

## How Cisco Employees Communicate Visually with Anyone, Anywhere

"Pay-as-you-go" service supports pervasive video to bring thousands of employees to new productivity levels.

### **Business Opportunity**

Cisco continually seeks new ways to use networks and technology to create a more dynamic and responsive business. To support this goal, in April 2010, Cisco decided to deploy desktop and small-group video endpoints globally. The deployment makes video calling and collaboration a pervasive technology throughout the company, helping employees accelerate and improve business decision-making and personal productivity.

The Cisco TelePresence® portfolio, which includes personal desktop, small-group, and mobile video endpoints, gives employees additional choices for collaboration within and across company borders. The video endpoints allow Cisco as a company to scale knowledge and accelerate decision-making through more extensive use of virtual teams and meetings.

The new endpoints also provide higher-quality video than the webcams that Cisco employees have long used for informal video calls, but at a much lower cost than the immersive, room-based Cisco® TelePresence systems for video conferences. Personal video endpoints enable all employees to engage in "live" discussions, share information in real time, and drive projects, questions, and problems to closure much faster than with email or audio-only conference calls. Subject-matter experts and key stakeholders can be brought in on short notice for "face-to-face" dialogue and decision-making without needing to travel. Video can also be used across company borders for discussions with customers and partners.

Because the products in the Cisco TelePresence portfolio support the same interoperability platform, Cisco IT is able to offer a broad spectrum of video solutions that are appropriate for use in different contexts and by users with diverse roles. This breadth of solutions also allows Cisco employees to choose the level of video experience that makes an optimal balance of their communication needs and internal budgets.

Cisco IT needed to be ready for rapid deployment of a planned 10,000 personal and small-group endpoints to Cisco offices and employees worldwide by mid-2011. Beyond deployment logistics, this effort also involved defining a "pay-as-you-go" subscription model that covers the internal costs of delivering the new video services. The model provides a framework to internally fund the network bandwidth, equipment infrastructure, and service parameters required for the high-definition (HD)-quality video of the endpoints.

"Part of the intent behind the funding model was to motivate a transformational change in communication processes and collaboration across the company, so Cisco could fully realize the business value of pervasive video," says Torbjørn (Toby) Larsen, vice president, Cisco IT. "Video solutions carry huge potential for improving productivity and performance, and because each department must pay for the cost of their own deployment, they are forced to think out-of-the-box in terms of their operations to justify that expense."

## Cisco IT Program

Most of the video endpoints (for example, the Cisco TelePresence EX90 or Movi) are designated for individual employees working at a Cisco office, from home, or while mobile. Other endpoints are shared among multiple employees or used for small-group meetings in Cisco offices, as an alternative or supplement to the high-end, immersive Cisco TelePresence systems.

In preparation for mass-deployment of video, Cisco IT assessed the company's network readiness to support higher levels of video traffic while strategically deferring or avoiding network upgrades as much as possible. "We reviewed the network QoS [quality of service] plan to optimize capacity utilization while also allowing us to offer a choice of video service levels to our users," says Larsen. "For executive users and higher-end video systems, we offer a guaranteed first-class video experience. But our desktop and small-group systems come with service-level agreements that might result in minor downgrading of call resolution at peak hours."

He continues, "While we have needed to add some capacity to the Cisco network, we have also achieved higher network utilization with the increased number of video calls. And by using the endpoint features for dealing with network congestion, in conjunction with adequate quality of service planning, we have been able to strike a good balance between user experience, network capacity, and cost."

### A Subscription Service Model

From the perspective of the network and IT infrastructure, Cisco IT is creating a scalable desktop video service that allows Cisco employees to collaborate using both immersive and desktop systems while receiving a consistent, uninterrupted call experience. (Table 1)

**Table 1.** Video Service Parameters that Affect the Cisco Network and IT Infrastructure

User Experience Parameters	Network Parameters	IT Infrastructure Parameters
<p>Enable Cisco users to make and receive calls to and from internal users as well as external customer and partner sites.</p> <p>Support a high-definition video experience from both immersive and personal desktop systems.</p> <p>Support key user features such as call recording.</p> <p>Enable integration with a user's calendaring application for call scheduling.</p>	<p>Support both point-to-point and multipoint calls for video endpoints by using bridges.</p> <p>Use quality of service (QoS) marking and bandwidth control techniques to support more endpoints on the network while maintaining high video quality.</p>	<p>Use call control features for network signaling.</p> <p>Accommodate media-handling devices, call-routing plans, call gateways, video call gatekeepers, call control systems, and video management tools.</p> <p>Support interoperability among diverse platforms including Cisco TelePresence systems, other video conferencing systems, Cisco Unified Video Advantage webcams, and Cisco Unified Personal Communicator software.</p>

Instead of centrally defining which employees will receive which endpoints, individual Cisco employees and workgroups can order the video endpoint that best suits their needs, expected business value, and budget.

Previously, Cisco IT had not imposed internal budget charges for bandwidth or services on the corporate network. Today, the cost for network resources needed by the desktop video service is allocated to individual users based on the specific services they choose under the subscription model. The service charges help Cisco IT recover the cost of service delivery, including any network upgrades needed for expanded use of video calling throughout the company.

"Offering video service on a subscription model is important for motivating employees to adopt the new ways of working that video enables," says Larsen. "And that's how you bring the whole organization to the next level of productivity."

## Network Impact

Each order for a video endpoint is reviewed by a Cisco IT network planning team to assess the potential network impact on a local-office connection, especially if all units in an office are active simultaneously. For video traffic, Cisco defines three network queues: one for Cisco TelePresence immersive systems, one for Cisco WebEx® and streaming video traffic, and one for personal video endpoints. This third queue allows dynamic bandwidth oversubscription in order to accommodate the traffic demands of multiple concurrent video sessions and data bursts in a local office.

All Cisco personal and multipurpose video endpoints automatically negotiate the user experience according to real-time bandwidth availability. To maintain video quality when the local network circuit is congested, Cisco IT continues to evaluate oversubscription options, which also allow for deployment of even more video endpoints at a site. However, where necessary, Cisco IT has increased the bandwidth on local circuits to support the additional video traffic.

To optimize the user experience, Cisco IT installed multiple Cisco Unified Communications Manager and Cisco Video Control System connection points worldwide. These regional communication hubs support registration and management of thousands of video endpoints while also supporting optimal call routing. In addition, they provide gateways to the Internet as well as connections to sites served by ISDN circuits.

## Endpoint Deployment and Support Services

Cisco IT previously used a service-centric process to deploy Cisco TelePresence as a user-funded service within the company. By leveraging this process, Cisco IT was able to quickly define the service engagement model for deploying the desktop video services.

As the expanded video service is operationalized, Cisco IT is temporarily using an internal wiki to provide a central, easy-to-access source of user support information for the video endpoints. The wiki contains documents and recorded videos on how to:

- Choose a personal video endpoint based on features, capabilities, and costs
- Order a video endpoint and the associated network service
- Install and configure the endpoint in a Cisco workspace or at home
- Use a video endpoint on the Cisco production network
- Obtain answers to frequently asked questions about endpoint installation and support

The wiki also helps users identify video-enabled conference rooms and shared video endpoints. Over time, the wiki information will be integrated to Cisco IT's permanent collaboration portal for user service.

## Results to Date

In the first 10 months of the video deployment, Cisco IT had deployed nearly 5300 personal and small-group video endpoints that were used for more than 60,000 calls. The majority of units deployed are the Cisco TelePresence Movi and Cisco TelePresence EX90 models, used by individual Cisco employees. "As we deploy more personal video endpoints, we are seeing a 'network effect,' where utilization rates increase as more employees have access to a video endpoint and can connect with an increasing number of colleagues, customers, and business partners," says Larsen.

"A rollout to thousands of employees requires processes that are scalable and repeatable," says Firas Abras, a Cisco IT manager. "By following these processes and using an external logistics vendor, we can now deploy a video desktop unit in our San Jose campus within minutes and in many of our offices worldwide within days, depending on

the time required for shipping and customs clearance. The processes also give our employees a simple service experience for ordering, receiving, and installing the desktop video units."

Employees typically install the desktop video unit on the same network port as their IP desk phone. In most cases, it is not necessary to install an additional network port in the workspace, unless the employee has additional devices such as a network printer. In an employee's home, the personal video endpoints access the Cisco network over the home's broadband Internet connection and a Cisco 891 Integrated Services Router.

## Business Value

Cisco is making a strong move to video calling, because the company expects to gain several types of business value from this investment. (Table 2) Many of these value factors are possible, because the personal video endpoints support business-to-business connectivity, with standard dialing across most geographic and company borders.

**Table 2.** Anticipated Business Value from Cisco Desktop Video Deployments

Business Value	Examples
<b>Profitability</b>	Ability to support business growth without a proportionate growth in resources Accelerated revenues by reducing sales cycle time and improving customer communication Reduced travel costs by using video calls to replace the need to meet in person
<b>Employee Productivity and Satisfaction</b>	Clear communication, faster decision-making, and stronger relationships with colleagues who work at other locations Scalable knowledge with easier access to experts who can easily join video calls New work patterns and work/life balance that helps to retain employees
<b>Increased Innovation</b>	More collaboration among individual employees and teams worldwide Improved ability to attract talented employees worldwide, without needing a nearby office

Table 3 shows the business value expected by individual departments within Cisco from increased use of video communications.

**Table 3.** Anticipated Department Value from Use of Desktop Video

Cisco Department	Business Value from Desktop Video Communications
<b>Sales</b>	Increased revenues Reduced sales cycle time Stronger customer relationships
<b>Customer Service</b>	Reduced number of support cases Easier access to technical experts Collaborative problem-solving
<b>Product Development</b>	Travel cost savings Improved information transfer among development teams Increased productivity
<b>Global Supply Chain</b>	Reduced product development costs Improved product quality Increased innovation in products and services
<b>Human Resources</b>	Shorter hiring cycle through remote job interviews Improved communications with job candidates, universities, and recruiting partners
<b>Facilities</b>	Lower emissions from less long-distance travel and local commuting
<b>Finance</b>	Easier access to tax and financial experts More accessible broadcasts of financial reports

## New Ways of Working

Preliminary data from the initial deployment indicates an average duration of 10 minutes for a desktop video call, compared to a scheduled video conference, which tends to last about 60 minutes. "We already see a transformational shift in how video is used across the company," says Suresha Bhat, a director for Cisco IT. "Given the simplicity of making a video call from their desks, Cisco employees are now using video to meet virtually, on short notice and without scheduling, for immediate discussion and problem solving."

"A more interactive communication experience is especially valuable for employees who work in the managerial and creativity sides of the business," says Bhat. "Desktop video empowers employees for better collaboration, because they are more attentive and can see the nonverbal communication that builds understanding, trust, and consensus with colleagues located around the world."

Shared video endpoints are useful when multiple employees in a single office need to participate in a video call as a group. The shared unit creates only one video stream on the network, instead of multiple individual streams for participating employees. In addition, gathering as a group enhances interaction among the local participants.

Feedback from employees about desktop video calling has been positive, as shown by these comments:

*"Due to a family emergency, I had to work from home for a few weeks. I used a Cisco EX90 in my cubicle to help me feel that I was onsite with the rest of my team. As my coworkers stopped by my desk, I was able to continue business as usual in a virtual manner by using the Movi on my laptop to have a video call with them from home."*

*"The video experience is so real that folks are forgetting who is virtual and who is really present in person. Video is everywhere within our team."*

## User Support Results

Cisco IT leveraged the support model of Cisco TelePresence, allowing it to scale deployment with only minor additions to the support process and team. On average, the Cisco help desk handles 0.01 cases per endpoint per week for the personal video endpoints. For Cisco TelePresence systems as a whole, Cisco IT has reduced the support case metrics from 0.44 cases per endpoint per week to 0.02 cases per endpoint per week since beginning deployment.

## Lessons Learned

The initial deployment has yielded several valuable lessons for Cisco IT.

**Simplicity and speed of integrating an acquired company.** Video calls played a key role in the complex integration activity after the acquisition of TANDBERG by Cisco. This integration was accomplished much faster than was the case for previous comparable acquisitions. Video calls were a key success factor and accelerator for the integration activity, because of how visual communication enables people to connect, build trust, and reach decisions faster. "Using video, I can meet with my colleagues face-to-face on a daily basis without having to travel around the globe," says Larsen, whose home is in Norway. "I average 10-15 video calls each day, which means that I'm getting more than just minor efficiencies. This is a different ballgame, and I could not work in my global role without video."

Speaking about the impact on Cisco as a whole, Larsen notes, "We are gradually becoming a dynamic, networked organization, and our video solutions enable us to communicate and collaborate with anyone, anywhere. This is how we will take productivity to the next level."

**Need to balance user experience and cost.** User experience is a tradeoff to evaluate against the cost of network bandwidth to determine which video quality level (for example, 1080p or 720p) will be supported on personal endpoints, especially during periods of network congestion. To make video pervasive throughout the organization, IT must strike a balance by offering a spectrum of video solutions and service-level agreements (SLAs) and align that spectrum with the needs and requirements of different user groups.

**Security considerations.** Cisco IT manages endpoint security settings and requires employees to use the Cisco Virtual Office solution in order to encrypt business-to-business calls on the video endpoints that they use at home.

**Consistent management and support.** Using the same IT management system and support resources for the desktop and room-based video systems is essential for a companywide deployment. This tactic delivers consistent user support for the different video platforms and helps to control support costs as the company increases the number of supported units and users.

## Next Steps

The desktop endpoints bring access to video calls for small sites that previously could not justify the budget for an immersive Cisco TelePresence system. Cisco plans to eventually install at least one desktop video endpoint at each company location, and is evaluating methods to share bandwidth among the video queues for more efficient use of the site's network connection.

Additionally, the personal endpoints make video communications an easier investment to justify for individual employees, so Cisco IT expects continued high internal adoption rates for this technology over the coming years.

## For More Information

For additional Cisco IT case studies on a variety of business solutions, visit Cisco on Cisco: Inside Cisco IT [www.cisco.com/go/ciscoit](http://www.cisco.com/go/ciscoit).

## Note

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Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
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**Europe Headquarters**  
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