Cisco on Cisco Best Practices
Cisco H.323 IP Video Conferencing

Contents

1.0 Executive Summary

Cisco Systems® currently employs more than 40,000 people worldwide. Providing a variety of communications tools to facilitate rapid, clear information dissemination with global sales, marketing, engineering, and operations teams is a primary success factor for past and continued revenue growth for Cisco®.

One of the tools that enables high-impact communications is IP-based videoconferencing. Cisco currently deploys approximately 800 IP videoconferencing endpoints around the world with an average usage of 700,000 minutes per month. These endpoints consist of a mix of desktop units from vendors such as Tandberg, as well as room-based systems.

This document offers best practices Cisco has developed over years of internal deployment of H.323-based IP videoconferencing. Cisco is in the midst of deploying the Cisco Unified Video Advantage application (formerly Cisco Video Telephony Advantage). This application is based on the Cisco Unified CallManager suite and adds video to traditional audio calls. Gateways currently exist to provide connectivity between the H.323 system and the Cisco Unified Video Advantage environment. A recent case study was published providing details on the initial internal pilot deployment of Cisco Unified Video Advantage. Learn how the pilot implementation was planned, executed, and what lessons were learned. http://www.cisco.com/web/about/ciscoitatwork/case_studies/video_dl2.html

The purpose of this document is to help organizations that are currently planning large-scale, H.323-based IP videoconferencing deployments adopt these practices to more quickly realize return on investment (ROI) and the other organizational benefits possible with the implementation of IP videoconferencing.

Potential Applications and Benefits

Cisco employees use IP videoconferencing for high-impact communications that require face-to-face meetings. Some examples are given in Table 1.

Table 1. IP Videoconferencing Uses

Usage	Description
Executive communications	One of the most powerful sales tools an organization can deploy is executive conversations with customers and other influencers. IP videoconferencing and a specially designed executive presentation room help Cisco executives overcome barriers such as availability and travel logistics to meet with customers and industry and government leaders throughout the world.
Hiring interviews	Cisco HR staff interview thousands of potential hires annually. IP videoconferencing enables timely interviews without travel expenses. Interviewees are invited to a nearby

	Cisco location equipped with IP videoconferencing capabilities and connected via Cisco Unified Videoconferencing for a face-to-face interview with an HR representative.
Usage	**Description**
Employee reviews	Many Cisco employees are not in the same geographic location as their managers. IP videoconferencing is often used by these managers for employee reviews that require face-to-face meetings without incurring travel expenses and loss of productivity.
Team and project meetings	Team and project leaders use IP videoconferencing for periodic meetings of team members located in different geographies. Multiparty conferences enable all participants to see and hear each other, providing a high-impact meeting setting without incurring travel expenses and loss of productivity.

Documentation Summary

This document comprises four sections:

- **Technology** – An overview of the technologies and products that comprise an IP videoconferencing implementation
- **Organization** – Detailed descriptions of the planning and support organization that should be staffed to support a worldwide IP videoconferencing deployment
- **Operations** – Details of the operations and processes that should be considered to support a worldwide IP videoconferencing deployment
- **Facilities** – Information about creating facilities designed for executive usage as well as those that are properly provisioned to enhance the quality and professionalism of a meeting

2.0 Technology

Introduction

This chapter reviews the IP videoconferencing architectures and technologies currently deployed within Cisco.

Supported Protocols

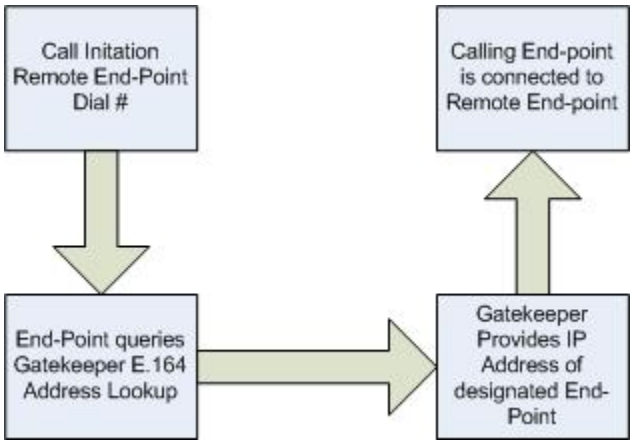
IP videoconferencing solutions are available in various formats based on network connectivity protocols. The current IP videoconferencing solution deployed within Cisco is IP-based and uses the H.323 protocol suite. The H.323 protocol suite is an umbrella recommendation that many vendors implement in their products. It defines the protocols to provide audio-visual communication sessions on any packet network.

Other protocol suites are available to support other types of IP videoconferencing implementations. These protocol suites are typically supported by the implementation of gateway devices that serve as protocol translators. One of the other protocol suites used within Cisco is H.320, which supports ISDN-connected IP videoconferencing endpoints. H.320 gateways are currently implemented to provide connectivity to external endpoints that are not on the Cisco intranet, such as customer, government, or analyst-based endpoints. The H.320 gateways enable connectivity between the internal Cisco endpoints and these external endpoints.

Theory of Operations

Operating an IP videoconferencing device or endpoint is similar to operating a television with a remote control. Figure 1 is a simple block diagram of an endpoint-to-endpoint call.

Figure 1. Endpoint-to-Endpoint IP Videoconference Call

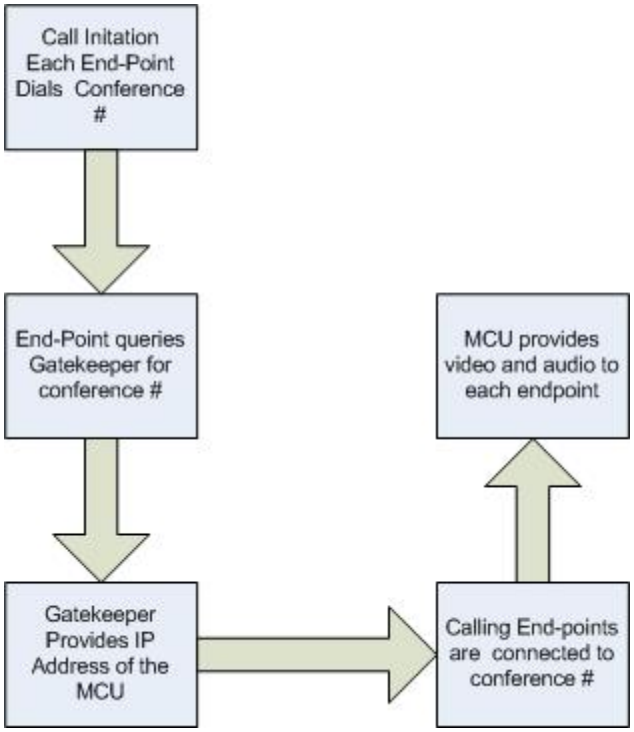


Each IP videoconferencing endpoint is assigned a unique dial number. A special device known as an H.323 gatekeeper stores these numbers and matches the dial number to the IP address of the device dialed. When a number is dialed, the IP videoconferencing endpoint requests access information from the gatekeeper. The gatekeeper looks up the appropriate

IP address and returns that information to the requesting endpoint. The requesting endpoint then initiates a session directly with the destination endpoint.

A multiparty IP videoconferencing session is initiated similarly to a multiparty voice conference call. Figure 2 is a simple block diagram of the initiation of a multiparty IP videoconferencing session.

Figure 2. Multiparty IP Videoconference Call

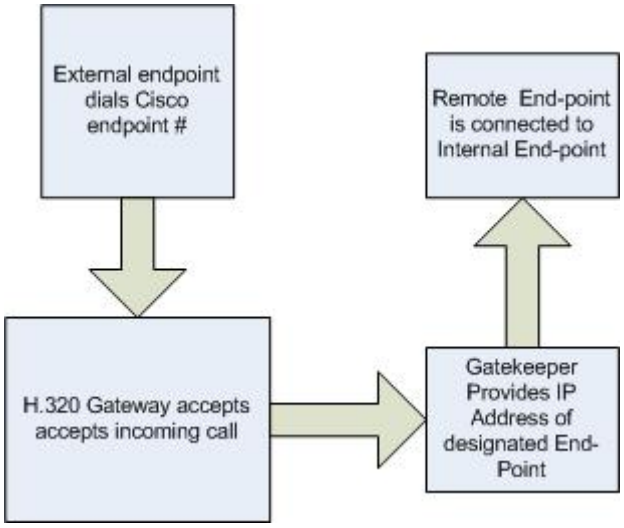


A unique conference number is provided to all participants. Each participant dials this number from an IP videoconferencing endpoint. The gatekeeper matches the dialed number to the IP address of the multipoint control unit (MCU). All endpoint sessions are connected via the MCU.

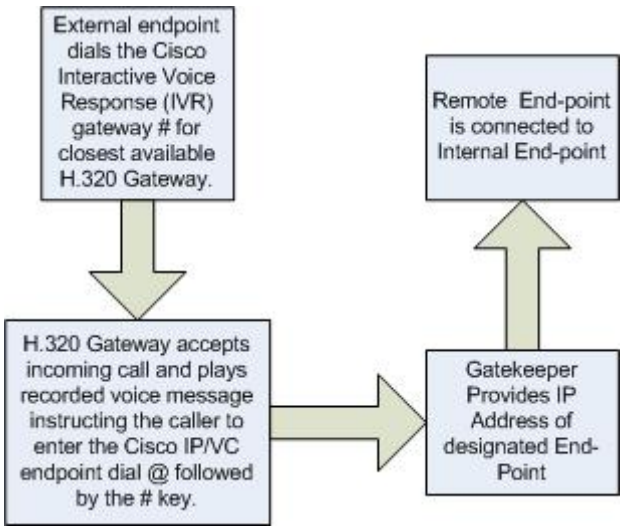
A device known as a gateway connects calls to internal IP videoconferencing endpoints from external IP videoconferencing endpoints. Figure 3 is a simple block diagram that illustrates how external IP videoconferencing endpoint places a call to an internal Cisco IP videoconferencing endpoint.

Note: Within Cisco, provisions for internal to external calls are provided only through an advance request to the IP videoconferencing support team. In some cases, ISDN services may vary, and troubleshooting may be required for a successful connection.

Figure 3. External Endpoint Call to Internal Endpoint



North America



EMEA and Asia Pac

Device Descriptions

Table 2 describes the devices that comprise an IP videoconferencing system.

Table 2. Components of an IP Videoconferencing System

Device	Description
Endpoint or video terminal	IP videoconferencing endpoints are available in many forms, ranging from standalone desktop units to room-based systems. These units contain a video display, camera, microphone, speakers, and an onscreen menu system for configuring and placing calls. The desktop units offer an all-in-one format. Room-based systems can be designed with multiple displays, cameras, and other components depending on room size.
Gatekeeper	The gatekeeper performs all address resolution, bandwidth management, call admission control, zone management, and call routing. Gatekeepers are available as standalone devices. Many Cisco routers can be configured as H.323 gatekeepers.
Gateway	A gateway provides interoperability between H.323 devices and H.320 devices.
Multipoint control unit (MCU)	An MCU enables three or more participants to join a videoconference. The MCU manages call control functions, conference resources, and audio and video media streams.
Management and scheduling system	An option for many providers, a management and scheduling system makes it possible to schedule conference resources such as MCU conferences and provides usage reporting information.

Additional information on the Cisco versions of these devices, as well as other Cisco products, can be found in the Products & Solutions section of http://www.cisco.com.

Cisco Internal Deployment Architecture

Cisco's current internal IP videoconferencing deployment is a distributed environment of gatekeepers, gateways, and MCUs, located in various geographies.

IP videoconferencing endpoints register with a predefined gatekeeper. The gatekeeper can define multiple zones, so endpoints in Asia Pacific can "home" to a gatekeeper in San Jose,

California while still providing the unique Asia Pacific video endpoint number to dial. Cisco IOS® Software-based gatekeepers can manage multiple IP videoconferencing endpoints, MCUs, and gateways. Each gatekeeper maintains a database for all devices assigned to it

When placing MCUs, it is vital to keep in mind the total bandwidth usage, latency with WAN links, and geography. For example, in testing Asia Pacific connectivity, Cisco discovered that it was more effective to place an MCU in San Jose rather than Sydney, because the WAN links from Hong Kong and Singapore to Sydney were not as robust as the links from Hong Kong and Singapore to San Jose, causing degraded video quality.

Cisco disperses H.320 gateways globally to provide ISDN connectivity to Cisco IP videoconferencing endpoints. Cisco currently assigns a default bandwidth setting of 384 Kbps to all IP videoconferencing components. Quality of service (QoS v.2.0) is enabled at all WAN connections and matched on application port IDs. Videoconferencing traffic is prioritized a step below voice traffic and is carried across the general data VLAN.

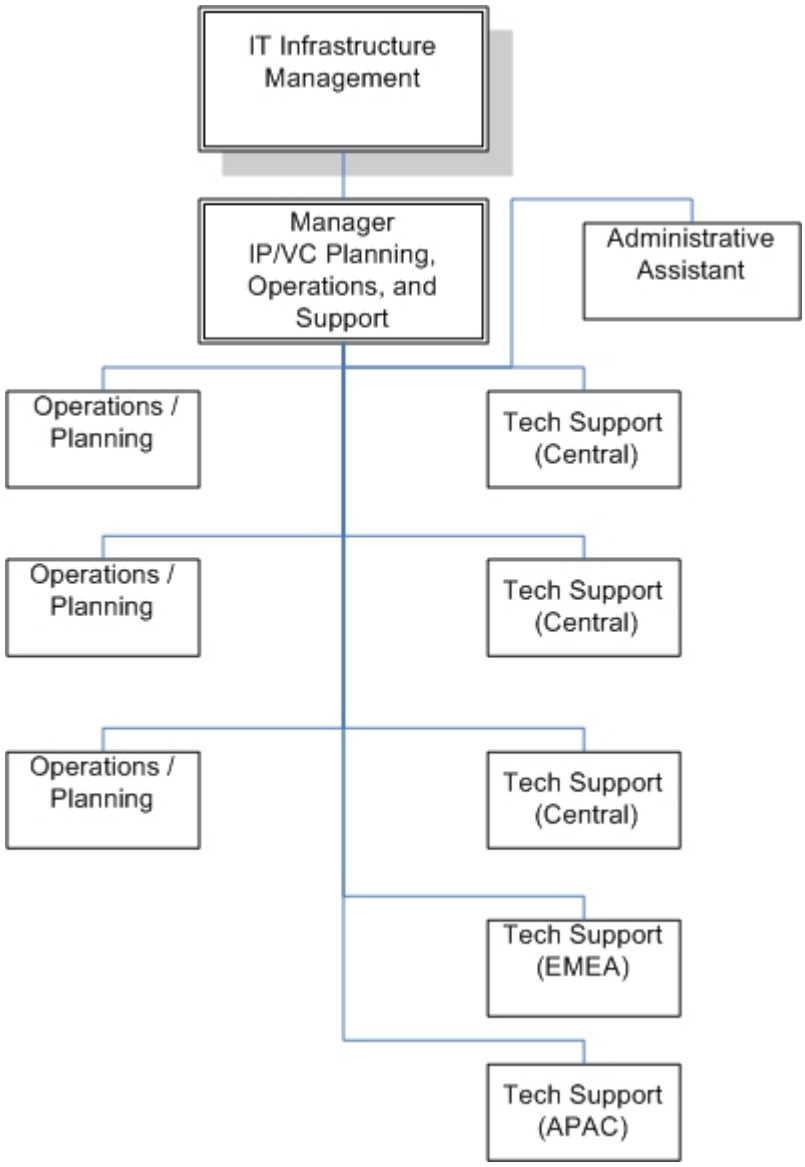
Deployment Suggestions

A Cisco document titled “IP Videoconferencing Solution Reference Network Design” (http://www.cisco.com/en/US/partner/netsol/ns340/ns394/ns158/ns280/networking_solutions_package.html) provides guidelines, recommendations, and technical best practices to help an organization design an IP videoconferencing solution. Cisco bases its internal IP videoconferencing deployment on many of the recommendations in this document.

3.0 Organization

Successfully deploying IP videoconferencing services necessitates creating an organization responsible for planning, deployment, operations, and support. This chapter offers a suggested organizational structure for planning, provisioning, and supporting a companywide IP videoconferencing deployment. Figure 4 provides a suggested organizational structure.

Figure 4. Suggested Organizational Structure for an Enterprise IP videoconferencing deployment



The manager of the IP videoconferencing group drives planning, organization, coordination, control, and support. This position is part of the overall IT organization and should probably

report to either the IT infrastructure or operations director. In addition to these fundamental management functions, the manager of this group is also responsible for:

- Establishing the technical deployment and architecture planning for IP videoconferencing throughout the organization
- Budget planning and implementation of core IP videoconferencing components, such as MCUs, gatekeepers, and gateways
- Acting as primary liaison to suppliers, vendors, and internal IT groups such as IT telephony

The group itself is organized by function as shown in Table 3.

Table 3. Organization of a Typical Enterprise IP Videoconferencing Group

Group	Provides
Operations and planning	Plans deployments and develops operations procedures
Technical support	Resolves user technical support issues
Administrative	Manages order processing and provides usage reports

Operations and Planning

The staff of the operations and planning group is responsible for deployment planning and developing operational procedures (Table 4).

Table 4. Responsibilities of the Operations and Planning Group

Function	Description
Architecture definition and design	Identify the components required to support IP videoconferencing services Design the deployment of all required components to ensure maximum availability and quality
Dial plan	Work with IP telephony to design, implement, and maintain a dial plan that supports IP videoconferencing endpoints
Gatekeeper and gateway configuration	Properly provision and configure all required gatekeeper and gateway devices
MCU configuration	Properly provision and configure all MCU devices
Scheduling	Work with IT scheduling or calendaring to develop and maintain a scheduling system to support room-based, system scheduling by users
Equipment evaluation and planning	Work with equipment providers to

	evaluate new equipment, plan and deploy upgrades to current systems, and plan long-term technology changes
Liaison to IT infrastructure group	Ensure that sufficient bandwidth is available to room-based systems, that IP videoconferencing gateways and gatekeepers are properly configured, and that QoS is deployed for IP videoconferencing devices
Technical support escalation	Provide escalation support for technical support Develop maintenance and troubleshooting procedures
Support administrative processes	Review desktop and room-based system order requests Collect management reporting information from scheduling system and/or gatekeeper units

Cisco recommends that an organization deploying an IP videoconferencing system on a global scale with more than 500 endpoints and room-based systems hire and maintain an operations and planning staff of three (3).

Staffing Requirements

Some of the staffing requirements and considerations for this group include:

- In-depth knowledge of IP videoconferencing design theory and hands-on experience with IP videoconferencing hardware and software operations
- Strong interpersonal, written, and presentation communications skills
- CCNA® certification-level network knowledge and experience
- Completion of the Cisco Rich Media certification, which includes courseware on Cisco IP videoconferencing

Technical Support

The technical support group is responsible for:

- Responding to and resolving user support requests typically created by a centrally managed IT support system and then routed to the IP videoconferencing technical support group
- Providing pre-meeting support for room-based system meetings and executive events
- Developing documented feedback and service and product enhancements to the IP videoconferencing operations and planning group

Cisco recommends that an organization deploying a global IP videoconferencing system with more than 500 endpoints and room-based systems hire one technical support person for each location with more than five buildings. Cisco also highly recommends deploying one

technical support person per geographic region to accommodate regional time zones. For locations with less than five buildings, technical support personnel located at a headquarters or central location should be trained to provide support.

Staffing Requirements

Staffing requirements and considerations for this group include:

- Operational experience or equivalent training with IP videoconferencing software and hardware
- Strong interpersonal skills and problem resolution skills as well as completion or near completion of IT-focused technical support training
- Ability to provide remote support via telephone and IP videoconferencing and scheduled, onsite support
- Ability to set up and test IP videoconferencing systems
- Strong documentation skills to provide feedback and process recommendations to operations and planning staff

4.0 Operations

Reporting

Prior to implementing an IP videoconferencing system, Cisco recommends that usage reporting be identified and available from the identified IP videoconferencing components. Some of the most common usage reporting information required is:

- Call usage
  - Total unique calls
  - List of all calls by user name
  - Most frequent callers
- Room system usage
  - Which rooms are used
  - How often
  - By whom
- MCU usage
  - How often
  - By whom
- Gateway usage
  - How many calls were made
  - How many calls were inbound
  - How many calls were outbound
  - Who made the outbound calls
- Productivity usage
  - Why people use IP videoconferencing
  - Tangible and intangible productivity gains

It will probably be necessary to collect this information from several sources, including scheduling systems, device logs, and user surveys.

Usage Marketing

To ensure that the business goals, productivity gains, and ROI envisioned from the deployment of IP videoconferencing are realized, Cisco highly recommends developing and implementing an initial and ongoing marketing communications plan. Table 5 is an example of an initial deployment communications plan.

Table 5. Initial Deployment and Communications Plan

Communication Type	Key Messages	Audience
Announcement poster 1	IP videoconferencing is a real alternative to travel	All buildings with IP videoconferencing rooms
Announcement poster 2	Highlight conference rooms with IP videoconferencing onsite	All buildings with IP videoconferencing rooms
Announcement poster 3	Informational – how to book an IP videoconference call, including step-by-step instructions	IP videoconferencing rooms
IT e-mail message 1	Distinguish between standardized and legacy IP videoconferencing units	Individual buildings with IP videoconferencing rooms
Executive e-mail message 1	Travel alternative; aim to increase adoption	Building aliases defined for specific regions and locations
Executive voicemail message 1	Optional; use e-mail 1 content	All buildings
User presentation	Cisco Unified Video Advantage and Cisco Unified Videoconferencing	Team meetings
IT update	Usage breakdown by region, site, and unit; focus to increase adoption	Regional owners and sponsors
Executive e-mail message 2	Adoption report by region; introduce regional competition	Building aliases defined for specific region and sites
Executive voicemail message 2	Optional; use e-mail 2 content	All buildings with IP videoconferencing rooms
Executive e-mail message 3: Closure	Adoption update	All buildings with IP videoconferencing rooms

Poster Examples

Figures 5 and 6 are examples of the posters deployed within Cisco to promote using IP videoconferencing.

Figure 5. IP Videoconferencing Promotion

Figure 6. IP Videoconferencing Promotion

Example Announcement E-Mail Messages

E-mail message samples 1, 2, and 3 are some of the IT and executive IP videoconferencing announcements used within Cisco to announce and promote IP videoconferencing use.

E-Mail Announcement 1. IT Announcement

Subject: IP Videoconferencing supported in your office / at your site

There are currently x number of IT-supported IP videoconferencing units available for use at x site. The units are available in the following conference rooms:

Room X
Room Y
Room Z

Please note: These units are configured to new IT standards and are supported by Cisco IT. These units should not be confused with legacy units. IT will be standardizing legacy units over the coming months to the latest IT standards.

IT supported units:

1. Support 8-digit dial
2. Secured as a permanent fixture in the meeting rooms
3. Accompanied by a wall-mounted user guide
4. Listed in the Global Cisco Directory and Outlook Calendar (room name-VC)
5. Support multiparticipant video calls

How do I find which buildings have videoconferencing capability?
How do I find a room with a videoconferencing unit and schedule a meeting between two or more locations?
How do I learn more?

E-Mail Announcement 2. Executive Announcement

Subject: IP videoconferencing, open your eyes!

I am pleased to announce that there are now IT-supported IP videoconferencing units available for use in conference rooms across Europe. This number is set to increase significantly in the coming months. Video is being enabled at 12 remote sites across the European and Emerging markets, with a focus on sites in the Central Eastern European region. These conference-room-based IP videoconferencing units have an 8-digit dial address system, making an IP videoconference call as easy as any other voice over IP call!

IP videoconferencing is a real alternative to travel with a potential travel saving of US$10 million per year in direct travel expense and time saved through travel avoidance. The increased accessibility to IP videoconferencing units, combined with improved quality of voice and video, allows time to be used more efficiently. IP videoconferencing breaks down geographical barriers, facilitating real-time face-to-face meetings from your local office and giving you the opportunity to increase the impact of your communication.

The Global Conference Room Directory has been updated to reflect IP videoconferencing capability. Video-enabled rooms are easily identified and booked in Outlook Calendar (videoconferencing capability is indicated by a “VC” at the end of the room name). Click here to check out IP videoconferencing availability at your site.

I have committed to tripling the usage of IP videoconferencing in my region over the next two quarters. Start using IP videoconferencing now! Make sure your teams are aware of this opportunity to use these new IT-supported units to increase their productivity!

<sign-off>
How to… Q&A
IP Videoconferencing Homepage & Learning

E-Mail Announcement 3. Region-Specific Executive Announcement

Subject: Have you woken up to video? Or Rushing off to the airport?

IP Videoconferencing usage update AND call to action!

TRAILING REGION MESSAGE

Following my last e-mail, I'm pleased to announce that the reach of IP videoconferencing has been extended across the theatre, with x sites now video-enabled.

The <region> has led the way with an increase of x% IP videoconferencing usage. The competition is on to increase our usage above and beyond this, from x to x this quarter! We have farther to go before the potential of each IP videoconferencing unit in this region is met and our target is reached. In this region, the X office is leading the way – Congratulations!

OR

WINNING REGION MESSAGE
Following my last e-mail, I'm pleased to announce that the reach of IP videoconferencing has been extended across the theatre, with x sites now video-enabled.

Congratulations team, we have increased our usage by x% -- the largest increase shown in any region across Europe! The X office is leading the charge in this region, with an n% usage.

Let's keep up the momentum. Be the first to set up your weekly team call as an IP videoconference! Share your experiences with your colleagues and customers. IP videoconferencing is as easy as an 8-digit dial call. The Global Directory, alongside Outlook Calendar, provides easy access to IP videoconferencing room information for you to book in advance.

<sign-off>

IP Videoconferencing Homepage & Learning

Support, Maintenance, and Training

Support Process

Cisco provides a centralized technical support group and process that employees can use to request support on the applications and systems used within Cisco, including IP videoconferencing (Figure 7 and Table 6).

Figure 7. Technical Support Group and Process

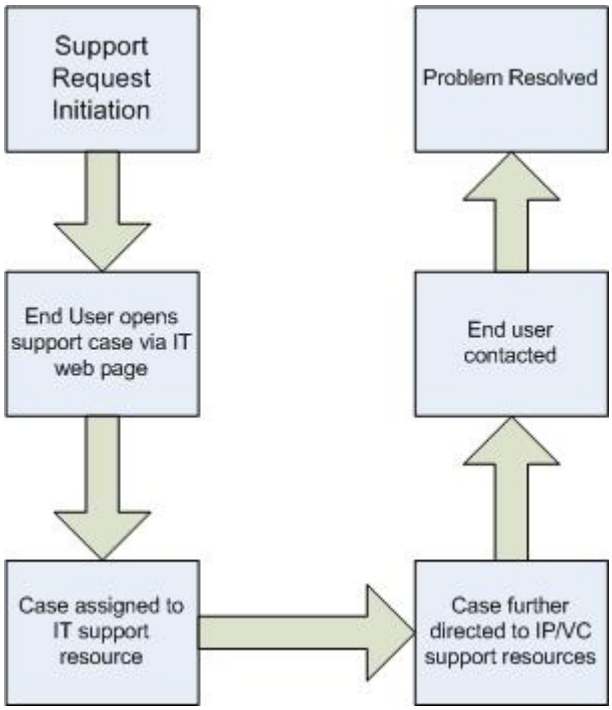


Table 6. IP Videoconferencing Problem Resolution Procedures

Function	Description
User opens initial case	Cisco IT maintains a central technical support website used by Cisco employees to request IT support on most applications and systems used within Cisco, including IP videoconferencing. The user completes a support request form that includes contact information and a problem description field.
Case reviewed by IT central support	Central IT support technicians review the case.
Case directed to IP videoconferencing support	Technicians categorize the support case and assign it to available IP videoconferencing support technicians.
User contacted by IP videoconferencing support	The IP videoconferencing support technician contacts the requestor directly by telephone or e-mail and diagnoses the problem.
Problem resolution	The technician resolves the problem either by providing instructions to the requestor or by remotely accessing the affected systems and correcting configurations, manually placing calls, etc.

In addition to the process shown in Table 6, IP videoconferencing support technicians should also be available for the emergency and pre-meeting support.

- **Emergency support** – Users should be able to contact the central support group directly via telephone and request immediate support for executive-level meetings. The central support group then contacts available IP videoconferencing support personnel via pager or telephone.
- **Pre-meeting support** – IP videoconferencing support resources should be available to be scheduled to provide pre-meeting support for executive and large group meetings. This type of support would ensure that all IP videoconferencing resources are available, tested, and operational before the meeting occurs. The normal technical support request process would be used to schedule these resources.

Common Support Questions

In addition to a technical support website, Cisco also recommends developing a list of frequently asked questions and answers to the most common support questions. Some common support requests for IP videoconferencing appear in Table 7.

Table 7. Common Support Requests

Request Category	Common Questions
Ordering equipment and service	How do I know what type of videoconferencing system I need? How do I order a videoconferencing unit? How much does a videoconferencing unit cost? Who do I call with questions/concerns regarding my order? How long does it take to get my new system up and running? Do I need a maintenance contract on my equipment?
Basic functions and operations	When should I use videoconferencing? I am planning a meeting with a large group. Is videoconferencing a suitable choice? Where are videoconferencing rooms located? How do I schedule a videoconferencing room? What do I need to do to hold a videoconference? How do I reserve a video bridge for a multipoint IP conference? What if I have a problem during my videoconference? Can I get a video camera for my computer? How do I move my equipment from one location to another?

Common Problems

Table 8 illustrates common problems in supporting an IP videoconferencing system. Cisco recommends developing a checklist with common problems and user resolution steps and making it available at each IP videoconferencing endpoint location.

Table 7. The Most Common Problems in IP Videoconferencing Support

Symptom	Resolution
There is no audio.	What is the volume level on the receiving unit? Is it turned down? Is the MUTE selection on the sending unit microphone turned on? Are the cables attaching the microphone to the IP videoconferencing unit connected? Is the power to the in-room speaker system turned on?
There is no video.	Is the power at the receiving video display turned on? Are cables connected to the receiving video display? Is the power turned on at the sending camera? Are the cables attached between the sending camera and the IP videoconferencing unit?
Video quality is bad.	Have the default video quality or bandwidth settings been changed on the sending and receiving unit?
We are unable to connect to another unit.	Check the dial number of the target IP videoconferencing endpoint. Is the target IP videoconferencing unit turned on? Are the Ethernet cables connected?
The IP videoconferencing unit does not work.	Is power available to the unit? Are the network connections up for the unit?
There are rogue systems.	Rogue systems are IP videoconferencing endpoints purchased and installed without the knowledge of the IP videoconferencing support group. Users of these systems often are unable to receive calls except via IP address, because they do not have an assigned dial number. These units often have other connection issues because the initial configuration usually doesn't match established standards.

Hardware Maintenance

Hardware maintenance needs of IP videoconferencing components are minimal. The following critical components should be stocked centrally and preconfigured:

- MCU – Provides multipoint conferencing services for multiple IP videoconferencing endpoints
- Videoconferencing gateway – Provides connectivity to ISDN-based (H.320) videoconferencing endpoints
- Endpoint replacement units – Including extra remote controllers, microphones, and cables

Procurement

Developing and operating a centrally provisioned procurement process is necessary to successfully support an IP videoconferencing system. Several environmental considerations and functions must exist to ensure a successful implementation and experience, as shown in Table 9.

Table 9. Environmental Considerations for a Successful IP Videoconferencing Deployment

Function	Centrally Provisioned Benefit
Supported desktop, IP videoconferencing systems	A list of centrally managed, supported desktop systems is available to users. Units are supported and functional immediately upon delivery. Upgrades are planned, supported, and can be performed remotely.
Universal dial plan	Each new unit is assigned a unique dial number and a central address directory entry is created and maintained.
IT-provided configurations	Each new unit, desktop and room-based, is configured and tested by IT staff.
Utilization of available resources	Desktop systems not currently in use can be maintained, warehoused, and redeployed to new requestors.
Properly designed and integrated room-based systems	Eliminates the frustration caused by poor audio quality, bad lighting, missing cables, and inoperable systems. All room-based systems are in rooms that have been renovated for best acoustic and visual quality. All systems are integrated into the room infrastructure so that cables and controls cannot be disconnected or lost.
Bandwidth planned and provisioned	Prior to installation, the IT group ensures that proper connectivity is available. This provides the best user experience through QoS and a sufficient amount of bandwidth.

IP videoconferencing endpoints are available in two different types of systems:

- **Desktop** – Desktop IP videoconferencing units are usually located on a user desk. These standalone units typically have a screen approximately 8x8 in. with a built-in camera and microphone. A dial pad or remote control accompanies each unit. The unit usually requires an Ethernet connection and does not require a PC for connectivity or operation.
- **Room-based systems** – Room-based systems are often installed in conference rooms. They are implemented either as a cart-based system—a camera, microphone, and monitor mounted on a rolling cart—or as an integrated system installed in a location specifically designed for videoconferencing operations. Cisco recommends implementing room-based systems wherever possible. Although more expensive, these systems offer a higher-quality audio and video experience at a lower cost of support, because rooms can be provisioned with the proper lighting and audio controls. System components are often integrated into room walls, thus "hiding" accompanying cabling.

Following are two suggested procurement processes designed to support a central procurement environment for IP videoconferencing endpoints. Figure 8 and Table 10 illustrate the process for supporting the procurement of desktop IP videoconferencing endpoints.

Figure 8. The Process to Support the Procurement of Desktop IP Videoconferencing Endpoints

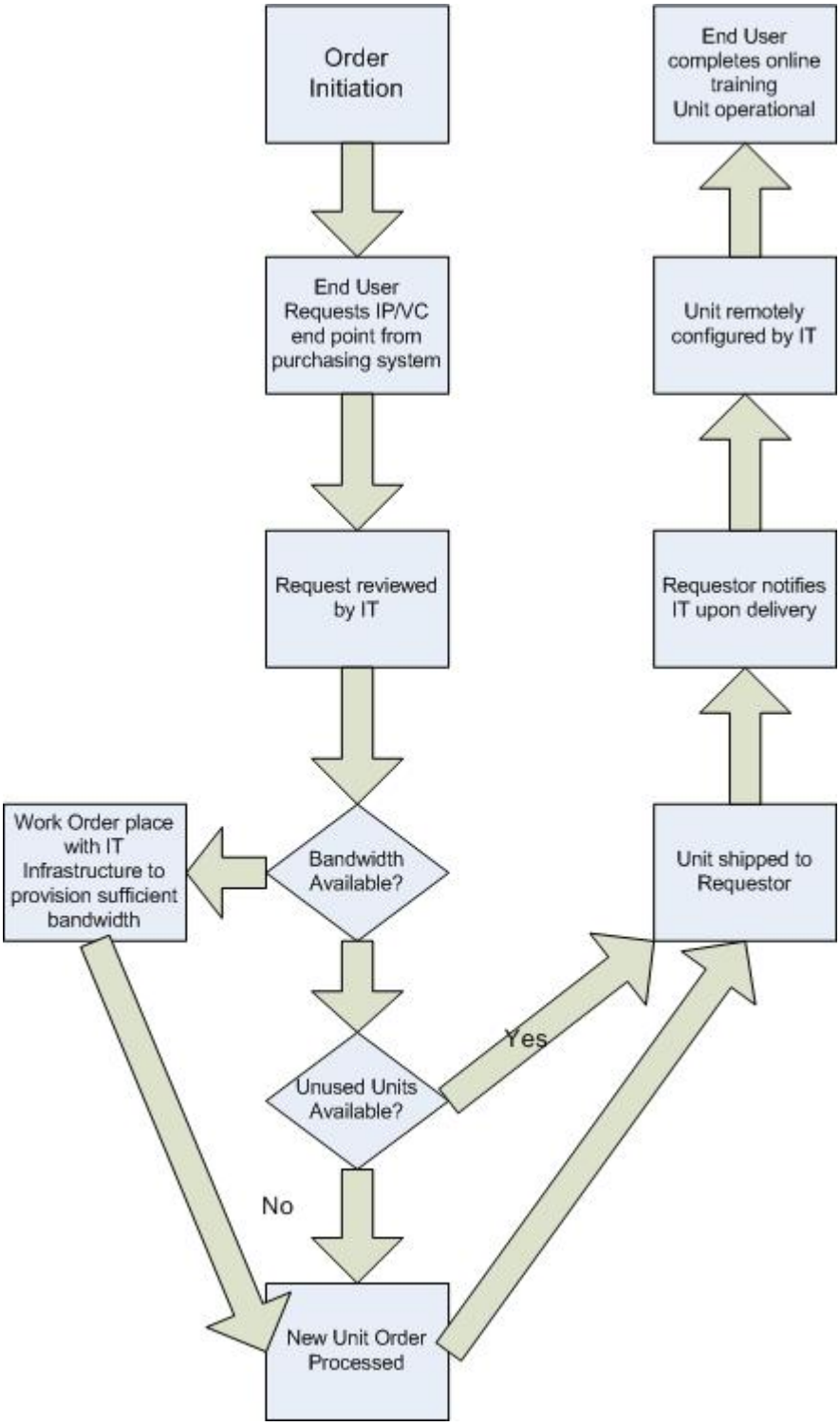


Table 10. The Process to Support Procurement of Desktop IP videoconferencing Endpoints

Function	Description
Initial request	User requests an IP videoconferencing desktop system via organization procurement tools. The IP videoconferencing IT team provides a list of supported endpoints.
Request reviewed by IP videoconferencing IT group	The purchase request is automatically forwarded to the IP videoconferencing IT group for review.
Bandwidth and network provisioning analysis	The IP videoconferencing IT group checks the requestor's physical location to ensure that the minimum amount of bandwidth is available to support IP videoconferencing at that location as well as other required network resources. If there is insufficient bandwidth or other required resources are not available, a work order is created and forwarded to the infrastructure IT group to resolve before the order is processed.
Available IP videoconferencing endpoints	The IP videoconferencing IT group reviews the request and compares the request to available, unused equipment. If unused equipment is available, these units are installed at the new location.
New unit order processed	If unused equipment is not available, the new equipment order is approved and processed by the purchasing department.
Unit shipped to requestor	The new unit is shipped directly to the requestor's location.
Requestor provides delivery notification	The requestor informs the IP videoconferencing IT group when the new equipment arrives.
IP videoconferencing endpoint remotely configured	The IP videoconferencing IT group directs the requestor to plug the unit into the assigned Ethernet connection. The unit is then remotely accessed, configured, and tested by the IP videoconferencing IT group.
End user completes orientation training	The end user is directed to and completes orientation training and begins using the new unit.

Figure 9 and Table 11 illustrate the process intended to support the procurement of room-based IP videoconferencing systems.

Figure 9. The Process to Support Procurement of Room-Based IP Videoconferencing Endpoints

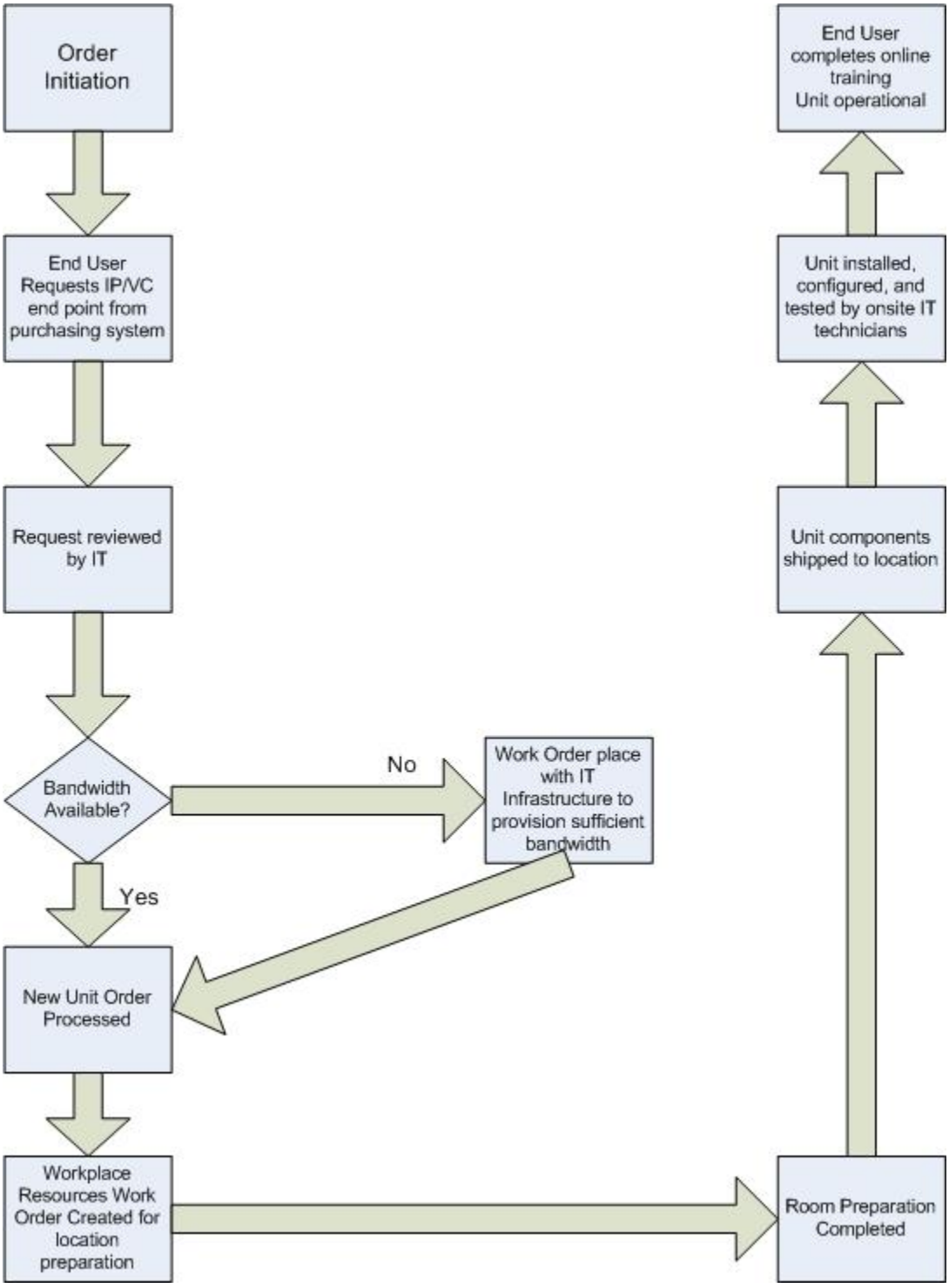


Table 11. The Process to Support the Procurement of Room-Based IP Videoconferencing Endpoints

Function	Description
Initial request	User requests an IP videoconferencing room-based system via organization procurement tools. The IP videoconferencing IT team provides a list of supported endpoints.
Request reviewed by IP videoconferencing IT group	The purchase request is forwarded to the IP videoconferencing IT group for review.
Bandwidth and network provisioning analysis	The IP videoconferencing IT group checks the requestor's physical location to ensure that the minimum amount of bandwidth is available to support IP videoconferencing at that location as well as other required network resources. If there is insufficient bandwidth or other required resources are not available, a work order is created and forwarded to the infrastructure IT group to resolve before the order is processed.
New unit order processed	The new equipment order is approved and processed by the organization's purchasing department.
Workplace resource work order prepared	A work order to prepare the new location of the room-based system is prepared by the IP videoconferencing IT group and forwarded to the facilities group. This work order provides details on the requirements for modifying the location for the best acoustic and visual experience as well as required modifications to support the built-in IP videoconferencing components.
Room preparation completed	An onsite IT technician reviews the room preparation with a facilities representative to ensure all requirements have been implemented.
Unit components shipped	The room-based components are shipped to the onsite IT technician.
Room-based system installed, configured, and tested	The onsite IT technician installs, configures, and tests all components based on procedures provided by, and with support from, the IP videoconferencing IT group.
Overview and usage training completed	The onsite technician provides an overview and usage tutorial to designated users.

Facilities

Overview

Cisco uses a variety of IP videoconferencing-equipped facilities. Using specially equipped carts that contain a monitor, speakers, and an IP videoconferencing camera, almost any conference room is suitable for IP videoconferencing. In addition to semipermanent facilities, Cisco has several permanent IP videoconferencing facilities that are used primarily for executive communications. A deployment plan has been developed and funded to provision more than 20 additional facilities for general employee use throughout Cisco during calendar years 2005 and 2006. This document, however, provides details about the current executive IP videoconferencing facilities.

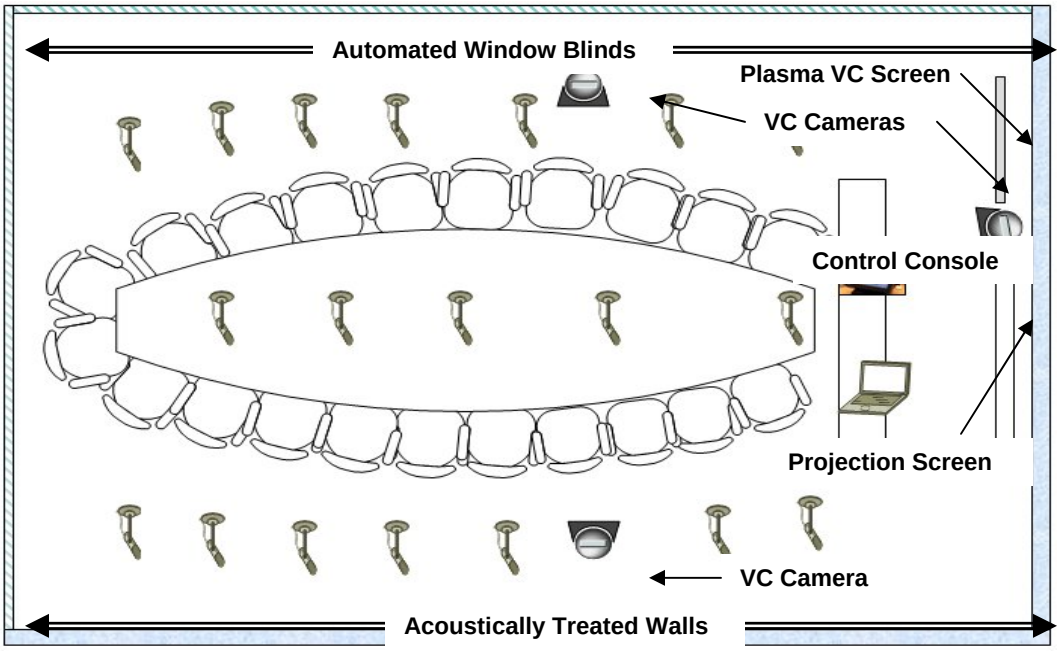
Executive communications is one of the most compelling uses of videoconferencing. The ability to conference face-to-face with another CEO, vice president, or government official generates trust, confidence, and identity far beyond a simple phone call.

As technology—and network bandwidth—increases, a meeting facilitated by IP videoconferencing technology will have much more of the "look and feel" that a face-to-face meeting has today—as if all participants were in the same room. Even with current technology, immediacy and costs savings fully justify the use of this technology and the configuration of a special IP videoconferencing facility to support virtual executive meetings.

Room Layout Description

A typical Cisco executive videoconferencing facility is designed to support an executive-level meeting (Figure 10). It contains a room-based system with modifications that enhance and support video and audio quality. The room configuration is more like a conference room or boardroom supplemented by additional lighting, acoustics, and audiovisual support.

Figure 10. Room Layout Diagram



Acoustics
The walls of the room are lined with an absorbent material that deadens sound reflection.

Lighting
Special indirect color-balanced fluorescent lighting fixtures replace standard fixtures and add a softer, shadowless light to the entire room to enhance video quality.

Automated Window Blinds
Room lighting is further controlled by automated, remote-controlled vertical window blinds that can be closed to shut out natural light and reduce glare on the presentation screens. In addition, these blinds are lined with acoustical padding to further dampen unwanted room noise. A touch-screen panel at the presenter's podium controls these blinds.

Audio
Microphones hung from the ceiling are predirected to provide audio coverage of virtually every area of the room. A videoconference call is initiated by dialing the designated MCU number or remote IP videoconferencing-equipped conference room from the touch pad of the control console.

Remote-Controlled Videoconferencing Cameras
A total of three cameras are installed in the ceiling—and front wall—of the room and can be controlled from the presentation podium to show any area of the room.

Normally the cameras are programmed—preset pan, tilt, and zoom—before a meeting to show specific areas of the room to support that particular meeting. Camera shots can vary depending on the number of meeting participants and what is specifically planned to be shown to the viewers of the videoconference.

Videoconference
A large plasma screen, mounted on the front wall, enables everyone in the room to see the participants at the distant end of the conference and/or to monitor the video being transmitted to the distant end.

Presentation Projection Screen
PowerPoint slides and other presentation media are projected onto a large screen on the front wall. The video from this screen is also transmitted to the distant end of the videoconference.

Control Console

All of the media and in-room controls (lighting, audio, window blinds, cameras, etc.) are centered into a single control point at the presentation podium. This touch-screen interface provides complete control of the conference (at this end) by the main speaker or presenter.

Support Process

Meeting Scheduling

The Cisco Executive Briefing Center handles scheduling for this facility. Only specific types of meetings can be scheduled for this facility, and only a limited number of people are allowed to schedule meetings.

Meeting Support

Whenever the briefing center receives a valid request for scheduling a videoconference meeting, videoconferencing IT support is notified. A technician sets up and tests the equipment prior to the meeting and monitors the meeting as well.

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