EXHIBIT 14

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

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SKYLINE SOFTWARE SYSTEMS, INC.,

Plaintiff,

vs. No. 04-11129 DPW

KEYHOLE, INC., and GOOGLE, INC.,

Defendants.

/

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CONFIDENTIAL

VIDEOTAPED DEPOSITION OF STEPHEN LAU, JR.

Volume I (Pages 1-150)

Wednesday, June 21, 2006

HIGHLY CONFIDENTIAL -- OUTSIDE COUNSEL ONLY

REPORTED BY:

SUSAN F. MAGEE, RPR, CLR, CSR No. 11661

A. Yes. 02:18:44

Q. Okay. And did you write any computer source code for TerraVision? 02:18:45 02:18:47

A. Yes. I -- the original version of TerraVision I probably wrote somewhere around between 80 to 90 percent of the original source code for TerraVision. 02:18:49 02:18:52 02:18:56 02:18:58

Q. Yeah. It's natural to talk fast when we're -- 02:19:00 02:19:03

A. Yeah. Sorry about that. 02:19:03

Q. -- in conversation. No, no, no. It's okay. It's just for the court reporter, you know. It helps to slow down just a little bit -- 02:19:04 02:19:05 02:19:07

A. Okay.

Q. -- because then she can get it down better. 02:19:10

A. Yeah. I tend to talk fast. I'm sorry. 02:19:11

Q. We all do so that's okay. 02:19:14

Now, you say that you wrote about 80 to 90 percent of the original version of TerraVision. 02:19:18 02:19:36

A. Yep. 02:19:39

Q. Was there a work in progress for TerraVision when you first arrived at SRI? 02:19:39 02:19:41

A. No. There was not one piece of source code for TerraVision when I joined the project, and the reason for that was that the group that I joined, 02:19:44 02:19:46 02:19:50

which was the artificial intelligence group, actually the machine vision portion of the artificial intelligence group at SRI, the people there were LISP programers and not C programers. 02:19:53 02:19:55 02:19:57 02:20:00

Q. When did you first start working on the TerraVision project? 02:20:05 02:20:07

A. August of 1992. Pretty much the first day I got there was off and running. 02:20:08 02:20:10

Q. And who else wrote the other 10 to 20 percent? 02:20:12 02:20:16

A. There was Len Schlegal who worked on the initial part, the first few months, but he came down with an illness, and he passed away soon after. 02:20:17 02:20:21 02:20:25

Q. Oh.

A. People who worked on it later on, we had a student much later on who worked on a -- one component of it called TeReVision which essentially did screen captors. That was much later in the project. And another person was Nathaniel Bletter, also worked on TerraVision. 02:20:30 02:20:33 02:20:36 02:20:40 02:20:43 02:20:47

Later on in the project starting probably around 1995, '94, he did some small components of TerraVision, and he took over a lot of the developments after I left. I left SRI in 1996. 02:20:50 02:20:52 02:20:58 02:21:01

So he took over all of that. And then 02:21:05

after that I guess -- and there was other people after that. I don't know if you want me to -- 02:21:08 02:21:10

Q. No, no, no. That's fine. 02:21:11

A. Okay. 02:21:13

Q. As of the time you left SRI in 1996, did you consider the work on the development of TerraVision complete? 02:21:13 02:21:17 02:21:21

MR. HAMELINE: Objection. 02:21:23

THE WITNESS: What do I do? 02:21:26

MR. HAMELINE: So that you understand -- 02:21:27

THE WITNESS: Yeah.

MR. HAMELINE: -- since there isn't a judge present -- 02:21:28 02:21:30

THE WITNESS: Yeah.

MR. HAMELINE: -- and there are issues in terms of just objections that we're preserving for a future record -- 02:21:30 02:21:31 02:21:34

THE WITNESS: Okay.

MR. HAMELINE: -- in case this is used in a courtroom -- 02:21:34 02:21:35

THE WITNESS: Okay.

MR. HAMELINE: -- I may say "objection" or voice some sentence or two. 02:21:36 02:21:37

THE WITNESS: Okay.

MR. HAMELINE: If you would just wait until 02:21:40

I'm done -- 02:21:42

THE WITNESS: Okay.

MR. HAMELINE: -- and then answer the question, and that's just preserving this for the record -- 02:21:42 02:21:43 02:21:45

THE WITNESS: Okay. 02:21:45

MR. HAMELINE: -- okay? 02:21:46

BY MR. WOO: Q. He's just preserving this for the record so -- 02:21:46 02:21:47

A. Okay. 02:21:48

Q. -- you can just, you know, answer the question after he's done. 02:21:48 02:21:49

MR. HAMELINE: But just one point in connection with what we were saying before, for the court reporter's ease, just wait until I'm done talking until you begin. 02:21:51 02:21:53 02:21:55 02:21:57

THE WITNESS: Okay. 02:21:58

MR. HAMELINE: Okay, thanks. 02:21:59

MR. WOO: Thanks. 02:22:01

THE WITNESS: I'm a newbie in terms of depositions. 02:22:01 02:22:03

MR. HAMELINE: Well -- 02:22:04

BY MR. WOO: Q. That's fine. So where was I? Let's see. Let me ask a different question. 02:22:04 02:22:07

Well, let me ask the same question. As of the time 02:22:34

you left SRI in 1996, did you consider the work of on the development of TerraVision complete? 02:22:37 02:22:40

MR. HAMELINE: Objection. 02:22:42

THE WITNESS: Yes. The project, the first phase of the MAGIC 1 project was completed by the time I left SRI, and we were looking for funding for MAGIC 2, the continuation of this project. And that funding had not been secured by the time that I left SRI, so yes. 02:22:42 02:22:45 02:22:49 02:22:53 02:22:58 02:23:01

By the end of the project because the MAGIC project ended, TerraVision was complete and fulfilled the requirements of the original MAGIC project. 02:23:03 02:23:06 02:23:08 02:23:11

BY MR. WOO: Q. Tell us a little bit more about what the MAGIC project was. 02:23:11 02:23:12

A. The MAGIC project was a DARPA-funded program to create a high-speed network test bed. At the time there were several other high-speed network test beds being created via other agencies, and this was DARPA's own high-speed network test bed. It was to create an Internet spanning multiple cities and multiple locations to test new technologies that eventually would become part of the Internet to do groundbreaking research in that area. And one of the areas of this groundbreaking research that they 02:23:15 02:23:18 02:23:26 02:23:29 02:23:32 02:23:37 02:23:42 02:23:46 02:23:50 02:23:53

were funding was to develop applications that could run over this network and utilize the bandwidth that was being created, and the concept was to develop TerraVision. That was TerraVision's component to fit into it. 02:23:56 02:23:58 02:24:01 02:24:05 02:24:08

Q. So were there any particular reasons why TerraVision was developed? 02:24:09 02:24:11

MR. HAMELINE: Objection. 02:24:14

THE WITNESS: The original concept, it -- the original reason for the MAGIC project since it was a DARPA-related project was to provide or consider what's called situational awareness for military commanders down in the field. And one of the problems at the time was there was difficulty in providing people out in the field with up-to-date satellite imagery or aerial photo imagery. 02:24:17 02:24:20 02:24:24 02:24:29 02:24:30 02:24:33 02:24:36 02:24:39

So the concept was eventually someday anyone could go to any computer they possibly have access to, use this application and be able to download maps, look for directions, enter in coordinates, find your way point from how to find directions from this address to that address and have up-to-date aerial images, okay? Also be able to do searches and also be able to do -- tie this into something that was relatively new at the time 02:24:44 02:24:47 02:24:50 02:24:53 02:24:57 02:24:58 02:25:01 02:25:05 02:25:08

called digital elevation model, which is elevation height of the entire contiguous United States, and they also had aerial photos which they took. I forgot what the program was back then, but they would take these aerial photos of major metropolitan areas and also of all the United States. These were in photographic format, not digital format at the time. 02:26:25 02:26:29 02:26:33 02:26:36 02:26:38 02:26:42 02:26:47 02:26:51

Q. Was part of the project to convert that photographic format to something that was digital? 02:26:51 02:26:55

A. Yes. 02:26:57

Q. Now, you mentioned DARPA and the military. Was -- in developing TerraVision, was there any desire to keep the resulting TerraVision project secret? 02:26:58 02:27:03 02:27:05 02:27:09

A. No. 02:27:10

MR. HAMELINE: Objection. 02:27:10

THE WITNESS: Sorry. 02:27:12

No. This was a -- from this get-go was an unclassified project. The partners that we had, we partnered with commercial entities. Sprint was one partner. We partnered with an educational institution, Minnesota Supercomputing Center; a department of energy laboratory which was completely unclassified, Lawrence Berkeley National Labs; and 02:27:13 02:27:16 02:27:20 02:27:26 02:27:30 02:27:37 02:27:40

we also partnered with a public agency, U.S. Geological Survey, which all of their data is also readily available and free. Well, not free but available to the public. 02:27:44 02:27:48 02:27:51 02:27:54

BY MR. WOO: Q. What do you mean by "readily available"? 02:27:54 02:27:55

A. Anyone at the time -- and it is still true today -- anyone could order these images, and they would receive them. At the time they were photographic. You would get real photos, or you would also get tapes at the time. 02:27:57 02:28:00 02:28:04 02:28:06 02:28:09

Q. Who funded the development of TerraVision? 02:28:11

A. DARPA did. 02:28:14

Q. Could you just explain, please, what DARPA is. 02:28:15 02:28:19

A. DARPA is a research branch of -- see if I get this right now -- research branch of the department of defense. Their mission was to do forward thinking and develop technologies that may come in useful in the future. I think the classic example what they developed was the Internet. They were the ones that initially funded the Internet. In fact, SRI was the -- SRI and UCLA were a combination of the first two nodes on the Internet. So they typically funded these projects to do out -- 02:28:20 02:28:25 02:28:28 02:28:30 02:28:35 02:28:39 02:28:42 02:28:45 02:28:49 02:28:52

BY MR. WOO: Q. How public, if they were, were these symposia? 02:30:31 02:30:34

A. They were held in public locations. They were held at -- we varied the locations from University of Kansas in Overland [sic], Kansas; held it at Sprint headquarters in Overland Park, Kansas City. Actually, it wasn't -- it was one of the buildings of Sprint headquarters. We also held one, I believe, at Minnesota Supercomputing Center. 02:30:36 02:30:39 02:30:43 02:30:48 02:30:52 02:30:54 02:30:58

Q. In order for people to attend these symposia, did they have to sign any kin of confidentiality or -- 02:31:01 02:31:03 02:31:06

A. No.

Q. -- nondisclosure agreements? 02:31:08

A. No. 02:31:10

Q. As part of the MAGIC project, did SRI also have to provide periodic reports to the rest of the team? 02:31:10 02:31:14 02:31:18

A. Yeah, many. We -- 02:31:18

Q. Let me ask it. 02:31:22

A. Yeah. 02:31:23

Q. What was the purpose of doing that? 02:31:23

A. It was a share information to -- I mean, we were all tasked together to work on this project, and we had to have real close collaborations. One 02:31:25 02:31:29 02:31:31

he was the project lead of the project, of the entire MAGIC project. His main component for the project, though, was there was another aspect of the MAGIC project for SRI International which was a concept called orthorectification. 02:35:57 02:36:00 02:36:04 02:36:10 02:36:15

Q. What was orthorectification? Kind of a mouthful too. 02:36:19 02:36:23

A. Orthorectification is when you take an image from a -- any type of camera of a terrain or of anything. You have distortions based upon, you know, the angle of the camera, location of the camera in order to do what is called texture mapping or mapping of this image onto terrain. What you want to do is you want to correct for these distortions, okay? And there's a whole area of research of doing that in -- via computers and recreating digitally, doing orthorectification digitally. 02:36:23 02:36:27 02:36:32 02:36:35 02:36:39 02:36:42 02:36:44 02:36:47 02:36:52 02:36:57 02:37:02

Q. So is that technique important or that subject important to creating databases? 02:37:02 02:37:04

A. Yes. Well, in creating databases for terrain modeling. 02:37:08 02:37:12

Q. Yes. 02:37:13

A. Because otherwise you have distortion. 02:37:14

Q. Could you describe, please, what 02:37:29

TerraVision was. 02:37:31

A. TerraVision was an application that allowed the user to manipulate or fly through, do aerial fly throughs of terrain in real time over a network or the Internet, and what you would see of what were all the imagery was potentially located on a separate system or separate server. As depended upon the viewpoint of the person, TerraVision would request from servers spread out on a network in arbitrary locations imagery of different resolutions based upon the location of the viewer where higher-resolution imagery, you would want higher-resolution imagery for images close to the user and lower resolution far off in the distance, in the horizon. 02:37:32 02:37:35 02:37:46 02:37:50 02:37:56 02:38:00 02:38:07 02:38:12 02:38:15 02:38:23 02:38:25 02:38:28 02:38:32 02:38:35

It had a 2D component where you could pan and zoom and also the three-dimensional component where you could actually do a real-time fly through. Later on in the project it was expanded. The application was expanded such that you could do it in stereoscopic views -- stereographic views. 02:38:40 02:38:43 02:38:48 02:38:51 02:38:55 02:38:57

Q. Can I stop you right there? 02:39:02

A. I'm sorry. What? 02:39:04

Q. Yeah. So before the time you had the stereoscopic addition -- 02:39:06 02:39:08

A. Stereographic, stereographic. 02:39:10
Q. Stereoscopic. 02:39:11
A. -graphic. 02:39:13
Q. Sorry, -graphic. Sorry. Before you had this stereographic feature, let's just focus on the way you've just described it. At or about what time were all these features included in the TerraVision software? 02:39:13 02:39:15 02:39:19 02:39:22 02:39:26
MR. HAMELINE: Objection. 02:39:27
THE WITNESS: The features were in place initially during the design phase which happened around '92 or so. By 1994, early 1994, all the components were in there. Actually, it's probably a little earlier than that. Probably late '93. 02:39:31 02:39:33 02:39:35 02:39:44 02:39:50
BY MR. WOO: Q. So by all components, you're referring to the things you've mentioned in your answer a few minutes ago, the ability to fly through terrain in real time over the network, seeing the images from a separate server and so forth? 02:39:53 02:39:55 02:39:59 02:40:00 02:40:02 02:40:05
A. Yes. 02:40:05
Q. Would you tell us, please, how TerraVision operated in terms of what the user would see? 02:40:06 02:40:15
A. What the user would see, depending on either the two-dimensional -- for the 02:40:17 02:40:19

two-dimensional view, the user would start off with an area of a high -- very low resolution, far away image of the actual terrain that was available, and they would have a user interface where they could zoom into the map or zoom out of the map, some of the images, and they could pan, move around. 02:40:21 02:40:25 02:40:30 02:40:32 02:40:35 02:40:38

They could remove the actual satellite imagery or aerial imagery and instead show the shaded relief elevation map there. You could combine the two and do a shaded elevation map combined with the actual imagery there. 02:40:41 02:40:45 02:40:49 02:40:51 02:40:55

What they would see when they would first start off is, as you zoom in, you would see a low resolution of the version of the image. As TerraVision was requesting information over the network, it would sharpen the image up with higher resolution imagery. 02:40:57 02:41:00 02:41:04 02:41:06 02:41:08 02:41:14

In the three-dimensional view, what you start off with was very similar to like a flight simulator type of view, you know, standard three-dimensional view, and the user had a user interface where they could do -- pitch up and down, sideways motion, and essentially had freedom of flight wherever they wanted to. Or they could actually -- could click a demo mode, and they would 02:41:18 02:41:21 02:41:26 02:41:27 02:41:30 02:41:35 02:41:38 02:41:40

actually be taken a tour around the actual terrain 02:41:43
itself. And as the user was flying across the 02:41:46
terrain, the imagery would be loaded into the 02:41:49
system. 02:41:56
Now, if you were on a slow network link, it 02:41:56
would choose the -- it would have the lower 02:42:03
resolution. It would try to draw whatever it had in 02:42:05
local memory. 02:42:09
MR. HAMELINE: I move to strike. 02:42:10
BY MR. WOO: Q. Let me -- did TerraVision 02:42:14
work over a slow network link? 02:42:24
A. Yes. We designed it such that one of the 02:42:26
issues that we had from the beginning was the 02:42:28
original concept that we had was to actually render 02:42:32
the images far away and ship them across the 02:42:34
network. But what we wanted to do is we wanted to 02:42:37
have low latency. In other words, we wanted to have 02:42:41
the user as they moved around to have instantaneous 02:42:43
response, so . . . 02:42:47
Q. So how was that problem resolved? 02:42:47
A. The actual rendering was decoupled from the 02:42:49
actual requesting of the imageries, and the 02:42:52
rendering was done locally on the actual person's 02:42:56
system that they had sitting in front of them. In. 02:42:58
Q. By local you mean the user's computer? 02:43:02

A. User's computer, yeah -- 02:43:04
Q. Okay. 02:43:06
A. -- wherever they were at. 02:43:06
In terms of slow network links, we tested 02:43:10
it on everywhere from a 56K modem to a ISDN modem 02:43:14
all the way up to an Internet backbone all the way 02:43:25
up to the MAGIC speed which is gigabit-speed 02:43:29
network.
The reason for that, during 1994 I had a -- 02:43:35
I took a little bit of a leave of absence, and I had 02:43:37
to work from home, and I -- routinely would use 02:43:39
TerraVision at home to attach to servers located on 02:43:44
the Internet over an ISDN line. 02:43:49
MR. HAMELINE: Move to strike. 02:43:52
BY MR. WOO: Q. Did you personally use 02:43:57
TerraVision over a slow network link? 02:43:59
A. Yeah. 02:44:01
MR. HAMELINE: Objection. 02:44:02
THE WITNESS: I'm sorry. 02:44:03
Yes, I did. 02:44:06
BY MR. WOO: Q. Under what circumstances 02:44:08
did you do so? 02:44:09
A. I did it from home. Did it from home and 02:44:09
also just to -- actually did it from various hotel 02:44:12
rooms just to prove that we could do it. 02:44:15

Q. And when you did this, what kinds of modems did you use in terms of the speed? 02:44:18 02:44:21

A. 56K modems. Actually I think it was at that time also a 2,400 baud modem. Or 9,600 baud. I'm sorry. 9,600 baud modem. 02:44:23 02:44:27 02:44:31

Q. And approximately what year did these -- 02:44:38

A. Things occur? 02:44:42

Q. Yes. 02:44:43

A. Yeah. 1993, 1994, 1995. 02:44:43

Q. When did you personally use TerraVision over the Internet? 02:44:46 02:45:01

MR. HAMELINE: Objection. 02:45:02

THE WITNESS: Use it from -- pretty much from day one. As soon as we started, I hooked it up to a -- to one of the -- what was called the ISS Image Server System I think was the acronym. That -- as soon as we could get that up and running, as soon as LBL could get that up and running, we started running TerraVision over the Internet between SRI and Lawrence Berkeley National Labs. That was probably starting probably '93 or so. I don't exactly remember the date or the time. 02:45:03 02:45:05 02:45:10 02:45:12 02:45:16 02:45:19 02:45:22 02:45:24 02:45:28 02:45:39

Q. And in that use in the 19- -- in the -- let me start over. 02:45:51 02:46:16

In that use in the 1993 time frame over the 02:46:17

Internet, were the images -- where did the images come from? 02:46:21 02:46:25

MR. HAMELINE: Objection. 02:46:26

THE WITNESS: In terms of the actual -- in terms of where did the images really come from or where did they come -- 02:46:27 02:46:28

Q. Yes. Well, no. I mean where was the server, yes. 02:46:32 02:46:32

A. Most servers very located primarily at Lawrence Berkeley National Labs at that time mainly because the MAGIC network was still in developmental phase at that point. In late 1993 we did -- that was for the day-to-day development of TerraVision. We also ran it -- during 1993, '94, we also ran it on the MAGIC network where the servers were located in Sioux Falls, South Dakota at the USGS's facilities there in Lawrence, Kansas; and also Minnesota Supercomputing Center; and also Overland Park. 02:46:32 02:46:37 02:46:41 02:46:46 02:46:50 02:46:55 02:47:00 02:47:04 02:47:15 02:47:17 02:47:20

Q. And where were you running this from at the time? 02:47:21 02:47:24

A. I'm sorry. Say again? Oh, the application? 02:47:24 02:47:27

Q. Yes. 02:47:27

A. Ran it from a variety of locations from 02:47:27

Menlo Park, California, SRI International. We also ran it in -- at the different meetings we had out at the midwest. We'd run it at -- in Kansas City; Lawrence, Kansas; Sioux Falls, South Dakota; and also Minneapolis, Minnesota during '93, '94 time frame. 02:47:30 02:47:34 02:47:36 02:47:41 02:47:44 02:47:49

Q. Okay. So during the 1993, 1994 time frame when you, for example, were running the TerraVision application in Menlo Park, California, the imagery would be coming from other locations such as Kansas and so forth -- 02:47:49 02:47:52 02:47:54 02:47:58 02:48:02

A. Yeah. 02:48:02

Q. -- is that right? 02:48:03

A. Yes. 02:48:04

Q. Now, when the user would start up TerraVision and wanted to see an image, where would that -- first of all, what -- was that a relatively low-resolution image or a relatively high-resolution image? 02:48:08 02:48:20 02:48:25 02:48:29 02:48:33

MR. HAMELINE: Objection. 02:48:33

THE WITNESS: I'm sorry. 02:48:34

The actual imagery itself that we had ranged down to one meter resolution. So what we did is we built multiresolutions, multiresolution hierarchy for the images, took the original 02:48:35 02:48:38 02:48:41 02:48:44

THE WITNESS: '93, '94. 03:08:57

MR. WOO: We've been going about an hour 03:08:58
now, so why don't we take a short break. 03:09:51

THE WITNESS: Sure. Thanks. 03:09:53

THE VIDEOGRAPHER: The time is 3:09, and 03:09:55
we're off the record. 03:09:56

(Recess taken from 3:09 p.m. to 3:22 p.m.) 03:09:57

(Whereupon, Exhibit 86 was marked for
identification.) 03:22:17

THE VIDEOGRAPHER: All right. Time is 03:22:17
3:24, and we're back on record. 03:24:11

MR. WOO: During the break I've had marked 03:24:13
as Exhibit 86 a multipage document bearing Control 03:24:17
Nos. GOOG 358 through 370. It's entitled MAGIC 03:24:27
Final Report, Yvan G. Leclerc, SRI International. 03:24:34

BY MR. WOO: Q. Mr. Lau, do you recognize 03:24:45
Exhibit 86? 03:24:48

A. Yes. 03:24:48

Q. Can you tell me what it is? 03:24:48

A. It's the final report for the MAGIC project 03:24:50
that was written by SRI for the SRI component of 03:24:53
MAGIC project. 03:24:56

Q. Did this report have to do with 03:24:57
TerraVision? 03:25:00

A. Yes. It was our final report on our 03:25:01

component of the MAGIC project. 03:25:06

Q. What was the purpose of this report? 03:25:07

A. Was to show DARPA that we had completed the 03:25:10
project and to show all of our progress and things 03:25:16
that we learned about the -- during the MAGIC 03:25:19
project and . . . 03:25:21

Q. Notwithstanding the -- let me just -- let 03:25:25
me start over. 03:25:28

Let me direct your attention to the bottom 03:25:28
corner of each page, the right-hand corner. It 03:25:31
bears a date of 12/23/2004. 03:25:36

A. Yep. 03:25:39

Q. Do you recognize that as an artifact of the 03:25:39
process of printing a document from the Internet? 03:25:42

MR. HAMELINE: Objection. 03:25:45

THE WITNESS: No. This was -- I believe 03:25:47
this was the original -- that was actually part of 03:25:49
the actual report itself without the date that it 03:25:51
was -- date and time that it was written or 03:25:52
published, made available. 03:25:54

BY MR. WOO: Q. On December 23, 2004? 03:25:56

A. I believe so, yeah. 03:25:58

Q. Now, I can -- well, I -- 03:26:00

A. Huh? 03:26:02

Q. Maybe we can -- 03:26:03

A. Oh, I'm sorry. No. 2004. I'm sorry. Yeah, 2004. 03:26:04 03:26:06

Q. So let's back up for a second so we can clear this up. So that date in 2004, do you recognize that as not being -- 03:26:08 03:26:10 03:26:13

A. Not being -- yes, yes. That is today's -- that is not today's date but yes. 03:26:16 03:26:18

Q. Okay. So let me just clear for the record, and let me see if I can just straighten this up. 03:26:21 03:26:23

A. Yeah. Sorry about --

Q. So the date of 12/23/2004 was not a part of the original report submitted to DARPA in May of 1996? 03:26:25 03:26:29 03:26:34

A. Yes. 03:26:34

MR. HAMELINE: Objection. 03:26:34

MR. WOO: Okay. 03:26:36

THE WITNESS: Sorry about that. 03:26:36

BY MR. WOO: Q. Let me ask you the question the other way. When -- let me start over. 03:26:37 03:26:44

Was -- to your knowledge, was the MAGIC final report, Exhibit 86, submitted to DARPA? 03:26:48 03:26:51

A. Yes. 03:26:53

Q. When was it submitted to DARPA? 03:26:53

A. 1996 because that was the end of the project and which is -- I don't know why. I don't 03:26:56 03:26:58

know what I was thinking what I was seeing 2004. 03:27:03

Q. Okay. And if you could leaf through it 03:27:11
briefly and tell me whether or not it accurately 03:27:14
describes the status of the TerraVision project as 03:27:17
of May of 1996. 03:27:20

MR. HAMELINE: Objection. 03:27:22

THE WITNESS: Yes. 03:27:24

BY MR. WOO: Q. Was Exhibit 86 prepared as 03:27:45
part of SRI's duties to DARPA under the MAGIC 03:27:48
project? 03:27:55

A. Yes. 03:27:55

Q. Was this report, Exhibit 86, prepared on or 03:28:00
about May of 1996? 03:28:05

A. Yes. 03:28:06

MR. HAMELINE: Objection. 03:28:08

BY MR. WOO: Q. What has become of 03:28:09
Yvan Leclerc? 03:28:12

A. He passed away. 03:28:14

Q. When approximately? 03:28:16

A. You know, in the early 2000s. I'm not sure 03:28:17
exactly sure what date or what year it was. 03:28:20

Q. Okay. Is this one of the -- strike that. 03:28:22

Is Exhibit 86 one of the reports to DARPA 03:28:34
that we talked about earlier that -- where you had a 03:28:37
practice of providing these periodic reports? 03:28:42

Q. Okay. The next page, GOOG 359, at the top of the page the first paragraph says TerraVision uses aerial or satellite images combined with elevation data to create real-time synthetic 3D views of a site. 03:37:06 03:37:26 03:37:31 03:37:34 03:37:38

True, safe with respect to TerraVision as of May 1996? 03:37:40 03:37:43

A. Yes. 03:37:44

Q. In that same paragraph at the end there is reference to something called a multiresolution pyramid. 03:37:55 03:38:01 03:38:05

What was that? 03:38:06

A. Multiresolution pyramid was we created subsamples of the underlying images. We would subsample them down so that the higher -- lower resolution tiles would cover a wider area. So in other words we would take four images and combine them into one image, subsample down, and then take four of those lower-resolution images, combine them into -- subsample them down into yet another lower resolution. 03:38:06 03:38:11 03:38:15 03:38:21 03:38:25 03:38:27 03:38:31 03:38:35 03:38:38

And we also did that with the elevation also. Elevation was the same way. So not only was it the images but also the underlying elevation. 03:38:39 03:38:41 03:38:43

Q. The third paragraph in that same page it 03:38:46

says, "The collection of processed imagery, elevation data, and coordinate information for a given site is called a GeoPyramid tile set." 03:39:07 03:39:09 03:39:13

True statement with respect to TerraVision as of May 1996? 03:39:16 03:39:18

A. Yes. 03:39:19

Q. What was a GeoPyramid tile set? 03:39:20

A. GeoPyramid tile set was essentially all the -- all the data related to that one area of interest. It was the actual elevation model which was a digital elevation model; was all of the either satellite or photographic or combination of the two that had been mosaicked together and then subsampled for the different resolutions, combined together, and also the coordinate information for that area usually either lat/long or Universal Transverse Mercator, also known as UTM coordinates. 03:39:23 03:39:27 03:39:31 03:39:35 03:39:38 03:39:40 03:39:44 03:39:47 03:39:50 03:39:55

Q. When you say lat/long, that means latitude/longitude? 03:39:58 03:40:01

A. Latitude/longitude, yeah. 03:40:01

Q. And those are the coordinates in the earth terrain? 03:40:02 03:40:05

A. Yeah. Same with the Universal Transverse Mercator. 03:40:06

Q. And the tile set, is that the same thing as 03:40:10

a data block? 03:40:12

A. Yeah. 03:40:16

MR. HAMELINE: Objection. 03:40:17

BY MR. WOO: Q. And then it says, Each individual image is called a pyramid tile set. 03:40:18 03:40:20

What does that mean? 03:40:24

A. When we had all these different aerial photos around -- as the report says, it would be mosaic with the one giant high-resolution image, okay? And what it was was that this giant image was then cut up, sliced up, sliced and diced into small images that would fit into texture memory. So that was why it says the single image is created into a series of smaller images and also with different resolutions. 03:40:26 03:40:30 03:40:34 03:40:36 03:40:43 03:40:46 03:40:49 03:40:52 03:40:55

Q. And this pyramid tile set, that was something that resided where? 03:41:03 03:41:06

A. It resided on the ISS systems, the remote server systems. The remote servers. 03:41:08 03:41:14

Q. Is another way to describe it the way that was organized -- well, strike that. 03:41:15 03:41:21

A tile, an individual tile is a data block? 03:41:51

MR. HAMELINE: Objection. 03:41:54

BY MR. WOO: Q. Or is it? 03:41:56

A. Yes, it would be considered that. 03:41:58

Q. Is it true that the -- strike that. 03:42:00

Is it or is it not true that the tiles of 03:42:09
the pyramid for the TerraVision database were 03:42:13
organized into multiple levels of resolution where 03:42:17
each level contained data blocks at the same 03:42:21
resolution, and each successive level contained data 03:42:24
blocks of a higher resolution than those in the 03:42:28
preceding level? 03:42:31

A. Yes. 03:42:31

MR. HAMELINE: Objection. 03:42:31

THE WITNESS: Sorry. 03:42:32

Yes. 03:42:36

BY MR. WOO: Q. Exhibit 86, the MAGIC 03:42:37
final report, where was it kept in terms of being 03:42:51
stored? 03:42:55

MR. HAMELINE: Objection. 03:42:56

THE WITNESS: I'm not exactly sure what you 03:42:57
mean by that question. 03:42:58

BY MR. WOO: Q. Well, was it accessible by 03:42:59
the public? 03:43:03

A. Yes. 03:43:03

MR. HAMELINE: Objection. 03:43:04

THE WITNESS: Sorry. 03:43:05

I believe it was actually available on the 03:43:05
Web. 03:43:11

BY MR. WOO: Q. The next paragraph on that page, the last sentence of that paragraph says, TerraVision requests these tiles -- referring to the pyramid tiles -- from the ISS by specifying the level and the x,y coordinates of the tiles that it needs. 03:45:03 03:45:15 03:45:18 03:45:21 03:45:26 03:45:30

True statement with respect to TerraVision as of May of 1996? 03:45:30 03:45:32

A. Yes. 03:45:35

Q. What is it -- what did you mean by requesting the tiles by specifying the level and the coordinates? 03:45:36 03:45:40 03:45:44

A. The level would be actually the resolution level that you need and that TerraVision needed to render or wanted to render -- wanted to use to render. And the x,y coordinate would be the geospatial coordinates of where that tile was located. 03:45:45 03:45:47 03:45:52 03:45:54 03:45:58 03:46:01

Q. When you say "geospatial coordinates," you're talking about the earth's terrain? 03:46:01 03:46:05

A. Yeah. 03:46:08

Q. Okay. And then dropping down to the next to last paragraph on that same page, there's a reference in the last portion of that paragraph to something called an HTTP server? 03:46:09 03:46:17 03:46:20 03:46:24

because, you know, it's too far away. And that was one of the reasons why we did the multiresolution -- another reason why we did the multiresolution hierarchy. 03:49:07 03:49:11 03:49:15 03:49:18

Q. In the seventh paragraph down it says, The tile visibility thread is, in some sense, the heart of the TerraVision system. 03:49:18 03:49:53 03:49:57

What did you mean by that? 03:49:58

A. One, two -- third -- seventh paragraph down from Design Goal 1? 03:49:59 03:50:04

Q. Actually, well, easier. It's the second paragraph up from the page, bottom of the page. 03:50:05 03:50:08

A. Okay. And what was the question again? 03:50:10

Q. Let me repeat the question. It says, The tile visibility thread is, in some sense, the heart of the TerraVision system. 03:50:11 03:50:14 03:50:17

What did you mean by that? 03:50:18

A. It was -- it actually did a lot of the heavy lifting. It would try to figure out what portion of the terrain was visible, which tiles were needed to display the actual terrain. So it would be the one, it would be the key component of it to determine what it needs to request from any remote servers necessary. 03:50:19 03:50:23 03:50:26 03:50:28 03:50:33 03:50:36 03:50:43

Q. And it did that by level of resolution and 03:50:44

coordinates? 03:50:48

A. Yeah. It would traverse a tree structure 03:50:49
internally, internal tree structure going to low 03:50:52
resolution to high resolution, trying to determine 03:50:54
which tiles were already in memory, which tiles were 03:50:57
necessary for it to render. 03:51:00

Q. How did it do that in terms of level of 03:51:01
resolution of coordinates? 03:51:04

MR. HAMELINE: Objection. 03:51:05

THE WITNESS: It -- we had what's called a 03:51:06
data structure called a tree, a quadtree and where 03:51:08
the high -- the top of the tree was of the lowest 03:51:11
resolution, had the bounds for the lowest 03:51:16
resolution, when it would traverse the tree -- In 03:51:20
other words, it would go down and try to figure out 03:51:22
from the high resolution -- from low resolution the 03:51:23
top node go down to the lower nodes which would have 03:51:26
higher resolution, determine whether or not it's 03:51:29
visible or not and progress all the way down until 03:51:32
it reached the highest resolution. 03:51:35

Does that make sense? 03:51:37

BY MR. WOO: Q. Okay. Turn to the next 03:51:39
page, please, GOOG 364. Now, under the heading 03:51:58
3.2.2 it says, "Since the terrain database is much 03:52:06
too large to be kept in main memory, TerraVision 03:52:11

are probably going to be next, most likely going to be coming -- going to be needed next and would request -- would use those as part of the request list that would be sent over to ISS. 03:56:46 03:56:48 03:56:52 03:56:54

Q. And when the requests were sent, what would happen next? 03:56:58 03:57:01

A. The images, if the network was uncongested ideally the images would come across and be stored locally in the local memory cache such that, you know, when it was needed, it would automatically be there, and then you wouldn't have any latency where you were waiting for the network to respond, and it would try to fill in as much of the memory cache as possible. 03:57:02 03:57:07 03:57:10 03:57:13 03:57:15 03:57:19 03:57:23 03:57:26

MR. HAMELINE: I'll move to strike. 03:57:32

BY MR. WOO: Q. What, if anything, would the system try to do in terms of the memory cache being filled? 03:57:33 03:57:57 03:58:00

A. It would -- 03:58:01

MR. HAMELINE: Objection. 03:58:01

THE WITNESS: It would try to prefetch tiles based upon where the user was and try to fill up memory, open memory. 03:58:03 03:58:07 03:58:10

BY MR. WOO: Q. Moving down to the last paragraph of that section right before the heading 03:58:13 03:58:27

of 3.2.3 it says, "An interesting convention of the coarse-to-fine request strategy is that TerraVision can also run over relatively slow networks." 03:58:29 03:58:35 03:58:37

What did you mean by "relatively slow networks"? 03:58:40 03:58:43

A. Well, relatively slow network was -- at the time was like an ISDN line. 03:58:43 03:58:46

Q. TerraVision, as of May of 1996, could work across a dial-up modem? 03:58:50 03:58:55

A. Yes, it could. 03:58:57

MR. HAMELINE: Objection. 03:58:57

THE WITNESS: Sorry. 03:58:58

Yes, it could. 03:58:59

BY MR. WOO: Q. And by dial-up modem, what speed would that be as of that time frame? 03:59:03 03:59:07

MR. HAMELINE: Objection. 03:59:09

THE WITNESS: Probably somewhere between 9,600-baud and 56K baud. 03:59:10 03:59:12

BY MR. WOO: Q. Does the rest of this paragraph about coarse-to-fine request strategy accurately describe the function of TerraVision as of May of 1996? 03:59:14 03:59:52 03:59:55 03:59:58

A. Yes. 04:00:00

MR. HAMELINE: Objection. 04:00:00

THE WITNESS: Sorry. 04:00:02

Yes. 04:00:04

BY MR. WOO: Q. And going over to the next page, page 8 of 13, GOOG 365, top paragraph, first full paragraph, it talks about -- again, more about the coarse-to-fine strategy. 04:00:08 04:00:31 04:00:37 04:00:40

Is that paragraph an accurate description of how TerraVision worked in May of 1996? 04:00:44 04:00:46

MR. HAMELINE: Objection. 04:00:49

THE WITNESS: Yes. 04:00:50

BY MR. WOO: Q. Turn to page 11, please, of this document, Exhibit 86. If I could direct your attention to the heading "4.3 Demonstrations in 1995," the first one refers to TerraVision being demonstrated at SIGGRAPH '95 in Los Angeles and a couple other places. 04:00:51 04:01:03 04:01:13 04:01:16 04:01:21 04:01:26

Let's talk about SIGGRAPH '95 first. First of all, was TerraVision, in fact, demonstrated at SIGGRAPH '95? 04:01:29 04:01:31 04:01:36

A. Yes. 04:01:37

Q. Can you describe how the system was configured at that time of that -- for that demonstration? 04:01:39 04:01:43 04:01:46

A. The system -- I'm not exactly sure what you mean by that. Could you rephrase that? 04:01:46 04:01:51

Q. So were there remote servers? Were there 04:01:54

clients? That sort of thing. 04:01:57

A. Oh, yeah. Okay. 04:01:58

MR. HAMELINE: Objection. 04:01:59

THE WITNESS: Sorry. 04:02:00

Yeah, the client, local client was located on the show floor, demonstration floor at SIGGRAPH at the Los Angeles Convention Center in Los Angeles, and the servers were located both -- we actually had one locally. Locally and also remotely on the MAGIC network in Sioux Falls, South Dakota, and I believe we also had one at -- in Kansas City. 04:02:01 04:02:03 04:02:06 04:02:10 04:02:14 04:02:19 04:02:22

BY MR. WOO: Q. Did that version of TerraVision at that time in -- at the SIGGRAPH conference demo, did that have the coarse-to-fine strategy? 04:02:28 04:02:36 04:02:39 04:02:44

A. Yeah. Pretty much all of TerraVision was in place at that point. 04:02:44 04:02:46

Q. Was SIGGRAPH a public show? 04:02:47

A. Yes. 04:02:50

Q. Do you have any estimate of how many people attended that show? 04:02:50 04:02:54

A. Yeah. That was SIGGRAPH's heyday was in the mid '90s, and I believe that their typical attendance numbers was somewhere around 20,000 or so. Upper range of 20- -- mid range, 25,000, 20,000 04:02:55 04:02:58 04:03:01 04:03:04

or so. 04:03:07

Q. Did people have to sign confidentiality agreements to get into the show? 04:03:08 04:03:11

A. No, no. 04:03:13

Q. Were you personally present at the SIGGRAPH '95 show? 04:03:19 04:03:23

A. Yes, I was. 04:03:24

Q. Did you actually run any of the demonstrations? 04:03:25 04:03:26

A. I pretty much ran every single one of them, yeah, with not very much sleep either. 04:03:27 04:03:30

Q. Was this the show where the Germans with the similar system were across the aisle? 04:03:34 04:03:37

A. Yeah, they were across the aisle, and neither of us got very much sleep; so we got to know each other pretty well. 04:03:39 04:03:41 04:03:45

Q. A few minutes ago you said that pretty much all of TerraVision was in place at that point by the time of the SIGGRAPH '95 conference demo? 04:03:47 04:04:11 04:04:14

A. Yes. 04:04:18

Q. What did you mean by that? 04:04:18

A. The three-dimensional fly-through, the two-dimensional pan and zoom of it, the ability to request tiles from remotely over the network, the ability for user to move around the terrain 04:04:19 04:04:22 04:04:27 04:04:30

arbitrarily. 04:04:33

Q. Did that demonstration system also use the coarse-to-fine strategy? 04:04:41 04:04:43

A. Yes. 04:04:45

Q. Okay. In that same paragraph there's reference to the Supercomputing '95 conference in San Diego? 04:04:45 04:04:57 04:05:00

A. Yes. 04:05:01

Q. What was that? 04:05:01

A. Supercomputing is a conference for high-performance computing and networking. It's held annually, and that year it was held in -- I believe, in November, fall of 1995 in San Diego at the San Diego Convention Center. It's a publicly open conference, so anyone can attend. 04:05:02 04:05:05 04:05:07 04:05:10 04:05:13 04:05:18

Q. Do you have any estimate of how many people might have attended that conference? 04:05:20 04:05:22

A. It was typically -- I think at that time it was below 10,000, but I'm not exactly sure what the numbers were. 04:05:23 04:05:26 04:05:29

Q. How did the system -- strike that. 04:05:36

How did the TerraVision system demonstrated at the Supercomputing '95 conference in San Diego compare to the one that was demonstrated at SIGGRAPH '95 in Los Angeles? 04:05:39 04:05:44 04:05:47 04:05:52

A. By that time everything pretty much was in -- exactly the same. We requested tiles from over a network to display -- to render locally, but we also added a component that you could view it in stereographic and was considered what's called the ImmersaDesk, the I-Desk and also the CAVE, which was a giant room with one, two, three -- one, two, three, four -- four sides to it that one could step into and be -- wearing these stereo glasses, shutter -- LCD shutter glasses. They could view the terrain in 3D and perceive three dimensions, and it was completely surrounding you and be immersive. And some people got very nauseous. Not that I did that on purpose, but -- 04:05:52 04:05:54 04:05:57 04:06:00 04:06:03 04:06:06 04:06:09 04:06:16 04:06:18 04:06:23 04:06:26 04:06:31 04:06:34 04:06:39

THE VIDEOGRAPHER: Counsel. 04:06:44

MR. WOO: Oh, we're almost out of tape? 04:06:45

BY MR. WOO: Q. Did -- the tiles that were requested over the -- strike that. 04:06:47 04:06:51

Was the Internet used at all with respect to the SIGGRAPH '95 demo? 04:06:56 04:06:59

A. Yes. 04:07:03

MR. HAMELINE: Objection. 04:07:04

THE WITNESS: Sorry. 04:07:05

Yes. 04:07:05

BY MR. WOO: Q. What that used to 04:07:06

demonstrate TerraVision? 04:07:08

A. Yes. Some components, yes. 04:07:08

Q. Was that also true with respect to 04:07:09

San Diego? 04:07:10

A. Yes. 04:07:11

MR. HAMELINE: Objection.

MR. WOO: Let's change --

THE WITNESS: Wait. You said 04:07:13

Supercomputing? I mean -- 04:07:14

BY MR. WOO: Q. Yes. 04:07:15

A. You said Supercomputing, and then you said 04:07:16

San Diego, I thought. 04:07:18

Q. I did, but I --

A. Yeah.

Q. Let me restate the question. 04:07:20

Was the Internet also used for the demo at 04:07:22

the Supercomputing conference in San Diego -- 04:07:26

MR. HAMELINE: Objection.

BY MR. WOO: Q. -- '95? 04:07:27

THE WITNESS: Yes. 04:07:27

MR. WOO: Let's go off the record so we 04:07:28

could change tapes. 04:07:30

THE VIDEOGRAPHER: Okay. The time is 4:07. 04:07:32

This marks the end of Tape No. 1 of Volume I of the 04:07:33

deposition of Stephen Lau, and we're off the record. 04:07:36

MR. WOO: Actually, why don't we take a break. It's been another hour. 04:07:39 04:07:41

(Recess taken from 4:07 p.m. to 4:19 p.m.) 04:07:44

THE VIDEOGRAPHER: The time is 4:19. This is the beginning of Tape No. 2, Volume I of the deposition of Stephen Lau, and we're back on the record. 04:19:12 04:19:54 04:19:57 04:20:00

BY MR. WOO: Q. Before the break we were talking about demonstrations of TerraVision at various conferences, and I don't remember if I asked this or not. Well, let's just move on to the next one. 04:20:01 04:20:02 04:20:06 04:20:15 04:20:20

How did -- so -- let's see. Let me start over. 04:20:20 04:20:24

The next demonstration listed in this document, Exhibit 86 is the Second MAGIC Symposium in Minneapolis. 04:20:27 04:20:31 04:20:37

What was that? 04:20:38

A. I'm sorry. Where were you again? I'm sorry. 04:20:39 04:20:42

Q. That same paragraph just right under the -- 04:20:42

A. Oh, okay.

Q. -- "Demonstrations in 1995." 04:20:45

A. Yeah. It was a symposium or like a mini conference get-together to demonstrate the 04:20:46 04:20:50

technology of -- that was available of MAGIC, the MAGIC network of TerraVision and also to share information with outsiders and also third-party people essentially to showcase where -- what we have done and where we are, the status of the project. 04:20:54 04:20:58 04:21:02 04:21:05 04:21:11

Q. When did that take place? 04:21:13

A. You know, I don't remember the exact dates right now. 04:21:15 04:21:18

Q. Was it also in 1995? 04:21:19

A. Yeah. 04:21:20

Q. How did the system demonstrate -- strike that. 04:21:23 04:21:27

Was the TerraVision system demonstrated at the Second MAGIC Symposium? 04:21:27 04:21:30

A. Yes. 04:21:32

Q. How did that demonstration compare to the system demonstrated at the SIGGRAPH '95 conference in Los Angeles? 04:21:32 04:21:35 04:21:40

MR. HAMELINE: Objection. 04:21:42

THE WITNESS: You could actually have two viewers to view TerraVision simultaneously. 04:21:42 04:21:44

BY MR. WOO: Q. What do you mean by two viewers? 04:21:50 04:21:52

A. What you could do is you could have multiple users manipulating and viewing -- 04:21:53 04:21:55

manipulating the terrain at the same time. 04:22:00

Q. Two users acting independently of each other -- 04:22:05

A. Yeah. 04:22:09

Q. -- but using the same database? 04:22:10

A. Yeah. 04:22:10

Q. Couple paragraphs down there's reference to a DS3 link? 04:22:12

A. Yes. 04:22:15

Q. What's that? 04:22:17

A. DS3 link is a type of network, network connection. I don't remember exactly what the speeds are, but it is slower than gigabit speed network and slower -- compared to these days it's considered extremely slow. 04:22:19

Q. And for SIGGRAPH '95 in Los Angeles, that was an Internet connection? 04:22:20

A. Yes. 04:22:27

MR. HAMELINE: Objection. 04:22:31

BY MR. WOO: Q. And in the next sentence it refers to something called the I-Way high-speed link. 04:22:34

What was that? 04:22:37

A. The I-Way was a network that was kind of cobbled together from a bunch of different research 04:22:41

04:22:42

04:22:42

04:22:43

04:22:48

04:22:52

04:22:52

04:22:56

networks overlayed on top of the Internet, and they tried to bring in high-speed network into San Diego to connect with these different type of research networks. That was called the I-Way. 04:22:58 04:23:02 04:23:07 04:23:09

Q. By the way, how well did you know Yvan Leclerc? 04:23:13 04:23:17

A. Very well. Saw each other pretty much every working day. 04:23:18 04:23:22

Q. What was his representation for truthfulness and honesty? 04:23:24 04:23:27

MR. HAMELINE: Objection. 04:23:29

THE WITNESS: Good, I guess. I don't know. I don't know, but -- you know his reputation. No one seemed to think he was a liar. 04:23:29 04:23:31 04:23:35

BY MR. WOO: Q. But I mean, you know, as far as you knew, he would attempt to provide truthful and accurate reports? 04:23:37 04:23:39 04:23:41

A. Yes. 04:23:43

Q. I know it's a funny question, but we have to ask these things for evidential reasons. 04:23:50 04:23:52

When we were off the record during the break, we were sort of talking about how the CAVE demonstration worked. 04:24:07 04:24:10 04:24:13

What was -- and how did that compare, if it did, to the fictional deck of the Enterprise in 04:24:14 04:24:18

We also use it on the ImmersaDesk which were much more effective. The ImmersaDesk was kind of like an architect's easel, tilted panel display, huge about this big, and you would stand in front of it, and you would wear these LCD glasses, look at it, and it would look like you were actually looking out a window into the terrain itself, and you can move around with the little joystick and fly around the terrain. 04:25:36 04:25:39 04:25:43 04:25:48 04:25:51 04:25:55 04:25:59 04:26:00 04:26:01

Q. In terms of how users might get a little ill, did that same problem manifest itself with a regular computer screen version of TerraVision? 04:26:01 04:26:04 04:26:07

A. No. What happened was because you would get ill because you would lose what was called frame of reference. I think it's called preperception I guess was the term because it was immersive where your entire field of view was encompassed by the synthetic imagery. You would lose frames of reference. 04:26:10 04:26:11 04:26:14 04:26:20 04:26:21 04:26:25 04:26:29

Q. Is was the Second MAGIC Symposium in Minneapolis in 1995 also open to the public? 04:26:31 04:26:46

A. I believe so. 04:26:50

Q. And did the TerraVision system demonstrated at the Second MAGIC Symposium in 1995 in Minneapolis have all the other attributes of the systems that 04:26:57 04:27:01 04:27:05

were demonstrated at SIGGRAPH '95 in Los Angeles in San Diego? 04:27:09 04:27:12

MR. HAMELINE: Objection. 04:27:14

THE WITNESS: I'm sorry. Could you repeat the question? 04:27:17

BY MR. WOO: Q. Yeah. Let me rephrase it. 04:27:17
Did the system -- did the TerraVision system 04:27:17
demonstrated at the Second MAGIC Symposium in 04:27:20
Minneapolis in 1995 have the same attributes of the 04:27:23
system demonstrated at SIGGRAPH '95 in Los Angeles? 04:27:26

MR. HAMELINE: Objection. 04:27:29

BY MR. WOO: Q. Apart from the 04:27:31
stereographic thing. 04:27:33

A. Yeah. I do not -- well, yeah. We didn't 04:27:33
have the CAVE type of -- because there was no CAVE 04:27:36
in Minneapolis, and I do not believe we had the 04:27:38
collaborative aspects at TerraVision SIGGRAPH that 04:27:44
we did have at Minneapolis. I know that we did not 04:27:45
demonstrate the -- any collaborative aspects at 04:27:49
SIGGRAPH '95. I'm trying to remember when that 04:27:52
actual component became part of TerraVision. 04:27:56
Actually, it may have been at TerraVision at that 04:27:58
point, but we just never demonstrated at SIGGRAPH. 04:28:00

Q. So the flyover and coarse-to-fine strategy 04:28:03
attributes that were part of the demonstration at 04:28:07

SIGGRAPH '95 were also present at the MAGIC Symposium in Minneapolis? 04:28:10 04:28:13

A. Yes. 04:28:15

MR. WOO: Let me have marked as Exhibit 87 a multipage document bearing Control Nos. GOOG 371 through 390 entitled "TerraVision: A Terrain Visualization System, Technical Note No. 540." 04:28:49 04:28:51 04:28:56 04:29:05

(Whereupon, Exhibit 87 was marked for identification.) 04:29:22

BY MR. WOO: Q. Mr. Lau, do you recognize Exhibit 87? 04:29:22 04:30:04

A. Yes. 04:30:04

Q. What is it? 04:30:04

A. It's the SRI technical report for -- regarding TerraVision that was published by SRI that was written by Yvan and I. 04:30:05 04:30:09 04:30:13

Q. And it says, "Approved for Public Release; Distribution Unlimited" on the first page. 04:30:14 04:30:18

Is that true? 04:30:21

A. Yes. 04:30:21

Q. And as far as you know, this document actually was released to the public? 04:30:22 04:30:26

A. Yes. 04:30:27

Q. And was this one of the documents that was prepared in the ordinary course of your business at 04:30:28 04:30:32

SRI International? 04:30:35

A. Yes. 04:30:36

Q. And was it prepared at or near the time of the events that are reported inside this document? 04:30:37 04:30:39

A. Yes. 04:30:43

Q. And it was part of SRI's regular practice to make these kinds of reports? 04:30:49 04:30:52

A. Yes. 04:30:54

Q. Now, the second and successive pages of this document at the top say "Draft" on each one. 04:30:58 04:31:06

A. Yeah. 04:31:09

Q. What is the significance, if any, of that notation? 04:31:10 04:31:15

A. It was just an -- it was -- in many ways it was just an artifact. It actually kind of became a joke between Yvan and I. The actual -- 04:31:16 04:31:19 04:31:23

Q. And what do you mean by that? 04:31:24

A. We had come up with this, and then we had the MAGIC final report, but we wanted to publish this out. So this was submitted through the actual process of SRI for publication. And it has the "Draft" in there, it was approved for publication and with the intent that someday eventually we would both go back and probably fix it up. But we were nearing the end of the actual MAGIC project, and 04:31:26 04:31:30 04:31:38 04:31:41 04:31:45 04:31:48 04:31:51 04:31:55