> <p>3 Q But that environment would need to exist</p> <p>4 before --</p> <p>5 A The environment would need to exist. It</p> <p>6 could exist on disk without executing at all.</p> <p>7 Q But the -- the control node deploys the</p> <p>8 images of the virtual machine manager to the</p> <p>9 application nodes; correct?</p> <p>10 MR. LIANG: Objection to form.</p> <p>11 A So, again, in claim 1, as a control node,</p> <p>12 it's providing the autonomic deployment of a</p> <p>13 plurality of VMMs by causing the plurality of</p> <p>14 instances to be copied over.</p> <p>15 Q And they are copied from the software</p> <p>16 image repository to the application nodes;</p> <p>17 correct?</p> <p>18 A The sentence that I was referring to in</p> <p>19 the claim goes on to say to be copied from the</p> <p>20 software image repository to the application</p> <p>21 nodes.</p> <p>22 Q Okay. So once the image instances of the</p>
<p style="text-align: right;">82</p> <p>1 virtual machine manager will need to be executed</p> <p>2 on the application nodes; correct?</p> <p>3 MR. LIANG: Objection to form.</p> <p>4 A The virtual machine can exist on the disk</p> <p>5 of the physical node. Nothing has to be executing</p> <p>6 on the application node. The application node</p> <p>7 could be powered off, and the virtual machine</p> <p>8 would still exist on the disk. The virtual</p> <p>9 machine manager could still exist on the disk.</p> <p>10 Q The virtual machine, as described in</p> <p>11 Sundar, however, is an environment that emulates a</p> <p>12 computer platform; correct?</p> <p>13 MR. LIANG: Objection to form.</p> <p>14 A Earlier, we looked at a sentence from the</p> <p>15 specification that explained what is a virtual</p> <p>16 machine, and that explanation said that it's</p> <p>17 providing an environment that emulates a computer</p> <p>18 platform. And there is a phrase in the claim as</p> <p>19 well that says that the virtual machine is</p> <p>20 operable to provide an environment that emulates a</p> <p>21 computer platform. That doesn't mean it's</p> <p>22 executing it. It just means that it's operable or</p>	<p style="text-align: right;">84</p> <p>1 virtual machine manager are copied to the</p> <p>2 application node, the virtual machine that is</p> <p>3 created by the virtual machine manager provides</p> <p>4 the environment to emulate a computer platform on</p> <p>5 the application node; correct?</p> <p>6 MR. LIANG: Objection to form.</p> <p>7 A So the claim doesn't actually say that.</p> <p>8 This claim here is simply saying that, when</p> <p>9 executed, the virtual machine manager will provide</p> <p>10 a plurality of virtual machines. That's in the</p> <p>11 context of the software image repository element</p> <p>12 of the claim. And the control node talks about</p> <p>13 providing autonomic deployment by copying software</p> <p>14 image repositories -- sorry -- copying images from</p> <p>15 the software image repository to the application</p> <p>16 nodes.</p> <p>17 MR. YOUNG: Tiffany, would you mind just</p> <p>18 reading back Dr. Shenoy's last answer for me,</p> <p>19 please?</p> <p>20 (Record read as requested.)</p> <p>21 BY MR. YOUNG:</p> <p>22 Q So would you agree with me, Dr. Shenoy,</p>

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<p>85</p> <p>1 that the image instances of the virtual machine 2 manager must be capable of creating a virtual 3 machine on the software -- I'm sorry -- on the 4 application nodes when executed?</p> <p>5 A So when executed, the virtual machine 6 manager will provide one or more virtual machines 7 on that application node.</p> <p>8 Q Okay. And then the plurality of image 9 instances of the software applications must also 10 be able to be executed on the virtual machines 11 that can be created by the image instances of the 12 virtual machine manager; correct?</p> <p>13 MR. LIANG: Objection to form.</p> <p>14 A So the claim doesn't say that either. It 15 simply says that the plurality of software 16 applications that are executable on the plurality 17 of virtual machines.</p> <p>18 Q And I might have asked a bad question, so 19 I apologize if I did.</p> <p>20 But those image instances of the software 21 applications that you just mentioned must be 22 capable of being executed on the virtual machines.</p>	<p>87</p> <p>1 of virtual machines, and that is the first time 2 that phrase has appeared in that claim.</p> <p>3 Q Okay. Okay. And then the next time 4 virtual machines is mentioned occurs in line 37; 5 correct? And I've highlighted that. It says 6 "the" -- I apologize -- "the plurality of virtual 7 machines"; correct?</p> <p>8 A No. The line starting 33 goes on to say 9 "each of the plurality of the virtual machines." 10 So the term "plurality of virtual machine," again, 11 appears there in line 33.</p> <p>12 Q Right. Okay. And you are correct. I was 13 wrong on that, so...</p> <p>14 But the second two mentions of "the 15 plurality of virtual machines," the one that's 16 also in the second part of line 33 and in line 37, 17 they're both referring to the same virtual 18 machines that are cited in the part "a plurality 19 of virtual machines" in line 33; correct?</p> <p>20 A So those two references to the plurality 21 of virtual machines do refer to the virtual 22 machine manager providing a plurality of virtual</p>
<p>86</p> <p>1 And in the context of claim 1, those virtual 2 machines are created when the plurality of virtual 3 machine managers are executed; correct?</p> <p>4 MR. LIANG: Objection to form.</p> <p>5 A So that was a long question, and I will 6 repeat what I said earlier. That when executed on 7 the application nodes, the virtual machine manager 8 provides a plurality of virtual machines. And 9 also, that the image instances of software 10 applications are executable on the virtual 11 machines.</p> <p>12 Q Okay. I think you answered the question 13 better than I asked it, so thank you.</p> <p>14 And I think this has been pretty clear, 15 but I'm going to delete this highlighting so it's 16 not confusing.</p> <p>17 The first time that a plurality of virtual 18 machines is mentioned in claim 1 occurs where I've 19 highlighted it, which I believe is on line 33 of 20 column 36; correct?</p> <p>21 A So in claim 1, the text that you just 22 highlighted in line 33 talks about the plurality</p>	<p>88</p> <p>1 machines.</p> <p>2 Q Okay. And then in the second part of 3 claim 1, it talks about a control node; correct?</p> <p>4 A The second part of the claim does discuss 5 a control node, yes.</p> <p>6 Q And it talks about autonomic deployment of 7 both the plurality of image instances of the 8 virtual machine manager and the plurality of image 9 instances of the software applications; correct?</p> <p>10 A So that part of the claim talks about a 11 control node that comprises an automation 12 infrastructure, and the automation infrastructure 13 provides autonomic deployment from the plurality 14 of image instances of the virtual machine manager. 15 And it also talks about providing autonomic 16 deployment on the plurality of image instances on 17 the software applications.</p> <p>18 Q Okay. And it talks about deployment by 19 copying both sets of image instances from the 20 repository to the application nodes; correct?</p> <p>21 A So it is talking about copying from the 22 image repository to the application node the image</p>

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<p style="text-align: right;">89</p> <p>1 instances of the virtual machine manager and the 2 image instances of the software applications. 3 Q Okay. And it says -- and I think you just 4 said this already, but I want to make sure it was 5 clear -- when we're deploying the image instances 6 of the virtual machine manager, those are being 7 deployed to the application nodes; correct? 8 And I've highlighted that in line 44 and 9 45 of column 36 of the Sundar patent. 10 A So it does talk about copying the image 11 from the software image repository to the 12 application nodes. 13 Q Okay. And then the second part of the 14 deployment process, it talks about autonomic 15 deployment of the plurality of image instances of 16 the software applications on the virtual machines; 17 correct? 18 MR. LIANG: Objection to form. 19 A So it's talking about autonomic deployment 20 of the plurality of image instances on the virtual 21 machines, that whole thing, by causing the 22 plurality of images to be copied. So it's</p>	<p style="text-align: right;">91</p> <p>1 33 where it says "a plurality of virtual 2 machines"; correct? 3 A Yeah. If you ignore the words "virtual 4 machine" in the context of the virtual machine 5 manager that's also in the claim, the first time 6 the words appear is in line 33 where it talks 7 about a plurality of virtual machines. 8 Q Okay. So when it says in line 40 -- the 9 very end of line 46 and the beginning of line 47, 10 where it says "on the virtual machines," doesn't 11 "the virtual machines" there refer to the virtual 12 machines that were first described in line 33 of 13 claim 1 of the Sundar patent? 14 A So I haven't given an opinion on that 15 issue in my declaration. You know, I would have 16 to think about whether that term "virtual machine" 17 in that sentence is referring to the plurality of 18 virtual machines, because the previous term talks 19 about plurality of virtual machines on many 20 different nodes. 21 Q As you sit here today, are you aware of 22 any reason why a person of ordinary skill reading</p>
<p style="text-align: right;">90</p> <p>1 describing how to do the autonomic deployment of 2 the image instances of software applications 3 and -- on the virtual machines, and that is done 4 by causing the plurality of instances of software 5 applications to be copied -- 6 Q And -- 7 A -- on the image repository. 8 Q I'm sorry. 9 And where virtual machines are first 10 defined is in line 33 of column 36 of the Sundar 11 patents, where it says "a plurality of virtual 12 machines"; correct? 13 A So in claim 1, the first time it mentions 14 virtual machines is a plurality of virtual 15 machines. I wouldn't say that's a definition of a 16 virtual machine. 17 Q Are you familiar with the legal term 18 "antecedent basis"? 19 A No, I am not. 20 Q Okay. But you would agree with me that 21 the first time that the term "virtual machines" 22 appears in claim 1 of the Sundar patent is in line</p>	<p style="text-align: right;">92</p> <p>1 claim 1 of the Sundar patent wouldn't consider the 2 phrase "the virtual machines" in line 47 of 3 column 36 to mean the same thing as "a plurality 4 of virtual machines" in line 33 of column 36 of 5 the Sundar patent? 6 A So, again, I did not opine on that 7 particular issue. The first part of the claim 8 talks about a software image repository. It talks 9 about images in that repository that, when 10 executed, are executable on a plurality of virtual 11 machines. The second part of the claim talks 12 about a control node that is performing 13 deployment. 14 So I do not have an opinion on that issue 15 at this point. 16 Q Okay. And as you sit here today, you have 17 no anticipation of offering opinion on that issue; 18 correct? 19 A Again, as far as today's deposition is 20 concerned, I do not have an opinion on that 21 matter. If the Netflix lawyers ask me to think 22 about that issue carefully and offer additional</p>

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<p style="text-align: right;">93</p> <p>1 opinions, I may take some time to do that and 2 might have an opinion later on. 3 Q Okay. And so you -- and just to be clear, 4 you did not offer an opinion on that issue in your 5 declaration, which has been marked as Exhibit 1 in 6 this deposition; correct? 7 MR. LIANG: Objection to the form. 8 A So as far as the issue of the words 9 "virtual machines" that appear on line 47, whether 10 they refer to the same virtual machines that are 11 mentioned in line 33, I have not offered an 12 opinion in my declaration. 13 Q Okay. And you have offered an opinion 14 with respect to claim 19 of the Sundar patent; 15 correct? 16 A I have offered an opinion with regards to 17 claim 19, yes. 18 Q Okay. So I'm going -- I'm showing you now 19 claim 19 of the Sundar patent, which shows up on 20 column 38, line 1 through line 29. 21 Do you see that? 22 A Yes, I do.</p>	<p style="text-align: right;">95</p> <p>1 application nodes. Again, I note that there it 2 doesn't say they're executing. They're simply 3 saying they're executable. 4 Q And then it also says, in that storing 5 element -- and I've skipped a few words -- but it 6 says later "wherein the image instances of the 7 virtual machine manager provide," or create, "a 8 plurality of virtual machines"; correct? 9 A So earlier you had asked questions about 10 that "provide" and "create" mean the same thing. 11 I did not offer an opinion on that particular 12 issue as far as the claims are concerned. And we 13 had a discussion about that in the context of 14 certain embodiments. 15 So the claim element does say that the 16 virtual machine manager provides a plurality of 17 virtual machines. 18 Q Okay. And we discussed, at least in 19 certain portions of Sundar, Sundar uses the term 20 "create" and "provide" interchangeably; correct? 21 A We saw one example where there was a 22 sentence that talked about providing, and then it</p>
<p style="text-align: right;">94</p> <p>1 Q Okay. And this claim lists two separate 2 storing elements; correct? 3 A It does have two elements that talk about 4 storing, yes. 5 Q Okay. And then it has two elements that 6 talk about executing a rules engine to perform 7 operations to autonomically deploy; correct? 8 There's two different executing elements? 9 A There are two different elements that talk 10 about executing a rules engine, yes. 11 Q Okay. In the first storing element, it 12 talks about storing a plurality of image instances 13 of a virtual machine manager; correct? 14 A The first element -- the first storing 15 element of claim 19 talks about storing a 16 plurality of image instances of a virtual machine 17 manager. 18 Q Okay. And those image instances of a 19 virtual machine manager are executable on a 20 plurality of application nodes; correct? 21 A The claim element goes on to say that the 22 image instances are executable on the plurality of</p>	<p style="text-align: right;">96</p> <p>1 gave an example about creating. I'm not offering 2 any opinion on whether that means that this claim 3 element talks about creating when it talks about 4 providing. I just read it to mean providing a 5 plurality of virtual machines. 6 Q And I apologize. I might have 7 misunderstood your question. 8 As you sit here today, are you not 9 offering opinion as to whether the term "provide" 10 in line 5 of column 38 of the Sundar patent 11 doesn't have the same meaning as "create"? 12 A Which line number did you refer to me? 13 Q I referred to line 5. I'll highlight it 14 for you. It was line 5 of column 38. This word 15 "provide." 16 A So I don't have an opinion on whether 17 provide is the same as create. When I read this 18 sentence, it simply says "wherein the image 19 instances of the virtual machine manager provide a 20 plurality of virtual machines." So the image 21 instances are providing a plurality of virtual 22 machines.</p>

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<p>97</p> <p>1 Q Okay. And each virtual machine is</p> <p>2 operable to provide an environment that emulates a</p> <p>3 computer platform; correct?</p> <p>4 A The next part of the claim does say "each</p> <p>5 virtual machine operable to provide an environment</p> <p>6 that emulates a computer platform," yes.</p> <p>7 Q So the images -- the image instances of</p> <p>8 the virtual machine manager need to provide a</p> <p>9 plurality of virtual machines, and those plurality</p> <p>10 of virtual machines need to be operable to provide</p> <p>11 an environment that emulates a computer platform;</p> <p>12 correct?</p> <p>13 MR. LIANG: Wait. Objection to form.</p> <p>14 A So we are still talking about the claim</p> <p>15 element which refers to storing a plurality of</p> <p>16 virtual machines, and it does say "Wherein the</p> <p>17 image instances of the virtual machine manager</p> <p>18 provide a plurality of virtual machines." And</p> <p>19 "Each virtual machine is operable to provide an</p> <p>20 environment that emulates a computer platform."</p> <p>21 It doesn't say that the virtual machines are</p> <p>22 executing or that the virtual machine is executed.</p>	<p>99</p> <p>1 instances of the virtual machine manager are</p> <p>2 separate from the plurality of image instances in</p> <p>3 the software applications.</p> <p>4 Q Okay. And the plurality of image</p> <p>5 instances of the plurality of software</p> <p>6 applications must be able to be executed on a</p> <p>7 plurality of virtual machines; correct?</p> <p>8 A So it does say in the second storing step</p> <p>9 that the plurality of image instances of a</p> <p>10 plurality of software applications that are</p> <p>11 executable on the plurality of virtual machines.</p> <p>12 So they are executable or can be executed on the</p> <p>13 plurality of virtual machines.</p> <p>14 Q Okay. And the first time claim 19 defines</p> <p>15 a plurality of virtual machines -- and I will</p> <p>16 highlight it for you -- I believe -- you're better</p> <p>17 at this than I am -- but the first time, I</p> <p>18 believe, it is in line 6 of column 38 of the</p> <p>19 Sundar patent; correct?</p> <p>20 A So, again, I will use -- I will not say it</p> <p>21 defines, but it does mention the words "plurality</p> <p>22 of virtual machines" in line 6 of column 38 in</p>
<p>98</p> <p>1 Q Okay. And then there's a second storing</p> <p>2 element; correct?</p> <p>3 A Yes, it does have a second storing</p> <p>4 element.</p> <p>5 Q And that second storing element also talks</p> <p>6 about -- strike that.</p> <p>7 The second storing element talks about</p> <p>8 storing a plurality of image instances of a</p> <p>9 plurality of software applications; correct?</p> <p>10 A It does talk about a plurality of image</p> <p>11 instances of a plurality of software applications.</p> <p>12 It goes on to say that they're executable on the</p> <p>13 plurality of virtual machines. Again, I know it</p> <p>14 doesn't say they're executing, simply that they're</p> <p>15 executable on the plurality of virtual machines.</p> <p>16 Q Okay. And the -- with respect to the</p> <p>17 storing elements of claim 19, the plurality of</p> <p>18 image instances of the virtual machine manager are</p> <p>19 separate images from the plurality of image</p> <p>20 instances of the plurality of software</p> <p>21 applications; correct?</p> <p>22 A So, again, here the plurality of image</p>	<p>100</p> <p>1 claim 19.</p> <p>2 Q And then claim 19, the first time that a</p> <p>3 plurality of virtual machines is mentioned is in</p> <p>4 line 6; correct?</p> <p>5 A In claim 19, the first time a plurality of</p> <p>6 virtual machines is mentioned is in line 6.</p> <p>7 Q And the next time virtual machine is</p> <p>8 mentioned is immediately after, in line 36, where</p> <p>9 it says "Each virtual machine is operable to</p> <p>10 provide an environment that emulates a computer</p> <p>11 platform"; correct?</p> <p>12 A So after the mention of a plurality of</p> <p>13 virtual machines in claim 19, the next time the</p> <p>14 words "virtual machine" appear is indeed right</p> <p>15 afterwards where it says "Each virtual machine</p> <p>16 operable to provide an environment that emulates a</p> <p>17 computer platform."</p> <p>18 Q And then the next time virtual machines is</p> <p>19 mentioned is at the end of line 10, the beginning</p> <p>20 of line 11, of column 38; correct?</p> <p>21 A The next time the words "virtual machine"</p> <p>22 is mentioned is on line 10 where it talks about</p>

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<p style="text-align: right;">101</p> <p>1 the plurality of virtual machines in the second 2 storing step. 3 Q Okay. And do you believe that each of 4 those three instances of virtual machine, the two 5 that are mentioned in line 6 and the third that is 6 mentioned in line 10 and 11, all refer to the same 7 virtual machines? 8 A I haven't offered an opinion on that 9 specific issue in my deposition -- sorry -- in my 10 declaration. I will say that the first storing 11 step talks about plurality of image instances of 12 virtual machines where those image instances 13 provide a plurality of virtual machines. And in 14 the second step, it's just talking about storing a 15 plurality of image instances that are executable 16 on the plurality of virtual machines. But I 17 haven't offered an opinion on whether they are all 18 the same. I would need to think about that. 19 Q Okay. And then claim 19 goes on to have 20 two -- talk about two separate executing steps; 21 correct? 22 A It's talking about executing a rules</p>	<p style="text-align: right;">103</p> <p>1 A The second executing the rules engine step 2 does talk about performing operations to 3 autonomically deploy image instances of the 4 software applications. 5 Q And it says "on the virtual machines"; 6 correct? 7 A So it talks about autonomically deploying 8 the image instances of the software applications 9 on the VMs. And this is done by causing the -- 10 all of that is done by causing the image instances 11 of the software applications to be copied to the 12 application nodes. 13 Q Okay. And if you look at line 19 of 14 column 38 of the Sundar patent, it refers to the 15 term "on the virtual machines." 16 Do you see that? 17 A Yes, you highlighted that phrase. 18 Q Okay. And do you have an opinion, as you 19 sit here today, or in your declaration, as to 20 whether the term "on the virtual machines" in 21 line 19 refers to the same virtual machines that 22 are mentioned initially in line 6 of column 38 of</p>
<p style="text-align: right;">102</p> <p>1 engine, and there are two claim elements or two 2 steps there that is mentioned. 3 Q And in the first executing step, it talks 4 about using a rules engine to autonomically deploy 5 the image instances of the virtual machine manager 6 on the application nodes; correct? 7 A So it does talk about executing a rules 8 engine to perform operations to do the autonomic 9 deployment of the image instances of the virtual 10 machine manager. 11 Q Okay. And the deployment in this case is 12 done by copying the image instances of the virtual 13 machine manager to the application nodes; correct? 14 A The execution of the rules engine for the 15 autonomic deployment is done by causing the image 16 instances of the VMM to be copied -- of the 17 virtual machine manager to be copied to the 18 application nodes. 19 Q Okay. And then in the second executing 20 step, it says we are autonomically deploying the 21 image instances of the software applications on 22 the virtual machines; correct?</p>	<p style="text-align: right;">104</p> <p>1 the Sundar patent? 2 A I have not offered an opinion on that 3 issue in my declaration, and I need to think more 4 about that to offer an opinion. 5 MR. YOUNG: Okay. I think we've been just 6 about an hour on the record. Would you like to 7 take the lunch break now? 8 THE WITNESS: Yes, that would be good. 9 Thank you. 10 (A short break was had.) 11 BY MR. YOUNG: 12 Q Welcome back, Dr. Shenoy. 13 A Thank you. 14 Q You're familiar with the Khandekar 15 reference; correct? 16 A Yes, I am. 17 MR. YOUNG: Enrique, if you could please 18 pull up Exhibit 3 for me, please? 19 PLANET DEPOS REMOTE TECHNICIAN: You have 20 control, Counsel. 21 MR. YOUNG: Okay. Thank you. 22 BY MR. YOUNG:</p>

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<p>105</p> <p>1 Q Dr. Shenoy, in your opinion, you view the</p> <p>2 provisioning server that's disclosed in Khandekar</p> <p>3 as a repository; is that correct?</p> <p>4 A In my declaration, I have offered an</p> <p>5 opinion, and I have said that the provisioning</p> <p>6 server of Khandekar is an image -- software image</p> <p>7 repository.</p> <p>8 Q And the Khandekar reference uses an</p> <p>9 acronym VM in the reference; correct?</p> <p>10 A It does use the term "VM" in the patent,</p> <p>11 yes.</p> <p>12 MR. YOUNG: Enrique, if you could put back</p> <p>13 that Khandekar reference, please? Okay. Thank</p> <p>14 you. Okay.</p> <p>15 Q And the term -- the acronym VM stands for</p> <p>16 virtual machine, as used in the Khandekar</p> <p>17 reference; correct?</p> <p>18 A The term "VM" does refer to virtual</p> <p>19 machine, yes.</p> <p>20 Q And the VMs that are disclosed in</p> <p>21 Khandekar contain an operating system and</p> <p>22 applications; is that correct?</p>	<p>107</p> <p>1 machines, or VMs, in Khandekar; correct?</p> <p>2 A From a deployment perspective, there are</p> <p>3 multiple embodiments that describe how virtual</p> <p>4 machines can be deployed, yes.</p> <p>5 Q And I believe, in your declaration, you</p> <p>6 specifically talk about three types, a prebuilt</p> <p>7 model VM, a custom-built VM, and an instantly</p> <p>8 provisioned VM; is that correct? Or instantly</p> <p>9 deployable VM.</p> <p>10 A Yes, I do describe the three types of</p> <p>11 virtual machines in my declaration.</p> <p>12 Q As you sit here today, are you aware of</p> <p>13 any other types of VMs that are described in</p> <p>14 Khandekar, other than those three examples that we</p> <p>15 just discussed?</p> <p>16 A Well, we just talked about this model</p> <p>17 virtual machine as well.</p> <p>18 Q I'm sorry. I did not catch that. Could</p> <p>19 you just repeat your answer, please?</p> <p>20 A We just talked about a model virtual</p> <p>21 machine, so a model virtual machine is an example</p> <p>22 that's also provided in Khandekar.</p>
<p>106</p> <p>1 A So Khandekar has many embodiments in it.</p> <p>2 It describes several different types of virtual</p> <p>3 machines. It has -- many of them have operating</p> <p>4 systems and applications. Some of them might have</p> <p>5 an application and maybe some bare bone --</p> <p>6 sorry -- some of them might have an operating</p> <p>7 system and may or may not have applications.</p> <p>8 There are many embodiments in Khandekar.</p> <p>9 Q In its description of a model virtual</p> <p>10 machine, which I will highlight for you in column</p> <p>11 8, starting at line 50, it refers to -- I'm not</p> <p>12 sure why the left side highlighted. I'm just</p> <p>13 trying to highlight line 50 through 55. In that</p> <p>14 model virtual machine, it talks about the virtual</p> <p>15 machine that contains a guest operating system,</p> <p>16 service pack, and applications; is that correct?</p> <p>17 A So here, the model virtual machine that is</p> <p>18 being discussed is a virtual machine that has the</p> <p>19 OS, service pack, which are packages that are</p> <p>20 installed, and applications.</p> <p>21 Q Okay. And you had mentioned that there</p> <p>22 were a number of different types of virtual</p>	<p>108</p> <p>1 Q Do you think that a model virtual machine,</p> <p>2 that definition would encompass any of the other</p> <p>3 three specific types of VMs that we just</p> <p>4 discussed?</p> <p>5 A So the term "model virtual machine," as</p> <p>6 described here, is broad enough to include the</p> <p>7 three types of virtual machines.</p> <p>8 Q Okay. So going further down in column 9</p> <p>9 of the Khandekar reference, it talks about,</p> <p>10 starting on line 14 -- and, again, I'm not</p> <p>11 intentionally trying to highlight what's on the</p> <p>12 right, just look at what's on the left -- it says</p> <p>13 the invention provides the user with three</p> <p>14 choices.</p> <p>15 Do you see that?</p> <p>16 A Yes, I do.</p> <p>17 Q Okay. And do those three choices</p> <p>18 represent the three types of VMs that we just</p> <p>19 discussed?</p> <p>20 A The three choices here talk about the</p> <p>21 prebuilt model VM, the custom-built, and instantly</p> <p>22 provisioned, also referred to as an instant deploy</p>

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<p style="text-align: right;">109</p> <p>1 VM. So those are the three examples of VMs that</p> <p>2 we were just talking about.</p> <p>3 Q Okay. And each of those three examples,</p> <p>4 those VMs would include at least an operating</p> <p>5 system and some applications; is that correct?</p> <p>6 A So all of those three would include an</p> <p>7 operating system. They would also include</p> <p>8 applications. And there are em- -- the</p> <p>9 embodiments described in the reference where it</p> <p>10 talks about custom-built VMs that start with an</p> <p>11 application only. And then that -- sorry -- with</p> <p>12 an operating system only, and then the</p> <p>13 applications are installed later on.</p> <p>14 MR. YOUNG: If we could, Enrique, please</p> <p>15 pull up Dr. Shenoy's declaration and go to page</p> <p>16 83.</p> <p>17 PLANET DEPOS REMOTE TECHNICIAN: What</p> <p>18 number is the declaration, Counsel?</p> <p>19 MR. YOUNG: It is 1.</p> <p>20 PLANET DEPOS REMOTE TECHNICIAN: 1? Stand</p> <p>21 by. And page 83; correct?</p> <p>22 MR. YOUNG: Yes, please.</p>	<p style="text-align: right;">111</p> <p>1 additional applications could be installed later;</p> <p>2 is that correct?</p> <p>3 A So as I mentioned, there are places in the</p> <p>4 Khandekar reference where it talks about</p> <p>5 custom-built VMs, with an operating system and a</p> <p>6 base set of applications already installed, and</p> <p>7 then you can install additional applications.</p> <p>8 There is some text there. It also talks</p> <p>9 about starting of it, only an operating system and</p> <p>10 then adding applications later on. So it</p> <p>11 contemplates both of those possibilities for</p> <p>12 custom-built VMs.</p> <p>13 Q Okay. And in the Khandekar reference, it</p> <p>14 uses an acronym VMM; is that correct?</p> <p>15 A Khandekar reference does use the term</p> <p>16 "VMM," yes.</p> <p>17 Q And that stands for virtual machine</p> <p>18 monitor; is that correct?</p> <p>19 A That is an acronym for virtual machine</p> <p>20 monitor, yes.</p> <p>21 Q And Khandekar has a disclosure with</p> <p>22 respect to installing a VMM on a host; correct?</p>
<p style="text-align: right;">110</p> <p>1 And if you can give me control.</p> <p>2 PLANET DEPOS REMOTE TECHNICIAN: You have</p> <p>3 control.</p> <p>4 BY MR. YOUNG:</p> <p>5 Q So, Dr. Shenoy, you just mentioned</p> <p>6 custom-built VMs. Paragraph 80 -- I'm sorry.</p> <p>7 Paragraph 134 of your declaration on page 83 talks</p> <p>8 about custom-built VMs; is that correct?</p> <p>9 A It's paragraph 131, not 134.</p> <p>10 Q Oh, I'm sorry. My apologies.</p> <p>11 I'll reask the question, because I messed</p> <p>12 it up.</p> <p>13 In paragraph 131 of your declaration on</p> <p>14 page 83, it talks about custom-built VMs; correct?</p> <p>15 A Yes, it does.</p> <p>16 Q And here it says "custom-built VMs may</p> <p>17 have additional software applications installed";</p> <p>18 is that correct?</p> <p>19 A Yes, it does say there that.</p> <p>20 Q So would that imply that in the</p> <p>21 custom-built VM example, it would have an</p> <p>22 operating system, some applications, and then</p>	<p style="text-align: right;">112</p> <p>1 A Khandekar has multiple disclosures about</p> <p>2 installing VMMs on host, yes.</p> <p>3 MR. YOUNG: Okay. And, Enrique, if we</p> <p>4 could go back to Exhibit 3, please. Okay.</p> <p>5 Q And one of those disclosures of the VMM</p> <p>6 shows up in column 8, starting at line 37;</p> <p>7 correct? And I've highlighted that on the screen.</p> <p>8 And if you need me to make it bigger, I can make</p> <p>9 it larger.</p> <p>10 A So there is some disclosure of VMM on</p> <p>11 column 8 that you've highlighted. There is some</p> <p>12 additional disclosure on column 7 that starts at</p> <p>13 line 5.</p> <p>14 Q And it discusses, starting at line 41 of</p> <p>15 column 8 of the Khandekar reference, that "it will</p> <p>16 be assumed below that when a VM is installed on a</p> <p>17 host, then a corresponding VMM is either already</p> <p>18 installed on the host or is included and installed</p> <p>19 together with the VM"; is that correct?</p> <p>20 A Yes. So that sentence that you</p> <p>21 highlighted does say that. I've explained that</p> <p>22 sentence at length in my declaration as well.</p>

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<p>113</p> <p>1 Q Okay. In the situation where the VM is 2 installed on a host already, there's no disclosure 3 in Khandekar as to how -- I'm going to strike that 4 sentence, because I messed up the acronym. 5 In Khandekar, when it talks about a VMM 6 already installed on the host, there's no 7 disclosure in Khandekar as to how that 8 installation in that particular example occurs; 9 correct?</p> <p>10 A So it talks about VMM is either already 11 installed or, if it is not, it is included and 12 installed as part of the VM installation process, 13 because the reference is talking about 14 provisioning. I have explained in my declaration 15 that the VMM would be installed as part of the VM 16 installation or VM deployment process.</p> <p>17 Q I'm not talking about -- there's two 18 different ways that Khandekar discloses installing 19 a VM that we just discussed; right?</p> <p>20 A I think we discussed a way where it's 21 already installed and the way where it is 22 installed with the VM.</p>	<p>115</p> <p>1 Just to make sure we're clear on that. That's 2 what this next question is going to be about.</p> <p>3 A Okay.</p> <p>4 Q Okay. So in that instance, when the VMM 5 is already installed on the host, in that 6 particular case, Khandekar does not disclose how 7 that VMM gets installed on the host; correct?</p> <p>8 A My understanding of reading the sentence 9 is that it's either already installed, or, if it's 10 not installed, then you do it by including it 11 together with the VM. Once you do that, then it's 12 installed. And then all subsequent steps, if you 13 want to deploy additional VMs, it's already 14 installed.</p> <p>15 So I do think that when it's already 16 installed at some previous point in time, it got 17 installed. As a result of it, it's now already 18 installed. And in that case, it is possible to 19 use the second step or the second type of 20 installing it with a VM.</p> <p>21 Q Okay. Maybe I didn't ask the question 22 correctly.</p>
<p>114</p> <p>1 Q Yes.</p> <p>2 A I don't remember discussing two different 3 ways of installing it.</p> <p>4 Q Okay. I'm not trying to make anything 5 tricky here. I'm just trying to reset the table, 6 so to speak.</p> <p>7 In Khandekar, it talked about a situation 8 where the VMM is already installed in the host, 9 and I've highlighted that. That shows up in line 10 42 and 43 of column 8; correct?</p> <p>11 A Yes. There is a sentence there that says 12 the VMM is either already installed on the host.</p> <p>13 Q All right. And then there's a second way 14 that says the VMM is included and installed 15 together with the VM; correct? And I've 16 highlighted that as well.</p> <p>17 A Yeah. The sentence does say that it could 18 also be included and installed together with the 19 VM.</p> <p>20 Q Okay. So now my next question is 21 specifically limited to the first part, which says 22 "a VMM is already installed on the host"; correct?</p>	<p>116</p> <p>1 When a VMM is already installed on the 2 host, Khandekar simply doesn't discuss how it got 3 installed; correct? In that particular case.</p> <p>4 MR. LIANG: Objection. Asked and 5 answered.</p> <p>6 A So, again, my interpretation of it is what 7 I just described. If it's already installed, 8 there is nothing to do. So you go ahead and if 9 you want to install additional VMs, you can 10 certainly provision them. If it's not installed, 11 then you would install it together with the VM.</p> <p>12 So the first case, at some point in time 13 there was no VMM on that host. At that point, you 14 would use this process. This whole patent is 15 about provisioning and automatic provisioning.</p> <p>16 Q Okay. And I'm going to move down to 17 another section in the Khandekar reference, column 18 13. And in column 13, starting on line 17, 19 there's another paragraph that mentions the 20 acronym VMM; is that correct?</p> <p>21 A Yes, it does talk about that.</p> <p>22 Q And in this paragraph -- again, it's</p>

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<p>117</p> <p>1 column 13, starting on line 17 -- it says -- and 2 I'll highlight it for you -- "In the preferred 3 embodiment of the invention, the VMM is already 4 pre-installed on the host 1000, 1001 so as to 5 ensure compatibility and proper configuration"; 6 correct? 7 A Yes, it does say that. 8 Q Okay. And why do you think a person of 9 ordinary skill in the art would understand that 10 the pre-installation method is what Khandekar 11 refers to as the preferred embodiment? 12 MR. LIANG: Objection to form. 13 A So, first of all, pre-installation is also 14 an installation. It is just installed as an 15 initial step of the whole provisioning process. 16 And I say that -- so it's not that 17 pre-installation is somehow different from 18 installation. We're still installing a VM -- VMM 19 rather. 20 Now, it does say that you do that to 21 ensure compatibility with the host configuration. 22 You may have machines with different</p>	<p>119</p> <p>1 to be compatible with the host. 2 So you would keep your VMM images for each 3 host. And whenever you want to deploy a staged 4 VM, you would include a VMM. So there are two 5 different images that are just included as part of 6 the deployment process. 7 Q In Khandekar, as we discussed earlier, it 8 talks about two ways to install the VMM; correct? 9 You can install -- you can do it pre-installed, or 10 you can just -- you can install it together with 11 the VM; correct? 12 A So there are two highlighted sentences 13 here. The first one is a pre-installation step. 14 So in this case, you would install the VMM image 15 first, and then, at some later point in time, you 16 could install one or more VMs. 17 In the second case, you want to install a 18 VM on a machine where there is no VMM. So it 19 is -- as part of that installation, you have to 20 include a VMM image with the VM image. And there 21 are these two images that are being sent for 22 deployment. And so once the VMM image gets</p>
<p>118</p> <p>1 configurations, and you want to ensure that the 2 VMM is installed in the way that is compatible 3 with that configuration. And that is what it says 4 in that sentence. 5 Q And then later on in this paragraph, 6 starting at line 25 in column 13 of Khandekar, it 7 talks about a situation where it's possible for 8 the VMM to be included along with the staged VM. 9 Do you see that? 10 A Yes, I do. 11 Q Okay. So in that situation, the VMM would 12 be part of the staged VM; correct? 13 MR. LIANG: Objection to form. 14 A So let me read out what it says there. It 15 says "for a corresponding VMM to be included along 16 with each staged VM." It does not say that the 17 corresponding VMM is included in each staged VM. 18 So I read that to say that there's just a 19 VMM image is included with the VM image. They are 20 not the same. They shouldn't be the same. It 21 doesn't make sense for them to be the same, 22 because it just disclosed earlier that the VMM has</p>	<p>120</p> <p>1 installed, then you can install VMs on that host. 2 So I think that's what these two embodiments are 3 talking about. 4 And it also further goes on in the next 5 sentence, right after the highlighted sentence, it 6 says "An advantage of pre-installing a VMM, 7 without a VM, on a plurality of hosts" is that it 8 will be possible to deploy a VM on an arbitrary 9 one. 10 So it's talking about if you did the 11 pre-install, you did the installation step of the 12 VMM image, you could then quickly deploy VMMs 13 because the VMM -- or you could quickly deploy VMs 14 because the VMM is already installed on the 15 machine. 16 So in both cases, you would have a VMM 17 getting deployed. The pre-installation step is 18 getting deployed when you have -- when you 19 deployed the host, and then you deploy VMs later. 20 In the second one you have a blank host, and you 21 deploy them as two images in that second 22 embodiment.</p>

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<p>121</p> <p>1 Q Dr. Shenoy, there's nothing in that</p> <p>2 sentence or that paragraph that talks about</p> <p>3 deploying the VMM and the VM as two separate</p> <p>4 images; correct?</p> <p>5 MR. LIANG: Objection to form.</p> <p>6 A I think we just went over this. It</p> <p>7 clearly says what a corresponding VMM to be</p> <p>8 included along with each staged VM. And I just</p> <p>9 mentioned that one of ordinary skill would read</p> <p>10 that to say you have a VMM image and a VM image,</p> <p>11 and they are -- two images are sent to the host to</p> <p>12 be deployed in the second embodiment.</p> <p>13 Q These don't -- it doesn't say VMM image.</p> <p>14 It just says VMM, correct, in all the places in --</p> <p>15 that we're -- that we're talking about in column</p> <p>16 13, lines 17 through 35; correct?</p> <p>17 A So I will also point out that when it's</p> <p>18 talking about deploying VMs, it doesn't use the</p> <p>19 word "image." When it's talking about deploying</p> <p>20 VMMs, it doesn't use the word "image." But that</p> <p>21 is what this disclosure is about.</p> <p>22 Q And in -- we're going now back up to</p>	<p>123</p> <p>1 cut you off. Go ahead.</p> <p>2 A No, I was going to say I don't read that</p> <p>3 to mean that somehow installing and deploying here</p> <p>4 mean two different things. It's talking about a</p> <p>5 direct install and using the CD to do an install</p> <p>6 or deploy in either of these two cases.</p> <p>7 Q So, in your mind, installing something</p> <p>8 directly on the host and -- well, strike that</p> <p>9 sentence. That was a bad question.</p> <p>10 Is it your opinion that installing a</p> <p>11 configured VM directly on a physical host is the</p> <p>12 same as deploying a VM by copying information to</p> <p>13 find the VM from a CD?</p> <p>14 MR. LIANG: Objection to form.</p> <p>15 A I don't understand the question. I can</p> <p>16 just read out what is said in that specific</p> <p>17 sentence that says rather than installing the</p> <p>18 configured VM directly, it's also possible to</p> <p>19 deploy it by copying information using a CD.</p> <p>20 Q And do you think those are two different</p> <p>21 means of creating a VM, or do you think that they</p> <p>22 are just one and the same?</p>
<p>122</p> <p>1 column 8, line 43. It says "The VMM is either</p> <p>2 already installed on the host or is included and</p> <p>3 installed together with the VM"; correct?</p> <p>4 A That is what that sentence says, yes.</p> <p>5 Q Okay. Now, the Khandekar reference draws</p> <p>6 a distinction between installing a VM and</p> <p>7 deploying a VM by copying it to a host; correct?</p> <p>8 MR. LIANG: Objection to form.</p> <p>9 A I don't understand the question.</p> <p>10 Q Okay. If we go to column 5, the Khandekar</p> <p>11 reference starting on line 17 going through line</p> <p>12 20 makes a distinction between installing a VM and</p> <p>13 deploying a VM by copying; correct?</p> <p>14 MR. LIANG: Objection to form.</p> <p>15 A I don't read the sentence to mean that</p> <p>16 somehow "installing" or "deploying" are two</p> <p>17 different things. Rather, the sentence is simply</p> <p>18 saying you could install or deploy the VM directly</p> <p>19 on the physical host, or you could do it using the</p> <p>20 CD. That's what I read that sentence to mean. I</p> <p>21 don't --</p> <p>22 Q And in the -- I'm sorry. I didn't mean to</p>	<p>124</p> <p>1 A So now you are asking about creating a VM,</p> <p>2 which is not --</p> <p>3 Q I'll withdraw the question, because I</p> <p>4 didn't mean -- I'm not meaning to create -- I'm</p> <p>5 not meaning to interject new ambiguity. Maybe</p> <p>6 I'll ask it this way.</p> <p>7 In this highlighted portion of Khandekar,</p> <p>8 which is in column 5, lines 17 through 20, do you</p> <p>9 believe that the term "installing" and "deploy by</p> <p>10 copying" are the same thing?</p> <p>11 MR. LIANG: Objection to form.</p> <p>12 A So to read that sentence in the proper</p> <p>13 context, you would have to read some of the</p> <p>14 sentences that precede it. And if you go to</p> <p>15 line 10, it talks about, in this case, VMs are</p> <p>16 deployed on the respective physical host</p> <p>17 platforms. It talks about at least two of the</p> <p>18 deployed virtual machines have installed in them</p> <p>19 different mutually interacting applications. And</p> <p>20 then it says rather than installing the configured</p> <p>21 VM directly on the physical host, it's also</p> <p>22 possible to use a CD. So if I just read the whole</p>

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<p style="text-align: right;">125</p> <p>1 thing in context, that phrase "installation" is 2 referring to some other text before it, which was 3 talking about deployment. 4 Q In the sentence you were reading starting 5 in line 13 -- I'm sorry -- line 11, it says "At 6 least two of the deployed virtual machines have 7 installed in them different mutually interacting 8 applications." 9 You see that; correct? 10 A Yes, I do. 11 Q In that situation, were the applications 12 installed in the VM before deployment? 13 A It doesn't say that. I think the teaching 14 is broad enough to capture either of those cases, 15 because we talked about pre-built, custom-built, 16 and standard deployable. If it was using the 17 pre-built, then the applications would have been 18 installed when the image was created. If it's 19 custom-built, it is possible for the applications 20 to be installed as part of the deployment process. 21 So I think the teachings are broad. Here, it 22 doesn't say one way or the other. But if you read</p>	<p style="text-align: right;">127</p> <p>1 capturing VMM images, but I'll have to look again. 2 I know that the Le reference has a lot of 3 disclosures about that. 4 Q Dr. Shenoy, is there any place in 5 Khandekar where it talks about copying an image 6 instance of a VMM? 7 A Well, as we discussed a little bit 8 earlier, there is disclosure that you could deploy 9 a VMM along with a VM. And the deployment process 10 would include copying the image. 11 Q Can you point to me where we've read in 12 Khandekar about deploying a VMM image by copying? 13 A So I'm going to have to refer to my 14 declaration. 15 Q Okay. 16 A So claim element 1F, which in on -- starts 17 on page 89 of my declaration, and that's 18 paragraph 140 to 147. I've explained how the 19 deployment of the virtual machine manager is done 20 by causing the images to be copied. I think there 21 is a detailed analysis to show how the teachings 22 of Khandekar would --</p>
<p style="text-align: right;">126</p> <p>1 the patent, there are many disclosures that you 2 can use to interpret that sentence. 3 Q In fact, there are places in the Khandekar 4 patent that says that in order to create the VMs, 5 it could take between a few seconds, a few 6 minutes, or even hours to create them before they 7 can be deployed; correct? 8 A There's a sentence like that I remember 9 reading, but I don't recall where I read it in the 10 patent. 11 Q Okay. I can go there. I'll highlight it 12 for you. And I've highlighted column 11, lines 1 13 through 5. 14 A Yes, it does say that in a prototype of 15 the invention, the process could take anywhere 16 from seconds to minutes to hours. 17 Q And in Khandekar, it does not disclose a 18 process for capturing an image instance of a VMM 19 by itself; correct? 20 A So as I explained in my declaration, it 21 talks about deploying and copying VMM image 22 instances. I don't recall it talking about</p>	<p style="text-align: right;">128</p> <p>1 Q Dr. Shenoy, I -- I apologize. Did you say 2 paragraph 147? 3 A 140 through 147. 4 Q I've got it. Okay. I'm sorry. Thank 5 you. 6 And is there anywhere in paragraph 140 7 through 147 of your declaration that says anything 8 about copying or deploying an image instance of a 9 VMM by copying it to a host? 10 A So paragraph 145 explains that -- and I 11 think I am going to read the first sentence there. 12 It says "Khandekar teaches that the autonomic 13 deployment of images is accomplished by copying 14 the image from the provisioning server's 15 repository to the host computer." 16 And then I have given some explanation of 17 teaching of Khandekar that would result in that 18 analysis. 19 Q The only places of the Khandekar reference 20 itself that you cite in paragraph 145 are in 21 column 8, lines 36 through 44 and column 13, 22 lines 25 through 28; correct?</p>

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<p>129</p> <p>1 MR. LIANG: Objection to form.</p> <p>2 A So I've cited several other teachings of</p> <p>3 Khandekar about deploying. And I also said that</p> <p>4 it would have been obvious to take the teachings</p> <p>5 and use the other teachings of deployment to</p> <p>6 arrive at that conclusion.</p> <p>7 Q Okay. So I'm going to ask the -- the</p> <p>8 question a little bit different way.</p> <p>9 Is there anything in the Khandekar</p> <p>10 reference itself, just the Khandekar reference,</p> <p>11 that discloses deploying an image instance of a</p> <p>12 VMM by copying it to a host?</p> <p>13 A So it talk -- it discloses that you can</p> <p>14 deploy the VMM, but it doesn't say that you are to</p> <p>15 copy it, and I said that that would have been</p> <p>16 obvious, but those words don't appear in the</p> <p>17 specification of the Khandekar reference.</p> <p>18 Q And there's no reference in the Khandekar</p> <p>19 reference of an image instance of a VMM either;</p> <p>20 correct?</p> <p>21 MR. LIANG: Objection to form.</p> <p>22 A That is not correct. I think we already</p>	<p>131</p> <p>1 provisioning server may provide the VMM along with</p> <p>2 a VM to the host computer; correct?</p> <p>3 A So the first sentence of my declaration in</p> <p>4 paragraph 58 does say that the Khandekar reference</p> <p>5 teaches that the provisioning server may provide a</p> <p>6 VMM along with the VM to a host computer.</p> <p>7 Q And I might have asked this to you</p> <p>8 already, and I apologize if I did. But Khandekar</p> <p>9 itself does not disclose storing a plurality of</p> <p>10 image instances of a VMM in a -- or in the</p> <p>11 provisioning server; correct?</p> <p>12 MR. LIANG: Objection to form.</p> <p>13 A So in my declaration, I have an analysis</p> <p>14 of claim element 1C. It starts at paragraph 81 on</p> <p>15 page 49 and goes on for a while, all the way to</p> <p>16 paragraph 94. And it does talk about a plurality</p> <p>17 of image instances of the virtual machine manager,</p> <p>18 and I explain that it would have been obvious to</p> <p>19 store them on the -- on the image repository or</p> <p>20 the disks of the provisioning server.</p> <p>21 Q And even though you say it would have been</p> <p>22 obvious to store these software -- I'm sorry --</p>
<p>130</p> <p>1 said that when it talks about deploying VMs, it's</p> <p>2 referring to VM images. It's talking about</p> <p>3 deploying VMMs are including that along with the</p> <p>4 VM; that's talking about the VMM image. The words</p> <p>5 don't appear, but the teaching is there.</p> <p>6 Q In Khandekar, it talks about, from the</p> <p>7 perspective of the system designer, that the VM</p> <p>8 and the VMM are considered to form a single</p> <p>9 cooperating system; is that correct?</p> <p>10 A I don't remember any sentence. It may be</p> <p>11 the case. If you're looking at a specific place,</p> <p>12 I would like to see that before answering.</p> <p>13 Q In column 7, it shows up in line 39. And</p> <p>14 I'll highlight that for you.</p> <p>15 A And it -- so here it is talking about how</p> <p>16 VMs interface with the host platform, and you need</p> <p>17 VMM as a software layer of the VM to run on the</p> <p>18 host. So in that sense, it's talking about VMs</p> <p>19 and VMMs to be considered to be a single</p> <p>20 cooperating system, yes.</p> <p>21 Q And in paragraph 58 of your declaration,</p> <p>22 you state that Khandekar teaches that the</p>	<p>132</p> <p>1 the software images of the VMM in a repository,</p> <p>2 you don't cite to any place in Khandekar where it</p> <p>3 actually makes that disclosure; correct?</p> <p>4 MR. LIANG: Objection to form.</p> <p>5 A Within my analysis of the paragraphs I</p> <p>6 just mentioned explain that. It talks about</p> <p>7 provisioning VMs. It talks about storing images,</p> <p>8 all kinds of images. Different types of VM</p> <p>9 images. And it discloses that you can include a</p> <p>10 VMM image with -- or when provisioning a VM.</p> <p>11 I don't think that there is any --</p> <p>12 anything that would prevent a POSITA from saying</p> <p>13 that the VMM image could be stored with the VM</p> <p>14 image. There are images of all kinds. And you</p> <p>15 can store images on disk. This was well known.</p> <p>16 Q My question, Dr. Shenoy, is not whether</p> <p>17 it's your opinion that it would have been obvious</p> <p>18 to do it. My question to you is, there's nothing</p> <p>19 in Khandekar itself that discloses a plurality of</p> <p>20 image instances of a VM stored in a repository;</p> <p>21 correct?</p> <p>22 MR. LIANG: Objection to form.</p>

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<p style="text-align: right;">133</p> <p>1 A So, again, the words are not there, but as 2 I explained, based on the teachings, that would 3 have been obvious. 4 Q Okay. Dr. Shenoy, if it's okay with you, 5 we're going to take a break a few minutes earlier, 6 and then we'll circle back in about ten minutes. 7 Is that okay with you? 8 A That will be fine. 9 MR. YOUNG: Okay. All right. Let's go 10 off the record. 11 (A short break was had.) 12 BY MR. YOUNG: 13 Q Okay. Dr. Shenoy, you also gave opinions 14 about a Le reference that we have marked as 15 Exhibit 4 in this deposition; correct? 16 A Yes, I have. 17 Q Okay. 18 MR. YOUNG: And, Enrique, if you could 19 please pull up Dr. Shenoy's declaration, which is 20 marked as Exhibit 1, please. Okay. 21 Q And, Dr. Shenoy, in paragraph 58 of your 22 declaration, you have a sentence -- second</p>	<p style="text-align: right;">135</p> <p>1 virtual disks as well. 2 Q And in the third sentence of paragraph 58 3 of your declaration, you also refer to the Le 4 reference; correct? 5 A Yes. The third sentence is talking about 6 imaging of physical disks of remote computers. 7 Q Okay. And you have the opinion that Le 8 teaches that you can image a disk and that image, 9 which you called a clone image, could have both a 10 Type 1 VMM or a Type 2 VMM as part of the image; 11 correct? 12 A So that's not what that sentence actually 13 says. 14 Q Okay. 15 A What the sentence says is Le teaches 16 physical imaging of hard disks. It teaches 17 capturing an image off an OS as part of that 18 physical imaging. It also teaches capturing 19 application images. 20 And what that sentence is simply saying 21 is, because it teaches capturing images of 22 arbitrary operating systems and the Type 1 VMM is</p>
<p style="text-align: right;">134</p> <p>1 sentence starts and it discusses the Le reference; 2 correct? And I'll highlight that for you on the 3 screen. 4 A So paragraph 58 does talk about the Le 5 reference and imaging techniques, yes. 6 Q Okay. And it talks about both a Type 1 7 hypervisor OS. Do you see that? 8 A Yes, I do. 9 Q And a Type 2 hypervisor as well; correct? 10 A Yes, that sentence does refer to both of 11 those types of hypervisors. 12 Q And it's your opinion that a hypervisor is 13 a type of a VMM; is that correct? 14 A Yes. A hypervisor is often used 15 interchangeably with VMMs. And in this case, the 16 Le reference also teaches VMMs as being Type 1 and 17 Type 2 hypervisors. 18 Q Okay. And Le also talks about various 19 techniques for imaging a hard disk; is that 20 correct? 21 A Yes. Le has detailed teachings about 22 different types of imaging of a hard disk and</p>	<p style="text-align: right;">136</p> <p>1 a type of a special purpose operating system, it 2 teaches capturing a Type 1 VMM image. 3 And Type 2 VMMs or Type 2 hypervisors 4 essentially are applications that run on Windows, 5 like any other applications, like Word. And 6 because Le is teaching capturing application 7 images off arbitrary applications and Type 2 VMM 8 is one such application, it also teaches capturing 9 Type 2 VMM. 10 That's what that meant. It did not mean 11 that a single image has both a Type 1 and a Type 2 12 VMM. 13 Q But the sentence does say you're 14 deploying -- under the Le teachings, you're 15 deploying a cloned image, and that image has a VMM 16 as part of it; correct? That's what it says? 17 A Yes. It does say that you can deploy a 18 cloned image. And if it's a cloned image of an 19 OS, it could be a Type 1 image, a Type 1 VMM 20 image, because that's an OS. 21 Q Okay. Dr. Shenoy, pending any questions 22 from your counsel, I'm done with my direct part of</p>

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<p>137</p> <p>1 the examination -- or the -- my initial part of 2 the examination. If your counsel has more 3 questions, I might have follow-up. But pending 4 any of his questions, I'm done with my 5 questioning. Thank you. 6 A Thank you. 7 MR. LIANG: No questions here. So I think 8 we're done with this deposition. 9 MR. YOUNG: Okay. Dr. Shenoy, I really 10 appreciate your time. It was a pleasure to meet 11 you. 12 (Off the record at 2:11 p.m.) 13 14 15 16 17 18 19 20 21 22</p>	<p>139</p> <p>1 IN WITNESS WHEREOF, I have hereunto set my 2 hand and affixed my notarial seal this 20th day of 3 May, 2021. 4 5 6 7 My commission expires: February 28th, 2024 8 9 10 11 <u>Tiffany M. Pietrzyk</u> 12 NOTARY PUBLIC IN AND FOR THE 13 STATE OF ILLINOIS 14 15 16 17 18 19 20 21 22</p>
<p>138</p> <p>1 CERTIFICATE OF COURT REPORTER - NOTARY PUBLIC 2 3 I, TIFFANY M. PIETRZYK, Certified 4 Shorthand Reporter No. 084-004371, CSR, RPR, CRR, 5 and a Notary Public within and for the State of 6 Illinois, do hereby certify: 7 That PRASHANT SHENOY, Ph.D., the witness 8 whose deposition is hereinbefore set forth, was 9 duly sworn by me before the commencement of such 10 deposition and that such deposition was taken 11 before me and is a true record of the testimony 12 given by such witness. 13 I further certify that the deposition of 14 PRASHANT SHENOY, Ph.D. occurred virtually via Zoom 15 videoconference, on Friday May 14, 2021, 16 commencing at 9:00 a.m. CST to 2:11 p.m. CST. 17 I further certify that I am not related to 18 any of the parties to this action by blood or 19 marriage, I am not employed by or an attorney to 20 any of the parties to this action, and that I am 21 in no way interested, financially or otherwise, in 22 the outcome of this matter.</p>	

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