TelePresence Technology

Cisco TelePresence Cisco on Cisco

Julie Nordquist: Hello, and welcome to the Cisco on Cisco Seminar. I'm Julie Nordquist, Program Manager IT and part of the Cisco on Cisco team. Today's presentation is the first of a four-part program on how Cisco supports virtual meetings with customers using Cisco TelePresence. In this video, we'll explore TelePresence technology and you'll get to understand the technology behind Cisco Telepresence and the different products used to support the solution. In subsequent segments, we'll take a look at Architecture and Design, TelePresence Solution Deployment, as well as Support and Management.

I'd like to introduce our technical expert for today's show on TelePresence technology, Suresha Bhat. Suresha is the Manager on Emerging Technologies IT. He's been with Cisco for more than eight years and he currently manages the global deployment of more than 110 TelePresence solutions to Cisco offices. Welcome Suresha.

Agenda

Suresha Bhat: Glad to be here. As we explore in the coming slides TelePresence is a combination of cutting edge audio, video and network enterprise solutions, also hardware optimized environments and a software glue that holds the elements together to make the best high definition video presence available in industry today.

Julie Nordquist: So sit back and enjoy as we explore the technology of Cisco Telepresence.

TelePresence

Suresha Bhat: So TelePresence, Cisco TelePresence is a technology. It's a very new, unique, innovated technology that creates in presence, high definition, virtual meeting possible. And also TelePresence makes these things work for your work, as well as for personal life over an enterprise network. You know predominantly it's about productivity, getting people in front of others and in a very virtual environment, but creating that in-presence experience is key. Also, TelePresence is about improved responsiveness for sales teams to be responding to customers, to be in presence of customers, also for subject matters to get in front of the customers very easily and fast, so TelePresence enables that, also improved communication, collaboration with coworkers, partners, and customers. This is a global economy and you know the world

companies distributed into all different countries and geographies, so TelePresence really helps bring these elements together in a virtual meeting setting and makes that experience memorable.

Julie Nordquist: One thing you just mentioned Suresha, I wanted to ask you about, you said that it allows improved responsiveness. What is the difference of time between if you have a TelePresence meeting as opposed to putting a subject matter expert in front of the customer?

Suresha Bhat: Good question. Let's take the example of getting a subject matter expert into a customer's office in the east coast where the subject matter expert is in west coast. It's about eight hours plus of the time spent in the airport. But today you take the TelePresence experience where the subject matter expert walks into the room and within ten seconds he is talking to the customer live, in presence, maybe discussing the problem, maybe talking about the solution options, it's as quick as that. So, it's real time. There is no delay in it.

Julie Nordquist: So, really getting our, the people who need to talk to our customers in front of them, must faster --

Suresha Bhat: Must faster. That's one of the key benefits of TelePresence. It's not just about travel reduction. It's about how to change our business, the new service models, and also getting people in touch with each other. As Cisco's new message goes, it's about human network.

Julie Nordquist: So, what really makes this product unique in the market?

TelePresence Technology Overview

Suresha Bhat: Well, you've got a good question. Let me talk to that. You know TelePresence is about technology but also about humans. It's about people. There are other different video conferencing and advanced video conferencing technologies out there. But it's about the combination of cutting edge audio, video technology, also the enterprise network solution that Cisco actually sells. In addition to that, there is also the whole experience, the whole ambiance which is optimized through hardware and software and the whole management solution, software technology glue that holds all these things together and provides that high definition video conferencing experience.

In the subsequent slide, I will be speaking about how this is different from the rest of the products that are out there. So, just let's take the audiovisual technology for example. TelePresence really has got high definition audio and high definition video integrated into one single solution. Just to take the example of video we have support H.264 standards, video codec which is in the industry is really a high compression bit rate, you know codec protocol that enables us to compress how amount of video bandwidth into very small amount of you know network bandwidth. So, this is really taking you and I talking in 1080p high definition and running that all in existing enterprise network. Not putting your virtual prior network mind you, it's just setting it all in the existing network. That's really the key.

And also, the next point out there I mention, the Session Initiation Protocol, Cisco is a big believer in the SIP technology, as many of our audiences can say. And most of our products support SIP technology. TelePresence is not different. It's going to be an industry standard that enables applications over the internet to use different protocols, different services, just by using the SIP enablement technology.

In addition we have TelePresence currently supports, 720p, as well as 1080p, the highest resolution available in HD. Now comparing to the competitive products we have out there in the market, this is really key difference, providing that real time, in-presence experience over 1080p.

At this time only Cisco provides that over an existing enterprise network.

Julie Nordquist: Is that important to the difference between 780 and 1080 --

Suresha Bhat: Very, very important, as you can see even you know a lot of our audience have HD TVs now, but if you look at the difference between 1080p and 720p, it's almost once you experience 1080p you can't go back to 720p. It's that good. You know the clarity of expressions, but the beauty of this is taking that much of 1080p video and sending it over a small bandwidth on the existing enterprise network that's really a critical difference for our product. And our competitors are catching up, but we are coming out with new technologies as well to compete with them.

Julie Nordquist: Could you talk about the audio?

Suresha Bhat: Oh, good point. Audio is really, what makes the whole ambiance, the whole experience come alive. So, we actually support Advanced Audio Coding, AAC with low density, low delay. So, what we can say here is that along with the video, at high definition, wide band spatial audio creates the whole "being there" experience. If you have been in a movie theater with THX certified audio you will feel the difference there. Similarly, TelePresence provides that kind of experience into our enterprise, video conferencing solution. That's really the key technology difference.

And also, let me talk about what happens with all these audio, video at high definition. We will enable that over an enterprise network but what we have done in the product is to reduce the latency between the glass where you're actually looking at the image, to the wall where we are connected with the network, it's reduced to an extent that it provides you the ability to put TelePresence on a wide latency matrix. So, up to 200-millisecond, one related latency up to 400-millisecond latency off your network, can be supported by TelePresence. It's a very good achievement compared to that of the products we have in the market today.

Let me also talk about a few other things, not just audio and video but also the whole environment. You know TelePresence is about enhancing the experience. So, we have a product in this capability which provides and enhances the existing audio, video solutions and bundles them into the whole technology solution. That's the key. In the next few slides, I will talk about that.

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Suresha Bhat: So, I spoke about network and how TelePresence leveraged enterprise standard network. So you know if you're an IP telephony company, if you have IP telephony deployed within your organization, deploying TelePresence is as easy as plugging in an IP phone. Really, TelePresence appears like an IP phone to the Call Manager and you're, the only thing you're enabling is quality of service. So if you have this type of service and network in your organization, you already have quality of service, high availability, security, resilience and it's already an existing network. So, if you have this type of network, if your network administration group, all you're enabling is quality of service to enable the bandwidth that is required for TelePresence. And for our products, you know we're talking about 15 megabit per second for the CTS3000 and about five megabit per second for the CTS1000. And once you enable that quality of service and guarantee that service, TelePresence is getting off.

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Julie Nordquist:	Required to enable TelePresence on the network --
Suresha Bhat:	Many different things. But, put together they become one solution. In addition to the network you know we talked about enabling the network, essentially they're talking about a 65K series router and 3740 or 3850 switches which pretty much most enterprises have when they have a DS3 on an OC3 network. And in addition to that, the hardware itself that goes into the TelePresence experience conference room, it's already optimized for the ambient experience. You know when we say hardware, we think about the boxes, but in TelePresence it is the table. It is the projectors. It is the plasma screens and we have got some lighting equipment in it. It's like studio equipment. You're sitting in front of a nice, big beautiful studio and a TV.

But it's put together in a very unobtrusive manner. And we have provided high definition projectors to share the data and you know information you know like PowerPoints and audio and other things across the remote network. And also, we have some lighting that enhances the whole visual experience. For example, in a normal video conferencing experience, you do not have any makeup. You just sit there and because of you know the, maybe the backlighting or front lighting you look pretty odd in a small TV screen. TelePresence is not that experience. The way we have tuned the whole environment, is it takes all those variables out of the picture so you're working by virtual makeup, that means by light and sound, we provide the best experience, best of you to come across over the network. |
Julie Nordquist:	So you use the lighting to make people look as good as they can talking over a camera and audio system.
Suresha Bhat:	Absolutely. You know one of the complaints most people have is that you know camera adds pounds. In fact, in TelePresence, we take them away by providing some kind of lighting and also providing the reflectivity of different surfaces like the table, you will see in the later pictures, but you know that really enhances the whole ambiance. In addition, you know the whole configuration of the system, how we position people around it is to you know provide everybody in front of that TelePresence equipment the same experience across. So, in our solutions we support six people in the remote and local, so it's about twelve people, so they all will be having about the same experience around the virtual table.
Julie Nordquist:	So the technology is also not just about having the network connectivity, but also having the actual physical table and chairs and lighting --
Suresha Bhat:	Yes --
Julie Nordquist:	And video screens and everything, everything --
Suresha Bhat:	Absolutely, absolutely. The best part is that they should not think that it is a technology or equipment out there. You should walk in and you are meeting people. You're talking to people real time, life size and they're looking at you. Some people after a few minutes of conversation forget they're on the virtual side and try to shake hands. So, that's really immersion. You know our target is to go to immerse the technology where people don't look at those as plasma screens. They look at them as people on the other side of the table. That's really, where we want to go with this product.
Julie Nordquist:	Great.

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Suresha Bhat:	So, let me talk about, how do we support these kinds of solutions on an environment like an enterprise? Essentially, I talked about software and glue. There are a couple of things. One is new features we add on to the equipment to enable different functionality. The internet virtual conference and you want to share data remotely, so we enable the data sharing through the projector. But, also comes how quickly, how simply we enable this whole experience to happen. So, we have enabled a product on Cisco TelePresence Manager which helps people to schedule meetings and when they walk into the room, on the IP phone we have in the room to support TelePresence that meeting shows up. So all you have to do if you are a user is to go in there and click on that meeting and presto you are in the meeting. So, there is no remote control. There is no calling somebody to schedule a meeting, so essentially the whole integrated approach the product has taken with scheduling and management software helps us build that usability into the product.
	If you think about it, it's not too difficult to develop new technology. It's very hard to make it you know adopt, people to adopt that technology. So, that is the real simplicity of the solution. So, once you take out the complexity of scheduling away and you enable people to use what they're used to like Outlook or Microsoft or Lotus Notes for scheduling and when they schedule those conference rooms that are TelePresence enabled, they're actually doing a virtual meeting as if they were actually in the same room.
Julie Nordquist:	So, the technology is really about simplicity and we've made that happen through Cisco TelePresence Manager.
Suresha Bhat:	Absolutely. And also, the integration with scheduling and resource management software almost all the enterprises have. So that kind of integration really takes the difficulties of adoption away. And another thing that we want to talk about is, when you develop a new technology, you know a lot of the hesitation is around, what is the value for this technology? How do we measure this value? So, in TelePresence and the implementation at Cisco we have put a lot of focus on okay, how exactly are we going to measure the value of these meetings?
	So, we have put an entitlement process which integrates with the scheduling and operations effort. And that tells us when people schedule these meetings and they provide some basic information such as, why am I having this meeting, how long and how many people, did I save some travel or is it to support a customer? Is it to resolve the customer issue? With that basic information collection, we are able to provide to the stakeholders, to the people who fund this project what we are really achieving in terms of travel avoidance, customer interaction and employee productivity. That's a very powerful tool. So, with this kind of, you know not just the hardware, software network, but also ambiance, user experience in addition the whole metrics collection presenting the value for the program is the key that holds TelePresence together. That's what we have done in all our technology development but also deployment of the solution.
Julie Nordquist:	Terrific.

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Suresha Bhat:	As you can see, the whole system is consisting of three 65-inch plasmas and it's got about six people on the local side and about six people on the other side. So, totally you can accommodate up to 12 people around the virtual table. And we have a high definition camera cluster which accommodates three high definition Cisco developed cameras and also you can see there is furniture involved in this product.

Cisco Public.

Now, Cisco provides all the products except for the chairs that you can see as part of the products, but again chairs are not the business we want to get into. But the important thing here is to note that it is all about the experience again. So, from this picture you can see that's the realistic perspective, people are looking at each other, eye contact, and also the ambiance.

One of the key things I would like to highlight here is that the plasmas sort of join together and also the cameras are mounted in a fashion by which gives you a completeness of the room. So, you can actually move your hands across the plasma and the cameras, it won't actually have any distortion. There won't be any double images, as well as you know people won't be distorted when they're moving back in the room as well. In addition to this, what you can't see from this slide is the whole audio experience. When people talk to each other, if the person on the left side speaks and then the person on the right side speaks and the whole audio moves along with the people. So, it's really about providing that spatial audio experience as well. In addition, you can see that the tables are opposite in color. Can you ask, are you wondering, why is it that color? Why is it this way?

Julie Nordquist: Possibly for up lighting for faces --

Suresha Bhat: Exactly, good way. I mean I think I made my point earlier very clear --

Julie Nordquist: Yeah.

Suresha Bhat: It's really about not putting anything, any burden on the users who walk into the room, by providing that soft light around the plasmas which reflects on the people's faces and also the lights on top of the ceiling which is the standard room lighting, that reflects off of the table provides that good lighting that we need for video. Traditionally, video conferencing failed in this area very badly. Also, one thing that you see in this whole equipment is there are no remote controls. Essentially that center phone is the Cisco IP phone is the remote control. It helps you initiate the call. It helps you manage the call and it helps you terminate and actually disconnect from the whole call. Essentially, when you walk in there by the integration we have Outlook or Lotus Notes you would have scheduled two rooms to have the meeting. And through that integration I talked about earlier, your meetings will show up on that IP phone as a scheduled event. You come in there, it's a touch screen phone, you touch that, and you're in the call.

Julie Nordquist: I can see that there's I think a projection or projector there on the slide, is that, is that what that is?

Suresha Bhat: Absolutely, good observation. You know in many meetings today it's on during the presentations, content sharing, collaboration, so we didn't want to provide only "oh, great I am talking, but how do I share in my presentation?" So, we provided a projector that's under the table that projects the data that you can use like a regular projector. You connect it to your laptop and you're sharing. Now, not only on the local side but also on the remote side you can see the same projection. So, we not only take audio, video, but also data along with and combine that and transmit that total TelePresence codecs across the standard network.

Julie Nordquist: So, when you start your meeting through the telephone it also starts the projection system as well.

Suresha Bhat: Not really. When you initiate the meeting, if you're not sharing your laptop, it won't show that presentation obviously, but also as you plug it in and then you initiate, you're sharing the data, then definitely, it does so.

Julie Nordquist: Oh, good. So, it's still very simple to use --

Suresha Bhat:	Yeah.
Julie Nordquist:	It's not like regular conference systems. Sometimes it's difficult to get a presentation up and sharing.
Suresha Bhat:	Yes and proud to say that we're part of the product, I know the whole organization that's deploying this because I've never seen a product that simple, that you walk in and initiate a call and you're actually doing data sharing and talking to other people. I mean you're really talking about maybe 30 seconds to get connected. And how many video conferencing solutions can boast that kind of claim? I mean there is, a lot of remote controls. You're trying to tune the light. You're trying to zoom the camera. One of the highlights of the solution is there is no variability. You know we have simply made it easy to use so there is no zooming, but you need, since you're life size you do not want to see somebody maybe blown out of proportion or shrunk. So, this is really, what makes it natural.
Julie Nordquist:	It's pretty much life, as you --
Suresha Bhat:	Life size --
Julie Nordquist:	As it is. It's not --
Suresha Bhat:	Yes --
Julie Nordquist:	Trying to be anything beyond that.
Suresha Bhat:	No. Actually, that's pretty different from the others, and having them communicate --
Julie Nordquist:	So, it looks like a real experience.
Suresha Bhat:	Exactly.
Julie Nordquist:	Yeah.
Suresha Bhat:	And you know somebody once said that 90% of communication is non-verbal. So, now you're actually in presence now. That's what TelePresence is about, enabling that non-verbal communication, that today we can't do with just voice. So adding high definition video to the solution, it has enabled that experience.

I would like to highlight a few things about this product. It's a self-standing environment. It goes into a 22 by 17 feet room which is created for a bit of acoustics, so that we keep the decibel levels low. And also, it has got ambient lighting. We just have recommendations and if a customer or a partner has that kind of room ready and if the network is ready to support with quality of service, you just put the TelePresence equipment in there. It's about three days to assemble the components and you're connected. You're enabled.

We'll talk about the deployment and how we enable that in a subsequent session. But, it's very easy to set up and start talking. On the network side, you just hook it up like an IP device. It's like basically a phone on the Call Manager. So you're connecting to your network jack with the network CAD 5 cable or CAD 6 cable and wa-la you're actually connected. You're configured on the Call Manager like an IP phone and then you hit the button and you're talking to somebody remotely. That's a very good experience right there. |
| *Julie Nordquist:* | Terrific. |

TelePresence Technology Overview

Suresha Bhat:	Let me introduce the other product here, CTS1000. This is a smaller version of the TelePresence product. And this provides for up to four people in a virtual conferencing setting to communicate with each other, two at each side as you can see. But what we have done is here not compromised on the quality. It still provides you the life size experience. It provides you that pristine high definition 1080p quality, the same audio and a set of lighting that enhances the ambient experience. So, this is a very important product because now this enables smaller conference rooms, remote sites to be enabled with TelePresence quickly and it consumes less bandwidths, about four, five megabits per second for the 1080p experience. So, now you're thinking about a lot of solutions, a lot of services where you can enable virtual, interactive communication over the existing bandwidth. So, that is the beauty of the CTS1000. You know to be honest with you, as you can see from the picture we do not have any table or furniture associated with it, but it's still the same product, with the similar components we leveraged and also the Cisco IP phone.
Julie Nordquist:	You still get the life size and you still get the one touch simplicity and --
Suresha Bhat:	Yes, absolutely. For all practical purposes, it's the same system, just a little bit smaller and just, one plasma, one camera and one codec.
Julie Nordquist:	And you also get to use the existing resources that you already have in your conference rooms and not have to buy new furniture or reconfigure it, just put a screen in the back of the room.
Suresha Bhat:	You hit it on the head right there. Essentially, you'll make some space for the plasma to go in and you have the TelePresence deployed. And you have to have 12 by 14 size room to have that right experience. As we can see from the picture people are sitting at a distance from the plasma to have that, you know the camera needs to really pick you up. Other than that, you're virtually in business just by deploying the equipment. That's what we have done at Cisco as well. Many of our CTS1000s are in executive conference rooms or small conference rooms and it enables people to quickly go in, meet with other people, and then walk out. They don't have to do too much planning to say I want to fill the room with 12 people. It's just basically for one-on-one interaction as well.
Julie Nordquist:	Terrific.
Suresha Bhat:	And as I said this light is really, this light actually focuses on the 1000 product and you're talking about different type of applications. You're talking about subject matter experts getting in front of the customer quickly, talking about remote medical centers enabled with these will make, can put a doctor in touch with a patient or a lawyer in touch with their client, a consultant in touch with their customer, what have you. You're talking about concierge services, now you can enable like concierge service where the actual person is somewhere you know they need to be and then they're actually talking to the customer through TelePresence. So, the applications are numerous for a smaller, it's not just about one table conferencing. Now it's enabling different type of business services as well.
Julie Nordquist:	I think, didn't I see something like a lobby ambassador application for that as well. So you walk into a building and you are greeted by a virtual person.
Suresha Bhat:	Absolutely. So, not only lobby ambassadors where they can now talk to a live, in a way you walk into a location and you have a question you can now talk to a live person. And essentially, a lot of places you can't really put people in there because of hazardous situations, now you can

enable them to observe that environment, and also to talk to somebody in a multiple, multiplying call setting and report it. So you are connecting people from being their perspective, but also taking care of a lot of areas that we couldn't put people in there. That's really the benefit of this kind of solution.

To learn more about Cisco IT experience

Julie Nordquist:	Very interesting. That's all the time we have for now. Thanks, Suresha.
Suresha Bhat:	Thank you Julie.
Julie Nordquist:	For additional information on Cisco Telepresence or to learn more about other Cisco IT experiences with Cisco technologies and solutions, please visit the Cisco on Cisco website at the URL you see here now. This website gives you access to more than 100 case studies and operational best practices on a variety of Cisco IT deployments.

Slide 11

Julie Nordquist:	We'd like to thank our viewers for spending time with us and being interested in the Global Technology Series. And please be sure to view the other segments of our program on Cisco TelePresence including Architecture and Design, TelePresence Deployment, as well as Support and Management. We hope that you've enjoyed this program. See you soon.