

# Media-Ready Network Transcript

**Bob:**

Hello and welcome to this “Cisco on Cisco” Seminar.

I’m Bob Scarbrough, Cisco IT manager on the Cisco on Cisco team.

With me today are Sheila Jordan, Vice President of the Cisco IT Communications and Collaboration team ,  
and John Manville, Vice President of the Cisco IT Network and Data Center Services team.

The theme of our show today is “How Cisco IT built a media ready network, which has become the single foundation for all of Cisco’s voice, video and collaborative media”.

**Bob:**

Let’s get started. Sheila can you take us through the overview?

<pause while slide changes>

[Slide 2 – Agenda: Challenges, Solutions]

**Sheila:**

Let’s talk about some of the challenges that Cisco IT is facing.  
Cisco is working to change the way we live, work, play, and learn.

To do that, everyone at Cisco needs to be very creative, in what we do and how we do it.

We need to take advantage of all the expertise that exists both within and outside Cisco – the expertise of our employees, as well as the expertise of our business partners, vendors, and customers.

Cisco IT needs to provide the tools to bring them all together, wherever they are, in the ways they need to work together.

We in IT have to provide collaboration tools that can scale to global dimensions, tools that let people work together quickly and easily in whatever way works best for them.

**John:**

That is a big challenge for Cisco IT.

There are a lot of people out there, and connecting them all is a big job.

And there are a lot of ways people like to work together – by hearing each other, by seeing each other, by sharing information in text or pictures or diagrams, by using any or all of the growing number of collaboration tools.

My job is building the network to support all of that.

In the next few minutes I'll describe how we did it. But first, Sheila, please tell us about some of these tools.

<pause while slide changes>

[Slide 3: Challenges – Need to support a variety of media – Listed here]

**Sheila:**

We have an IP voice network and IP voicemail service that all our employees use, as well as many of our interconnected partners.

We also use it for supporting our customers at our contact centers.

We have a variety of data sharing and collaborative tools like Webex Connect and MeetingPlace, and C-vision.

And we use a LOT of video at Cisco.

We run over 50 IPTV sessions a month, to keep tens of thousands of employees up to date on what's going on at Cisco.

We do most of our training using Video on Demand – over 85,000 files get downloaded every month.

And we use over 2,400 security video cameras – closed circuit TV cameras – to help keep our people and our buildings safe.

What really burns up the bandwidth is interactive video.

We have over 1,200 video conference rooms, and over 30,000 employees have web cameras for Cisco Unified Video Advantage. And more recently, we've installed Telepresence equipment at over 250 sites, and we're still growing.

**Bob:**

How many networks does it take to handle all that?

**John:**

We used to run most of this traffic over three separate networks.

We had a separate network for voice, and we used ISDN for video. We used to run our data network to support all the usual applications, like email and file transfers; and we did some streaming IPTV and Video file downloads.

But there is no way we could run all the media we're running today over any of those networks.

Let me show you.

<pause while slide changes>

[Slide 4 Challenge – Growing Peer to Peer Traffic – US network of 2000]

**John:**

Here's what our data network looked like back in the year 2000.

It's a great client-server network – with all the clients out there in Cisco offices around the country, and all the servers back here at our headquarters in San Jose.

But its not a good network for things like voice, or interactive video.

**Bob:**

Why not?

**Sheila:**

Interactions like voice, and video conferencing, really don't tolerate delay.

If you can hear or see a delay, it can really get in the way of your being there with the other person, communicating with them.

You really notice time-delays of over a fifth of a second – and if they get up to over a quarter of a second, they'll drive you crazy.

**Bob:**

I get it.

You need a network that takes the shortest possible path between two people – ANY two people.

**John:**

That's right.

We wanted to reduce our IT costs by combining voice and video onto a single IP network.

We needed a good “Peer-to-Peer” network, where anyone on a phone or videoconference unit could send and receive to anyone else, anywhere, with the lowest possible latency.

And our earlier network just didn't give us that.

But our new network – a “media-ready” network – gives us all of that, and more.

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[Slide 5: Solution – US Network of 2008]

**John:**

Here's what our US network looks like today.

It's a peer-to-peer network – it looks like a small version of a service provider's network.

It's based on SONET fiber backbone, with a ring path for backup, with hub sites at several major Cisco locations, and with dual access lines going from major hub sites on that ring to Cisco offices.

It gives everyone at Cisco a reasonably short path with low latency to everyone else.

**Bob:**

Why did Cisco choose SONET for this network?

**John:**

It didn't have to be SONET.

We chose a service provider's MPLS VPN service in Europe and the Middle East to do the same thing.

But whatever technology we choose, it has to have to have four basic capabilities to be the solid network foundation for all the media services we combine onto our single IP network:

- The network has to provide the lowest latency possible between any two endpoints on our network.
- The network has to be scalable, it has to grow quickly and easily when we add new services like bandwidth-intensive video conferencing and Telepresence.
- The network has to support multicast.

We use it extensively for our streaming IPTV, and for other features like Music on Hold that's part of our telephony and contact center solutions.

- The network has to support quality of service – or QOS – to make sure that critical applications aren't starved of bandwidth during congestion.

We try to size our network links appropriately, but there will always be congestion somewhere, sometime. ....

And that's just our North America WAN.

<pause while slide changes>

[Slide 6 – Global Network]

**John:**

This is what our network looks like today.

**Bob:**

It's got dual paths around the world, of – is that OC 12 and OC 48?

**John:**

That's right.

The dual paths keep us safe from a single fiber cut.

The bandwidth is expensive, that's for sure, but our business needed it, and we're using it.

**Sheila:**

It is expensive, but it's been worth it to Cisco.

Not only are we saving money by supporting all our voice and data on this one network -- but this one network is supporting a lot of video solutions that hold this company together.

These services are saving us millions in travel expenses, and they are bringing Cisco's talented employees together to collaborate with each other, and to meet with partners and customers, in ways we never could dream of before.

As I'd mentioned earlier, we use a LOT of video at Cisco.  
The newest video application – and we're still installing more sites – is Telepresence.

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[Slide 7: Solution – Video Applications]

**Sheila:**

We've deployed Telepresence to over 250 sites so far within Cisco, and the biggest complaint I've heard, still, is that there just aren't enough of them.

In our first year using Telepresence we've used it for over 120,000 meetings.

Over 20,000 of those meetings avoided travel.

We estimate that we've saved over 90 million dollars so far in travel costs alone.

But what's exciting to me is not the travel cost savings – it's that we can now bring together people who would never have met or worked together without Telepresence.

In addition, we're learning to collaborate with new tools we've never had before.

And the best way to start bringing people together is for them to meet face-to-face.

Video conferencing can do that.

Telepresence can do it so well that you don't even notice that you're in two different places – you work together like you're in the same room.

**Bob:**

**It looks like you've listed a lot of different ways to bring people together.**  
How do they fit in?

**Sheila:**

First, there are a lot of other ways to do video in addition to Telepresence.

We have 60,000 employees and only 250 Telepresence rooms; so we use regular IP videoconferencing from 1,200 rooms around the world.

About 30,000 of our employees also use small Cisco Unified Video Advantage cameras, from their work areas or their home offices.

And we use MeetingPlace, or Webex, to set up collaboration sessions where employees meet and share desktop information, with or without video.

**Bob:**

What kind of impact has all this video, and all this other collaboration data, had on the network?

**Sheila:**

Well, most of the collaboration data we've talked about hasn't required much in the way of network changes.

These applications don't require a lot of bandwidth.

And we've listed here a lot of video that didn't require much change in the network.

IPTV, for example, and Video on Demand files – they use some bandwidth, but with multicast in the network and content engines at our branch offices, they don't need a lot of bandwidth.

We only pull CCTV video signal across the WAN when we have a security issue, which isn't often.

But the key thing is, these video applications at the bottom of the list aren't interactive.

**John:**

It's interactive media, like voice, or video conferencing, or Telepresence, that requires the network to minimize latency.

And that's why we went to all the trouble to rebuild the network foundation to create a good peer-to-peer architecture and QoS come in.

That's not to say that bandwidth isn't critical, since QoS doesn't substitute for sufficient bandwidth.

Our drive toward video, especially Telepresence video, at almost every Cisco office has also required us to increase bandwidth to a lot of our sites. Put all together, we've built a very media-ready network foundation for Cisco.

**Bob:**

So, overall, what has this done for Cisco?

<pause while slide changes>

[Slide 8: Results ]

**John:**

Well, for one thing, it's allowed us to run all of our data and voice and video over a single IP network.

That's saved us money, and made network management easier.

It's also meant that we could add new video services, and expand our video services, a lot more quickly and easily than before.

Telepresence was a whole different kind of technology, and it required us to update our capacity planning and QoS policies a little – but on the whole this media-ready network foundation we put in years earlier made it a lot easier.

We think it will allow us the same flexibility in responding to new technology opportunities in the future.

**Bob:**

Speaking about the future, can you tell us where we're going from here?

<pause while slide changes>

[Slide 9: Next Steps]

**Sheila:**

A lot of our focus is on Telepresence today. We're continuing to expand our Telepresence footprint.

We'd been adding dozens of new Telepresence units per quarter, and that's slowing down a little, but we're still seeing an unbelievable demand from our internal business units for more.

We've integrated some of our Telepresence sites into the business-to-business Telepresence service, so we're starting to collaborate more with some of our selected business partners – and they're starting to collaborate more with each other.

We're also looking into integrating our internal Telepresence units into our overall video solution, so that employees can use other video solutions to meet with other employees in Telepresence rooms.

**John:**

We've started looking at new management tools that allow us to monitor video streams in more detail, and other tools that will improve the quality and reliability of new video-based applications.

We've also just begun the process of deploying Digital Media Signage tools for targeted marketing and communications within Cisco, and there's a lot more opportunities with that technology. Overall, I'm really excited about all of the potential in this space.

[End of Slide 9 - Wrap]

**Bob:**

That's all the time we have for now.

Thank you Sheila and John for joining us.

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[Final Slide – Slide 10]

And for more detailed information on this topic, you can go to the Cisco on Cisco web site to find the detailed case study on Cisco IT's Media Ready Network.

You will also find other Cisco IT case studies about

- “ Our LAN and WAN,
- “ Telepresence,
- “ Video Conferencing, “

and Unified Communications,

and a lot of other IT topics, describing

- what we deploy,
- what benefits we've gained, and
- what lessons we've learned from installing

and managing Cisco solutions in our own business environment

I'd like to thank those of you watching for spending the time with us and being interested in what the Global Technology Seminar Series is all about.

We hope that you've enjoyed this show. See you soon!