



## CISCO IP COMMUNICATIONS SOLUTIONS

## **USING THE POWER OF A CONVERGED IP NETWORK TO ENHANCE AND STREAMLINE COMMUNICATIONS AND TRANSFORM BUSINESS**

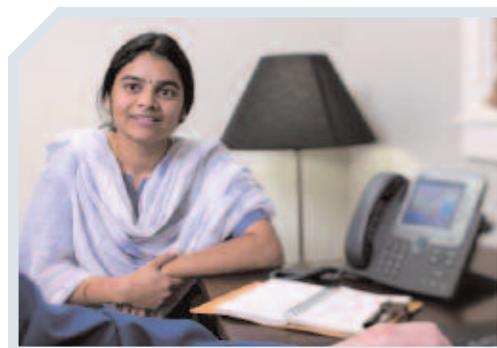
As the requirements for business success continue to evolve, network and IT infrastructures must evolve with them. Greater security, mission-critical application availability, simplification, and increased transparency of the IT infrastructure are challenges that organizations must meet to remain competitive, while continuing to provide new products and services to their customers. As a result, organizations require integrated, resilient, and adaptable infrastructures, which enable them to implement a new approach to how cost structures and business processes will reduce risk, guide business performance, and ensure maximum return on investment (ROI).

While traditional areas of concern—such as productivity and customer satisfaction—are more important than ever, newer challenges such as the expansion of the virtual workforce, globalization, growth of communications traffic, and the heightened need for business agility must be factored in as well. Organizations are looking at technology solutions that can help give them an edge over the competition. These solutions should facilitate effective collaboration by breaking down distance barriers and overcoming traditional limitations with new ways to share information and enhance discussions, ultimately leading to better decisions and business growth.

### **A PARADIGM SHIFT**

Putting IP Communications solutions—including voice, video, and conferencing applications—on the mission-critical data network is the most cost-effective and efficient way to accomplish these objectives. Using the converged network in this way has resulted in a paradigm shift that eases the logistical barriers of time zones and geographic distances between companies and their branch offices, teleworkers, customers, partners, and vendors. It simplifies the process of connecting with customers, while enhancing the value of interactions and increasing personalization with rich media and video.

By providing organizations with applications that help ensure a more sophisticated and streamlined communications experience, IP Communications solutions provide timely access to information and resources. This not only results in more efficient interactions at the individual level, but also facilitates improved productivity that progresses over time as value-added applications and services are deployed throughout the extended enterprise. Truly enterprise-wide access to information is now available, as workers in all locations—in the headquarters, in the branch office, at home, or on the road—can get the services they need, whenever they are needed. IP Communications solutions enable untethered, “anytime, anywhere” communications capabilities, giving employees an unprecedented level of mobility. Applications are now both voice- and data-aware, and enable integration with video solutions as well as with other desktop and business applications, including customer relationship management (CRM), enterprise resource planning (ERP), workforce management (WFM), messaging, and scheduling. And, because they are built upon a resilient, secure, reliable IP network, IP Communications solutions give organizations a way to respond quickly to new opportunities and deal with business disruptions.



### **TRANSFORM COMMUNICATIONS**

Cisco Systems® is the global leader in networking solutions and the emerging leader in business communications solutions. The company has nearly a decade of experience and expertise in delivering the products, solutions, partners, services, and support to help organizations streamline and transform their business communications.

Cisco® IP Communications is a complete enterprise-class system, enabled by Cisco AVVID (Architecture for Voice, Video and Integrated Data), that securely integrates voice, video, and other collaborative data applications into intelligent network communications solutions. This system—including IP telephony, unified communications, rich-media conferencing, IP video broadcasting, and customer contact solutions—takes full advantage of all of the power, resilience, and flexibility of an organization’s IP network, and boasts an “inherent intelligence” that enables organizations to solve problems, conduct transactions, or complete tasks more automatically. The result is a highly effective and collaborative business environment that significantly improves the way companies interact with their employees, partners, and customers, enabling organizations to set themselves apart from their competitors, while achieving a measurable ROI.

Cisco IP Communications solutions are built upon an open, truly converged foundation with integrated applications that boast an inherent IP intelligence. An open architecture gives an organization more choice because it doesn’t limit communications options or compromise a

network's effectiveness. Along with enabling companies to create a collaborative workforce, Cisco IP Communications solutions reduce the cost and complexity associated with managing multiple and remote sites, meet stringent quality of service (QoS) requirements, and provide optimal availability and security when deployed as part of a converged network. Equally as important, Cisco IP Communications solutions are built to interoperate with existing time-division multiplexing (TDM)-based systems and enterprise business applications, so organizations can move as quickly as they want to full IP Communications, while respecting their existing technology investments. As a result, enterprises that embrace IP Communications can promote greater levels of workforce collaboration, exceed customer expectations, and reap the full benefits of convergence much sooner while setting themselves apart from the competition and realizing greater revenues. By promoting better company-wide collaboration while using a single network infrastructure, IP Communications solutions strengthen an organization's competitive position and deliver a measurable ROI.

Cisco IP Communications solutions offer organizations several advantages:

- An open, standards-based architecture enabled by Cisco AVVID, with the flexibility of a comprehensive solution portfolio that interoperates with existing technologies
- A flexible, interoperable migration strategy that allows companies to choose IP Communications solutions that meet their current needs, while providing a smooth path for accelerating IP deployment
- A strong foundation for innovative, convergence-based applications that uses voice, video, data, and existing enterprise business applications in new ways to boost productivity and enhance customer loyalty
- Measurable, proven ROI
- A unique system-level approach to security that provides the secure connectivity solutions, threat defense tools, and the trust and identity components necessary to protect all layers of an IP Communications system, as well as the SAFE Blueprint from Cisco, for the design of a secure system
- QoS mechanisms that help ensure high voice quality through tight control of delay, loss, and jitter
- Network management products that provide network administration, operations, troubleshooting, configuring, fault monitoring, and element management

Cisco IP Communications helps businesses realize the benefits of next-generation communications technologies through Cisco IP Telephony, Cisco Unified Communications, Cisco Rich-Media Conferencing, Cisco IP Video Broadcasting, and Cisco Customer Contact Solutions. These cost-effective and reliable solutions can scale to meet the changing needs of organizations, and are available today.



## **CISCO IP TELEPHONY**

A converged network environment should provide a superior level of business resilience and agility, and Cisco IP Telephony solutions do just that. Designed from the ground up for converged network environments, Cisco IP Telephony solutions dramatically enhance communications flexibility and effectiveness.

IP telephony refers to technology that transmits voice communications over a network using IP standards. Cisco AVVID provides the infrastructure and feature set for creating a single converged network that can handle voice, video, and data traffic simultaneously. It provides this capability while maintaining a high level of network availability, QoS, and security.

Based on Cisco AVVID, Cisco IP Telephony solutions provide a flexible foundation for powerful new applications that go beyond the confines of traditional telephony. They communicate with existing TDM and voice-mail systems to enable smooth transitions from existing systems. APIs make it easy to add standards-based third-party equipment and applications.

The Cisco IP Telephony solution delivers high-quality IP voice and fully integrated communications. Using the framework provided by Cisco AVVID, Cisco IP Telephony solutions deliver unparalleled performance and capabilities to address current and emerging communications needs in the enterprise environment. Cisco IP Telephony solutions optimize features, reduce configuration and maintenance requirements, and provide interoperability with numerous applications.

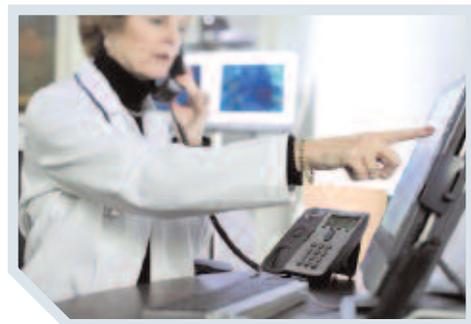
The architecture of the Cisco IP Telephony solution consists of the following primary components:

- **Communications endpoints**

A communications endpoint is a user instrument—either a desk phone or a software phone application that runs on a PC. In the IP environment, each phone has an Ethernet connection. IP phones have all of the functions that a telephone provides, as well as additional features, such as the ability to access Websites, or productivity-enhancing applications. Only Cisco offers a complete portfolio of true IP phones—solid, inviting, simple-to-use, functional, and fully featured next-generation communications devices.

In a Cisco IP Telephony network, users can also choose a PC-based phone—the Cisco IP Communicator. When using the Cisco IP Communicator remotely, users are not only taking their office extensions with them—they also have access to all of the same familiar phone services and features they have in the office. System administrators can provision Cisco IP Communicator as they would any other Cisco IP Phone, greatly simplifying IP phone management.

Unlike traditional PBX systems, moves, adds, and changes are now virtually instantaneous. A user simply takes the IP phone to the new location, plugs it into the Ethernet jack, and the phone registers itself with Cisco CallManager. All user privileges and settings are automatically re-established, eliminating the cost and delay of sending technicians to wiring closets. Another helpful feature is extension mobility, which allows users to log into any Cisco IP phones and receive their own phone numbers and privileges.



- **Call-processing agent**

At the heart of the Cisco IP Telephony system is the call-processing agent. Whether deploying a centralized call-processing model, a decentralized model, or a combination of both, Cisco IP Telephony solutions meet individual organizational needs. In a centralized deployment, Cisco CallManager extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, voice over IP (VoIP) gateways, and multimedia applications throughout the network. Additional voice, video, and data services such as unified messaging, multimedia conferencing, collaborative customer interaction networks, and interactive multimedia response systems interact with the IP telephony solution through the open telephony APIs of Cisco CallManager.

When a central Cisco CallManager cluster also handles call processing for users at distributed sites, administrators can help ensure continuous phone service using Cisco Survivable Remote Site Telephony (SRST), a Cisco IOS® Software image for Cisco routers. If a WAN link fails, Cisco SRST in the router provides basic Cisco CallManager capabilities until the link is restored.

In case of emergency, Cisco Emergency Responder correctly identifies the caller's location to a 911 dispatcher. This is an important capability in a centrally managed, highly dispersed network design, where a Cisco CallManager cluster may be processing calls for a user in another city or state.



For small offices or “loosely coupled” small enterprise branch locations that do not require the full, enterprise-class feature set offered by Cisco CallManager, Cisco CallManager Express offers a cost-effective solution that meets the requirements of sites with fewer than 100 employees. Since Cisco CallManager Express is embedded in the Cisco IOS Software running on a Cisco multiservice access router, smaller offices are able to simply and easily deploy a converged voice and data solution.

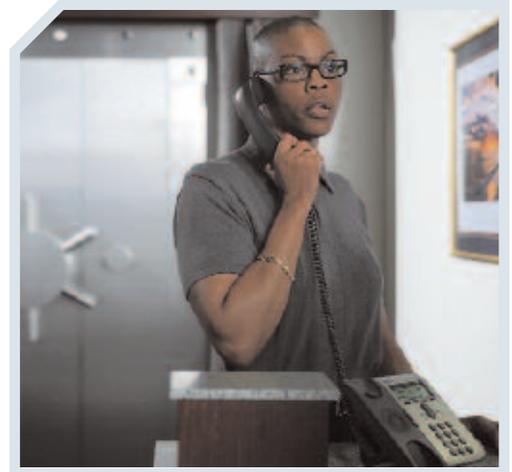
Cisco CallManager and Cisco CallManager Express effectively interoperate to address the varying call-processing requirements of an organization throughout its entire network.

- **IP telephony applications**

As defined by Cisco AVVID, IP telephony applications are physically independent from the call-processing and voice-processing infrastructure, and they may reside anywhere within the network. A single network infrastructure provides an open platform for powerful productivity applications, and serves as a solid foundation for future convergence-based applications that will continue to advance enterprise communications. Using pixel-based display technology throughout the Cisco IP Phone portfolio, vertical and horizontal applications demonstrate the power of IP to the desktop.

### CISCO IP TELEPHONY PRODUCTS

- Cisco 7800 Series media convergence servers
- Cisco CallManager
- Cisco CallManager Express
- Cisco 3700 Series multiservice access routers
- Cisco IP phones
- Cisco IP Communicator
- Cisco VT Advantage Video Telephony Solution
- Cisco CallManager Attendant Console
- Cisco Emergency Responder
- Cisco Conference Connection
- Cisco ATA 180 Series analog telephone adaptors and gateways
- Cisco SRST

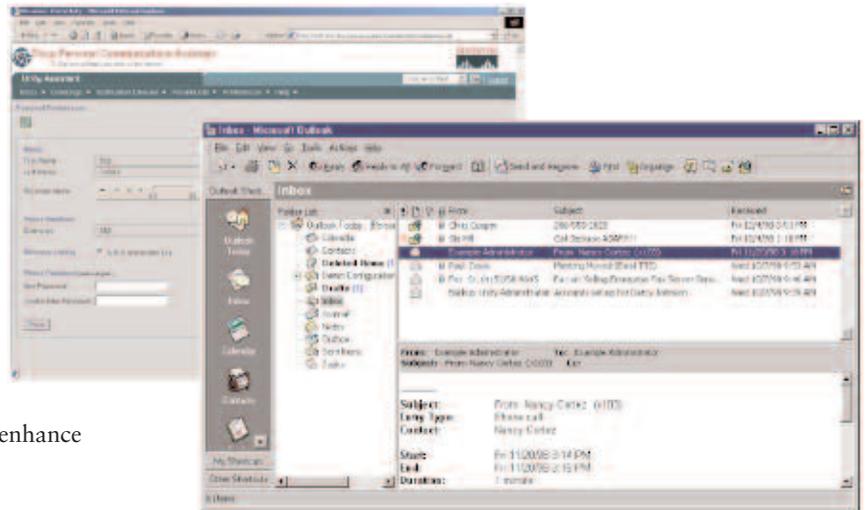


For more information about Cisco IP Telephony, visit:  
[http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns268/networking\\_solutions\\_package.html](http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns268/networking_solutions_package.html)

### CISCO UNIFIED COMMUNICATIONS

The technology age has given us telephones, fax machines, voice mail, e-mail, pocket pagers, mobile phones, and personal digital assistants (PDAs). With so many ways to communicate, keeping track of incoming calls and messages can seem like a full-time job, which is why unified communications is such an important innovation.

Cisco Unified Communications solutions unite personal productivity management tools—including the Cisco Unity™ solution and Cisco Personal Assistant—to increase organizational productivity and enhance customer care by providing an unprecedented level of communications control.



The Cisco Unity application is the premier unified communications solution for enterprise-scale organizations, delivering powerful unified messaging (e-mail, voice, and fax messages managed from a single inbox) and intelligent voice messaging (full-featured voice mail providing advanced capabilities) to improve communications, boost productivity, and enhance customer service capabilities across an organization.

The Cisco Unity solution provides advanced, convergence-based communications services and integrates them with the desktop applications—such as Microsoft Outlook and Lotus Notes—that companies use everyday. With Cisco Unity Unified Messaging, employees can listen to e-mail over the telephone, check voice messages from the Internet, and forward faxes to their present locations. Cisco Unity Voice Messaging offers robust automated attendant features that include intelligent routing and easily customizable call screening and message notification options.



The Cisco Unity solution is designed for an IP environment and plays a central role in the migration of a telephony infrastructure from TDM to IP. With IP, it is less expensive to deploy a comprehensive communications solution—there is a single network for both voice and data. The Cisco Unity solution supports both Cisco CallManager and leading PBX systems—even simultaneously—to help organizations transition to IP telephony at their own pace and protect existing infrastructure investments. In addition, the solution offers several networking modules that enable advanced message interchange with leading voice-mail systems. These modules give customers who are migrating to the Cisco Unity solution the ability to exchange messages with internal system subscribers who reside on a different messaging system, helping to ensure a smooth transition.



The Cisco Unity solution features a server architecture that is truly unified with the data network, minimizing installation, administration, and maintenance costs. Built on a platform that can scale to meet an organization's needs as it grows, the solution uses streaming media and an intuitive browser-style system administration interface that simplifies system installation and support of, ultimately lowering total cost of ownership.

The Cisco Unity solution complements the full range of Cisco IP Communications solutions—such as Cisco CallManager, Cisco Personal Assistant, and Cisco IP Contact Center (IPCC)—by providing advanced capabilities that unify data and voice. And because it is enabled by Cisco AVVID and designed for a converged network, the Cisco Unity solution provides a solid foundation for rolling out future convergence-based communications services.

The Cisco Personal Assistant telephony application streamlines communications—with features such as rules-based call routing, simplified contact management, and speech recognition—to help users manage how and where they want to be reached. With Cisco Personal Assistant, users can customize call screening and forwarding features, routing calls based on time of day, who the caller is, and calendar appointments—all without asking the IT department for help. Streamlining outbound communications can be done with speech recognition access to name dial contacts in the corporate directory or Microsoft Outlook contact list. Speech commands are also used to set up ad hoc conference calls, initiate “follow me” call routing, and respond to voice-mail messages.

Cisco Unity Express offers local voice-mail and automated attendant capabilities for IP phone users connected to either Cisco CallManager or Cisco CallManager Express in a small or branch office location. Cisco Unity Express is fully integrated into the Cisco access router either on a network module or an advanced integration module (AIM). Cisco Unity Express serves up to 100 subscribers, with features intended for the small business or branch office.

#### **CISCO UNIFIED COMMUNICATIONS PRODUCTS**

- Cisco Unity
- Cisco Unity Express
- Cisco Personal Assistant

For more information about Cisco Unified Communications, visit:

[http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns152/networking\\_solutions\\_package.html](http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns152/networking_solutions_package.html) and

<http://www.cisco.com/go/cue>

## CISCO RICH-MEDIA CONFERENCING

Rich-media conferencing is becoming as standard a communications tool as e-mail, and is enabling organizations to reduce costs and increase the speed and reach of their businesses. With rich-media conferencing solutions, organizations can increase their competitiveness by integrating remote workers into day-to-day activities, arriving at decisions more quickly, training employees more effectively, and establishing closer relationships with customers and business partners.

Rich-media conferencing is a core component of the Cisco IP Communications solution that enables organizations to realize the cost savings and productivity potential that are driving the move to converged IP networks. As the conferencing market matures, organizations are rethinking how they deploy conferencing applications and are moving from using separate, shared, off-net, conferencing services to integrated, on-net, rich-media conferencing solutions for increased levels of cost savings, integration with enterprise architectures and applications, and security. In order to simplify end-user interactions and provide the most productive virtual meeting environments, organizations are increasingly demanding solutions that tightly integrate voice conferencing, Web conferencing, and videoconferencing and that provide smooth access to rich-media communications from collaborative applications and IP telephony systems and devices.



Cisco offers a complete suite of rich-media communications solutions that make remote meetings as natural and effective as face-to-face meetings. Cisco offers conferencing solutions for voice, Web, and video, including Cisco MeetingPlace, Cisco Conference Connection, and Cisco IP/VC Videoconferencing. Cisco rich-media conferencing and communications solutions use the power of a converged network and integrate with Cisco CallManager and Cisco IP phones to deliver robust, feature-rich communications across the enterprise.

Cisco MeetingPlace is an enterprise voice and Web conferencing solution that integrates with an organization's internal voice (IP and TDM) and data networks and collaborative applications. Cisco MeetingPlace improves communications and productivity by enabling employees, partners, and customers to easily meet using only a Web browser and a phone. Deployed on-net, behind the corporate firewall and incorporating advanced security, Cisco MeetingPlace provides a highly secure conferencing environment that works with—not around—corporate network security policies. Cisco MeetingPlace also provides significant cost savings relative to traditional conferencing services, by using the corporate network to eliminate transport toll charges and recurring conferencing charges.

Cisco MeetingPlace improves collaboration efficiency and the overall conferencing experience through tightly integrating voice and Web conferencing and providing convenient desktop integration. Setting up, attending, managing, and reviewing meetings is both easy and effective with intuitive Cisco IP phones, presence/instant messaging, a Web browser, and Microsoft Outlook and Lotus Notes calendar interfaces. Cisco MeetingPlace employs carrier-grade hardware and advanced system software to deliver a highly reliable conferencing solution that scales easily and flexibly to meet the needs of the largest enterprises. Cisco MeetingPlace integrates directly with Cisco CallManager via H.323 and Session Initiation Protocol (SIP), as well as with traditional TDM environments, to enable a consistent experience for all users as companies migrate to converged network environments. Cisco MeetingPlace is available as a customer-owned and managed solution or as an outsourced service, and can be easily customized to allow enterprises to meet their unique needs. Cisco MeetingPlace has become a standard productivity tool within midsize and large enterprises, with many customers conducting thousands of meetings every business day.



The latest offering of Cisco MeetingPlace, version 5.3, makes videoconferencing simple and effective. In a single step from a calendar, Web browser, or IM client, users can setup or attend integrated voice, video and Web conferences. Cisco MeetingPlace 5.3 integrates business quality video—using Cisco IP/VC, Cisco VT Advantage, and standards-based H.323/H.320 end-points—with voice and Web conferencing, and provides a single browser interface for total meeting control.

Cisco IP/VC products, and the solutions they enable, are developed for organizations that want a reliable, easy-to-manage, cost-effective network infrastructure for videoconferencing applications.

The Cisco IP/VC product family enables videoconferencing over IP networks and integrates legacy H.320 systems—protecting customers' investments in videoconferencing systems. Cisco IP/VC Videoconferencing solutions encompass several stackable products, including multipoint conference units that enable interactive collaboration between three or more endpoints, gateways that provide connectivity between networks of IP-based H.323 endpoints and ISDN-based H.320 videoconferencing systems, and video terminal adapters that connect single H.320 systems to IP networks.

Cisco IP/VC videoconferencing solutions can be deployed anytime, anywhere—from desktop to conference room, from classroom to physician’s office. They enable internal and external communications as reliably and robustly as the telephone on the desktop. Video enables people around the world to communicate as if they were in the same room, and significantly enhances the effectiveness of corporate training and meetings by giving interactions a human touch. Educational institutions can disseminate knowledge through an interactive forum that incorporates students outside the traditional classroom, creating a virtual “campus without walls.” Doctors can consult specialists from any part of the world to provide the best patient care while controlling communications costs.

Cisco Conference Connection gives enterprises a robust and scalable IP-based audioconferencing solution that integrates with Cisco CallManager. Cisco Conference Connection allows organizations to bring geographically dispersed people together into a single conference, to facilitate discussions, ideas, and decision-making. Cisco Conference Connection helps organizations eliminate costs associated with expensive conferencing services from service providers, as well as travel time and costs.

Cisco Conference Connection provides scalability and flexibility, simplified administration, lower cost of ownership, and interoperability between existing TDM and IP Communications systems and the PSTN. The solution also offers increased security for conferences with sensitive and confidential information.



#### **CISCO RICH-MEDIA CONFERENCING PRODUCTS**

- Cisco MeetingPlace
- Cisco IP/VC Videoconferencing Series
- Cisco Conference Connection
- Cisco Multimedia Conference Manager

For more information about Cisco Voice and Web Conferencing, visit:  
<http://www.cisco.com/go/meetingplace>

For more information about Cisco IP Video Conferencing, visit:  
<http://www.cisco.com/en/US/products/hw/video/ps1870/index.html>

For more information about Cisco IP Audio Conferencing, visit:  
<http://www.cisco.com/en/US/products/sw/voicesw/ps752/index.html>

For more information about Cisco Multimedia Conference Manager, visit:  
<http://www.cisco.com/en/US/products/sw/voicesw/ps4139/index.html>



#### **CISCO VIDEO TELEPHONY SOLUTION**

Video telephony is now just a phone call. The Cisco Video Telephony solution uses the same IP network that carries a company’s data and voice communications, enabling real-time video communications and collaboration while protecting customer investments. The solution not only enables real-time, person-to-person video sessions to be added transparently to telephone calls and conferences, but also allows telephony to be added to videoconferencing room systems. The Cisco Video Telephony Solution provides all the features of the PBX system. Call features like call forward, transfer, conference, hold, and mute are now available with video.

Cisco’s forward-looking transition from TDM to IP-based PBX systems makes it easy for customers to adopt Cisco CallManager and other related IP video telephony technologies. Instead of functioning as a standalone system with separate endpoints, administrative systems, and dial plans, the Cisco Video Telephony solution uses the customer’s existing IP network, making it simple to deploy and use the technology. Cisco provides a cohesive system for video communications; other vendors have video endpoints, but Cisco presents a complete solution that complements and extends today’s networks and conferencing investments.

Cisco CallManager Version 4.0 provides not only video telephony capabilities to Cisco IP Communications endpoints, but also IP-based video endpoints from Cisco AVVID partners, allowing customers to preserve and enhance their expensive videoconferencing equipment without requiring a complete upgrade to new equipment. Both audio and video calls can be made to and from endpoints, increasing call completion rates, and, in turn, productivity.

Cisco VT Advantage brings video telephony features to Cisco IP phones, providing Cisco IP Phone users with the ability to add video to the communications experience. Cisco VT Advantage application software coupled with a Cisco Universal Serial Bus (USB) camera allows a PC co-located with a Cisco IP Phone to easily add video to phone calls. When registered to Cisco CallManager, the Cisco VT Advantage-enabled IP phone has the features and capabilities of a full-featured IP videophone. With Cisco VT Advantage, call features like call forward, transfer, conference, hold, and mute are now available with video, and are all easily initiated through the Cisco IP phone.

### **CISCO VIDEO TELEPHONY PRODUCTS**

- Cisco CallManager Version 4.0
- Cisco VT Advantage

For more information about Cisco Video Telephony products, visit:  
<http://www.cisco.com/en/US/products/sw/voicesw/ps5662/index.html>

### **CISCO IP VIDEO BROADCASTING**

As companies become more global, organizations are challenged to communicate effectively and efficiently across dispersed geographic regions. Successful companies recognize that real-time, consistent, and powerful communications with employees throughout the organization is critical. A truly optimized workforce has the right information at the right time, and the ability to act on that information and be accountable for it. Developing workforce competencies and accelerating the speed at which they are acquired is the key to survival and growth.

For live and on-demand video events, Cisco offers customers the Cisco Business Video solution, based on Cisco Application and Content Networking System (ACNS) technology, and the Cisco IP/TV<sup>®</sup> solution for live MPEG broadcasting. These solutions make it easy for organizations of all sizes to create and deliver multicast and unicast video for executive communications, e-learning, and general information sharing across the enterprise.

These products are ideal for audiences that require a lower level of interaction than more collaborative video/audio conferences, and provide anytime, anywhere access to video content with optimal network utilization.



### **CISCO ACNS AND IP/TV PRODUCTS**

- Cisco Content Distribution Manager
- Cisco content engine appliances or network modules for Cisco access routers
- Cisco IP/TV Broadcast Server
- Cisco IP/TV Program Manager

For more information about the Cisco Business Video solution, Cisco ACNS, and the Cisco IP/TV solution, visit:  
<http://www.cisco.com/go/content> and <http://www.cisco.com/go/video>

## CISCO CUSTOMER CONTACT SOLUTIONS

Organizations continue to seek newer and more cost-effective ways to increase the speed and responsiveness of their customer care organizations. With wide consumer acceptance of the Internet and real-time messaging, businesses must respond to consumer requests across several channels—from voice to collaborative Web browsing to Web chat to e-mail.

Businesses are also interested in new virtual customer service capabilities that enable remote agents to be easily incorporated into the contact center network. Regardless of location, from home or a branch office, access to remote agents reduces the cost of doing business and enables access to specialized expertise.

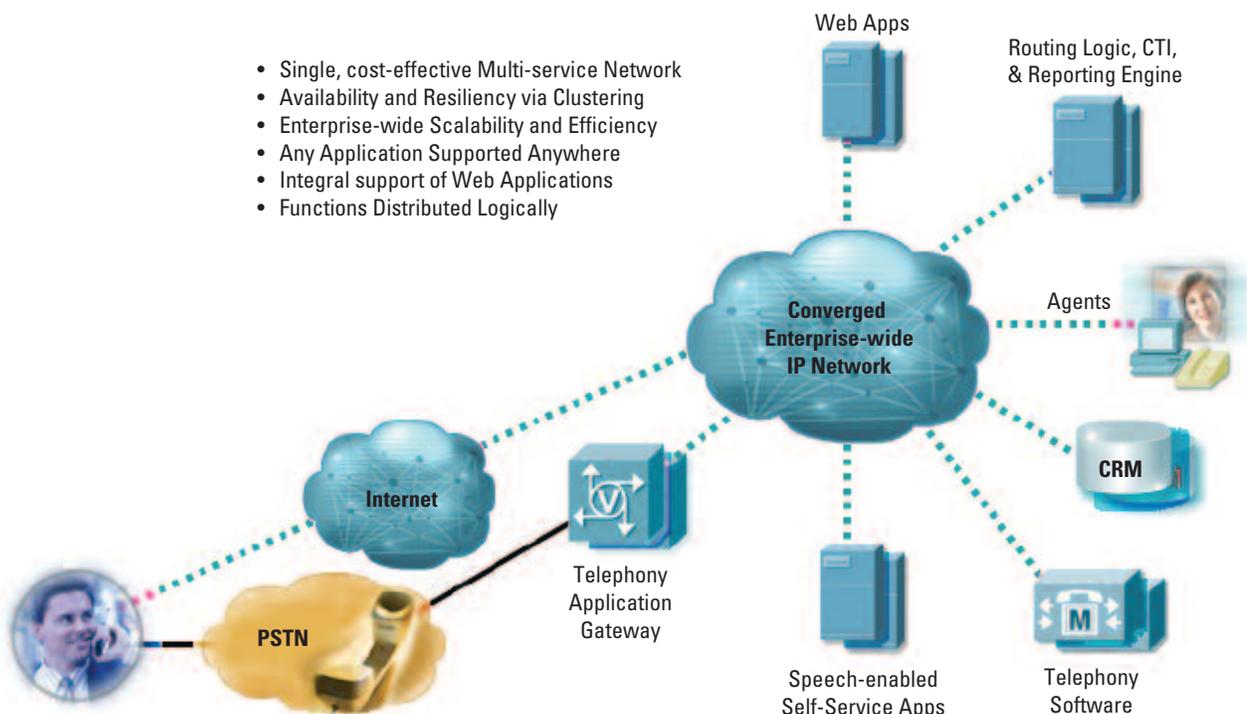
Leading businesses are also considering the dramatic benefits of open standards in the new customer contact environment. Through easy application integration, agents have greater opportunities for real-time exchanges with customers. This leads to quick, effective resolution to problems or opportunities to suggest add-on sales—creating closer connections with customers and building customer loyalty.

### Customer Interaction Networks and Customer Contact Solutions

Cisco Customer Contact solutions are defining the next chapter in customer service—the Customer Interaction Network. The Customer Interaction Network is a combination of strategy and architecture that empowers efficient and effective customer communications across an enterprise-wide, globally capable, highly available, distributed network that can deliver any application to any resource, in any medium, anywhere. It offers superior flexibility by enabling organizations to draw from a broader range of resources to service customers, including access to an unlimited pool of agents and multiple channels of communication, including customer self-help tools.

The Customer Interaction Network is responsive to today's Web-savvy customers who have grown accustomed to the immediacy of performing Web searches, sending e-mail, and using instant messaging. These customers are increasingly conducting their service inquiries using the Internet, and have an expectation of rapid response. Whichever way customers choose to contact a business—Web collaboration, e-mail, voice, or text chat—the business can respond quickly in the channels its customers prefer. And the Customer Interaction Network has the intelligence to route customer requests to the proper agent in the proper channel, with the information needed to resolve the customer's request at that moment.

Unlike proprietary traditional automatic call distributor (ACD) systems, Cisco Customer Contact solutions are based on scalable, open systems platforms. Businesses can easily configure the systems with third-party components and back-end systems to create simple or complex customer interactions that deliver tremendous value.



Cisco Customer Contact solutions have the intelligence to queue calls intelligently anywhere in the network, provide speech-enabled self-service, and switch calls anywhere within the Customer Interaction Network using the converged IP network. Once a customer requests a transfer to an agent, Cisco Customer Contact solutions use customer information to add significant value to CRM applications—enabling quick routing of calls according to predefined workflows to the most appropriate agent. When the call arrives, the agent is ready with detailed knowledge of the caller. Customers no longer have to wait in queues for long periods of time, only to be transferred to an agent who then asks the caller to repeat information.

Cisco Customer Contact solutions provide a tremendous breadth of flexible, interoperable, end-to-end product offerings. This enables an organization—large or small, enterprise or service provider—to move at its own pace along a migration path toward a fully converged IP environment with dramatic ROI.

## **CISCO CUSTOMER CONTACT PRODUCTS**

### **Cisco IPCC Product Family**

- Cisco IPCC Express Edition
- Cisco IPCC Hosted Edition
- Cisco IPCC Enterprise Edition
- Cisco Computer Telephony Integration Option
- Cisco Web Collaboration Option
- Cisco E-Mail Manager Option
- Cisco Outbound Option
- Cisco Enterprise Reporting

### **Cisco Intelligent Contact Management (ICM) Product Family**

- Cisco ICM Hosted Edition
- Cisco ICM Enterprise Edition
- Cisco Computer Telephony Integration Option
- Cisco Web Collaboration Option
- Cisco E-Mail Manager Option
- Cisco Outbound Option
- Cisco Enterprise Reporting

### **Cisco Interactive Voice Response Product Family**

- Cisco IP Interactive Voice Response
- Cisco Internet Service Node



For more information about Cisco Contact Center solutions, visit: <http://www.cisco.com/go/cc>

## **THIRD-PARTY XML PRODUCTIVITY APPLICATIONS**

Cisco works with leading-edge companies to provide the broadest selection of innovative third-party IP telephony applications and products to deliver the flexibility and speed necessary for businesses to respond to changing market and competitive requirements. Focused on critical business applications such as messaging, customer care, and workforce optimization, Cisco IP Telephony and IP Communications AVVID technology partners offer solutions for many categories, including IP phone applications. IP phone applications deliver customized content to Cisco IP phones that support Extensible Markup Language (XML), enhancing employee productivity and unleashing the power of intelligent network products.

For more information about third-party productivity applications that enhance Cisco IP Communications solutions, visit: <http://www.cisco.com/go/apps>

## CISCO IP COMMUNICATIONS INFRASTRUCTURE—THE POWER OF CISCO INTELLIGENT INFORMATION NETWORKS AND CISCO AVVID

Cisco is committed to providing intelligent information network systems, designed around products and solutions that are integrated, resilient, and adaptable, so that an organization can maximize its total value of network ownership, adapt more readily to current and future business needs, and be more responsive. Cisco Intelligent Information Networks help to ensure that existing infrastructures are optimized, and that advanced technologies like wireless, IP Communications, and storage can be added effectively and efficiently when the business need arises.

Cisco Intelligent Information Networks enable:

- Critical business assets that are protected through an integrated, multilayer network fabric that enables maximum business productivity
- A resilient, self-optimizing network infrastructure, which creates networks that are not only self-defending, but are also self-protecting and self-healing
- System resources that are effectively allocated to maximize employee productivity through application-aware networks

As a result, the network is enabled as strategic business asset, which enables organizations to create networks that are faster, smarter, and longer-lasting.

Cisco AVVID provides the foundation for Cisco networking solutions at enterprise-level deployments. The architecture creates an infrastructure and environment that is specifically designed to enable powerful converged networking, an environment that can carry any combination of voice, video, and data packets across the same links and through the same devices.

The Cisco AVVID network infrastructure includes public switched telephone network (PSTN) gateways, analog phone support, and digital signal processor (DSP) farms. It can support multiple client types such as hardware phones, software phones, and video devices, and includes the interfaces and features necessary to integrate traditional PBX, voice mail, and directory systems. Typical products used to build the infrastructure include Cisco voice gateways (nonrouting, routing, and integrated), Cisco Catalyst® switches, Cisco routers, and call-processing platforms. High-performance media convergence servers provide reliable, highly available support for Cisco CallManager and other IP telephony software applications. Cisco media convergence servers scale to meet a customer's size, price, and performance needs.

### SECURITY

Cisco is uniquely prepared to help ensure the security and availability of critical IP-based communications systems. The information in voice calls—strategic, personal, or financial—can be proprietary and potentially damaging if interfered with or intercepted. Cisco is an industry leader in network security and has a comprehensive plan for the protection of IP telephony systems. Based on the SAFE Blueprint for IP Telephony, Cisco's integrated, systems-level approach to secure and protect IP voice services provides tools at all levels of the infrastructure and goes far beyond the point product solutions offered by other vendors.

There are three critical components of any successful security system, and Cisco is the only vendor that provides all three components and allows for the integration of these technologies into the fabric of the network:

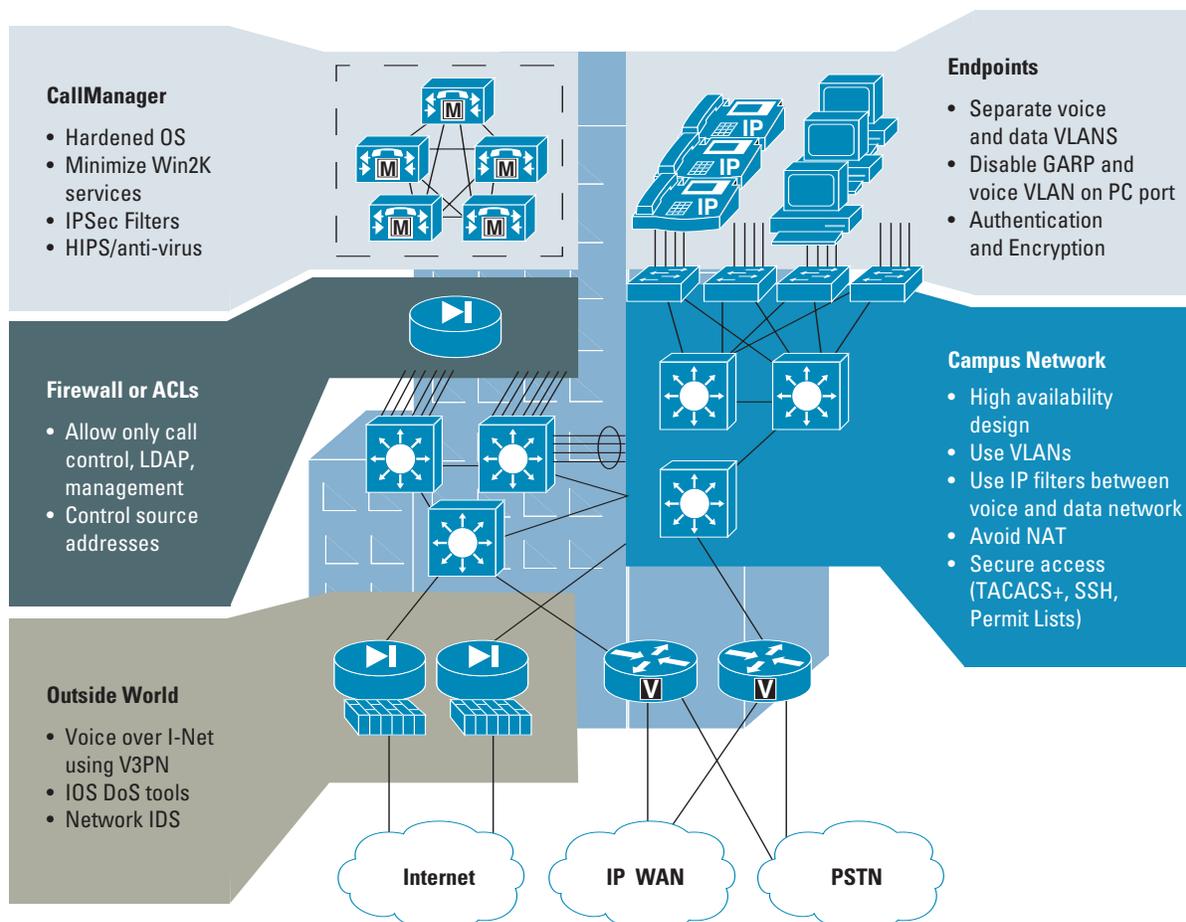
- **Privacy via secure connectivity**—Technologies such as IP Security (IPSec) and Secure Sockets Layer (SSL) VPNs help to ensure secure communications over both the WAN and LAN
- **Protection via threat defense systems**—Technologies such as firewalls and intrusion prevention systems combat threats from both internal and external sources
- **Control via trust and identity systems**—Access control servers and Cisco's Network Admission Control program allow organizations to control access to information, giving the right people the right information at the right time



The Cisco strategy for protecting IP Communications systems is based on concepts that are important to protecting both internal networks and external communications systems. Trust and identity, secure connectivity, and threat defense transcend business boundaries. Cisco continues to offer solutions based on industry standards and to work with other leaders in information security to develop solutions that deliver the greatest possible interoperability between organizations.

Among the capabilities and features Cisco offers are:

- Digital certificates in Cisco IP phones and in Cisco CallManager
- Authenticated and encrypted Transport Layer Security (TLS, or SSL Version 3.0) signaling to avoid man-in-the-middle attacks
- Secure Real-Time Protocol (SRTP) media encryption to prevent eavesdropping
- Improved, hardened operating system for Cisco CallManager
- Integrated Cisco Security Agent (headless) with every Cisco CallManager shipped
- VLAN segmentation, Layer 3 VPN (V3PN), route authentication
- IP source guard; industry-leading firewalls; intrusion detection and intrusion protection systems; and authentication, authorization, and accounting (AAA) tools for the infrastructure
- Protection against Dynamic Host Control Protocol (DHCP) snooping
- Ability to ignore gratuitous Address Resolution Protocol (ARP) and to disable PC access to voice VLAN through the phone
- IPSec encryption to gateways, secure enrollment capability
- H.323/SIP standards-based signaling
- Multilevel administration, certificate trust list
- Toll-fraud mitigation techniques
- The ability to minimize unused services



With these security capabilities and the many other capabilities that Cisco provides, users can protect their IP Communications systems at all levels. The transport infrastructure, the call-control systems, the endpoints, and even the applications can be secured with the broadest range of solutions available anywhere.

A broad, integrated approach is essential to securing both data and voice. While no security program can claim to be completely infallible, careful adherence to the SAFE Blueprint guidelines will make a Cisco IP Communications systems as safe as it can be. Cisco's leadership and expertise in network security solutions make its solutions unique in their ability to protect IP telephony and VoIP.

For more information about Cisco security solutions, visit: <http://www.cisco.com/go/security>

For more information about Cisco IP Communications security solutions, visit: <http://www.cisco.com/go/ipcsecurity>

## ACCESSIBILITY

Cisco is committed to providing accessible and usable solutions to improve the way all people work, live, play, and learn. The Cisco IP Communications platform conforms to Section 508 of the Rehabilitation Act and Section 255 of the Telecommunications Act, which protect the rights of people with disabilities by encouraging organizations and manufacturers to provide telecommunications and IT resources that everyone can use. As a result, Cisco customers are able to fully realize the value of their diverse workforces. As the global leader in network communications, Cisco devotes extensive resources to helping to ensure the accessibility of its IP Communications solutions, including a dedicated accessibility team staffed with experts. And because Cisco is its own most demanding customer, its own employees with disabilities use Cisco products in their daily work, providing immediate, relevant feedback to designers about accessibility and usability. Cisco's commitment to accessibility extends beyond the company walls, as well. Cisco participates actively in standards



committees and industry boards, and collaborates closely with consultants, universities, interest groups, and experts who specialize in accessibility. To better understand the needs and concerns of people with disabilities and to validate its designs, Cisco engages people with disabilities for focus groups and usability studies. Many of their suggestions have become standard features in Cisco IP Communications products.

For more information about the accessibility of Cisco IP Communications solutions, visit: [http://www.cisco.com/wwl/regaffairs/accessibility\\_standards/](http://www.cisco.com/wwl/regaffairs/accessibility_standards/)

## QoS

As a class of IP network traffic, voice has strict requirements concerning packet loss, delay, and delay variation (also known as jitter). To meet these requirements for voice traffic, the Cisco IP Communications system includes QoS features such as classification, queuing, traffic shaping, Compressed Real-Time Transport Protocol (CRTP), and TCP header compression. The QoS components of the Cisco IP Communications system are provided through the rich IP traffic management, queuing, and shaping capabilities of the Cisco AVVID network infrastructure.

Elements of this infrastructure that enable QoS for IP Communications include:

- Traffic marking
- Enhanced queuing services in Cisco Catalyst switches
- Link fragmentation and interleaving (LFI)
- CRTP
- Low-latency queuing (LLQ)
- Link efficiency
- Traffic shaping
- Call admission control



QoS is an end-to-end proposition that requires robust tools to control classification, prioritization, and management of traffic throughout the network infrastructure, not only for voice, video, data, streaming media, and signaling traffic, but also for treatment of all network applications. The tools used to accomplish this include the advanced QoS technologies listed above; Cisco's Modular QoS CLI, AutoQoS, and Network-Based Application Recognition (NBAR) capabilities embedded within Cisco IOS Software; and powerful configuration, provisioning, and network management tools such as QoS Policy Manager (QPM). Cisco's end-to-end support for 802.1p/q VLANs can be used for the separation of traffic, and for identifying trusted and untrusted devices. Advanced buffer management and congestion management features built into Cisco Catalyst switches and routers help to ensure converged network deployments that assure high performance, QoS, scalability, flexibility, and ease of use.

## **MIGRATION AND CO-EXISTENCE**

Deploying IP Communications in an existing site requires a clear migration path from legacy equipment to an IP-based system. Cisco focuses on the end-to-end process of migration to ensure a smooth transition from TDM-based technology, allowing businesses to retire their legacy equipment at the conclusion of the migration. Businesses must consider five important areas while planning a migration:

1. The pace, order and approach to deployment
2. IP infrastructure readiness
3. Feature transparency and interoperability between the IP system and the TDM system
4. Movement of data from legacy components to IP components
5. Business processes and training associated with support of an IP-based communications systems

Cisco and Cisco partners provide a range of tools and services to assist businesses with their deployments. Cisco IP Communications has been designed to interoperate and co-exist with most of the existing TDM voice equipment on the market today. In addition, by taking a systems approach to migration, Cisco customers are better able to move forward more quickly and with less risk, eliminating the reliance on TDM technology and accelerating the benefits of IP.

For more information about migrating from TDM to IP solutions, visit:

<http://www.cisco.com/go/interoperability>

## **NETWORK MANAGEMENT**

Cisco offers numerous network management, QoS, and security management tools that support Cisco IP Communications and the Cisco AVVID network infrastructure. The CiscoWorks product line includes comprehensive network management tools that cover the full life cycle from planning and design through implementation/deployment, operations, and maintenance. These tools are designed to improve productivity and reduce total cost of ownership through automation, integration, and simplification. They are instrumental in the planning and design of IP Communications traffic over the network. Once Cisco IP Communications solutions are deployed, these tools enable customers to consistently, easily, and centrally manage critical network characteristics such as availability, resilience, responsiveness, and security. The primary tools in this suite include the CiscoWorks IP Telephony Environment Monitor, QPM, VPN/Security Management Solution, and the Cisco Network Analysis Module. These tools work in conjunction with Cisco CallManager, which also offers enhanced software and configuration management tools that take advantage of the strength and flexibility of IP networks. The Cisco CallManager user interface simplifies the most common subscriber and telephony configuration tasks by building upon traditional telephony administration systems and adding software and Web-based applications. Having network operations tools working together with telephony administration tools is another Cisco advantage in extending the benefits of a converged network to the effectiveness of the IT operations staff.

For more information about network management solutions for Cisco IP Communications, visit:

<http://www.cisco.com/en/US/products/sw/cscowork/ps2433/index.html>



### **Cisco Technology Developer Partners**

Cisco Technology Developer Partner Program participants are companies that foster innovation, drive industry standards, and accelerate the integration of business-critical technologies into the open-standards-based Cisco network infrastructure.

Cisco Technology Developer partner solutions, developed and tested for interoperability with Cisco network technology, enable customers to:

- Accelerate the deployment of business applications and solutions
- Implement a standards-based, open architecture
- Extend value of their Cisco network infrastructure

Cisco Technology Developer partner solutions use open standards to deliver innovative e-business solutions in several areas, including:

- **Content networking**—Optimizes the delivery and management of e-business applications and services
- **Customer contact**—Enhances customer satisfaction and loyalty through innovative customer care solutions
- **IP telephony**—Enables advanced call processing, collaboration, and customer interaction
- **IP videoconferencing**—Provides live videoconferencing collaboration between desktops and conference room systems
- **Network and service management**—Delivers tools and applications that enable the deployment of management intranets
- **Security and VPN**—Offers complete security and protection for networks
- **Storage networking**—Enables the consolidation, access, and sharing of storage over IP, Gigabit Ethernet, Fibre Channel, and optical networks
- **Video networking**—Extends business value with networked video solutions
- **Wireless networking**—Increases productivity and reduces costs by integrating secure and scalable wireless networking infrastructure

For more information about the Cisco Technology Developer Partner Program and its members, visit:

[http://www.cisco.com/en/US/partners/pr46/pr13/partners\\_pgm\\_concept\\_home.shtml](http://www.cisco.com/en/US/partners/pr46/pr13/partners_pgm_concept_home.shtml)

### **CISCO ECOSYSTEM OF PARTNERS**

Cisco understands the challenges of growing a business and managing a network. The Cisco ecosystem of certified partners can help ensure that organizations get the expertise needed to future-proof their efforts. Cisco strategic business, reseller, and service provider partners can help organizations effectively assess business needs, design the right solution, and facilitate implementation and maintenance to help ensure network availability.

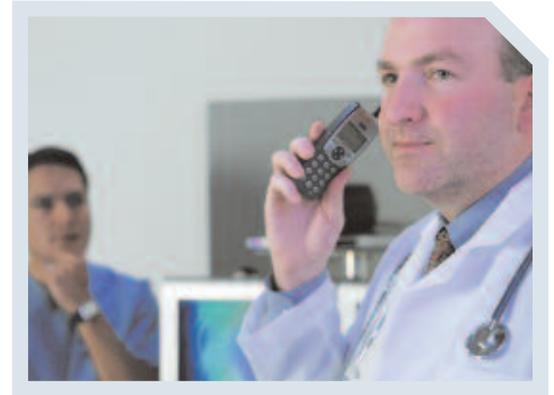
For more information about Cisco partners, visit: <http://www.cisco.com/en/US/partners/index.html>

### **MEASURABLE ROI**

Organizations that deploy a Cisco IP Communications system realize a measurable ROI, as proven in real customer deployments. For example, enterprises save a significant amount for interoffice calls, especially between international locations. One major U.S. city realized a \$5 million savings per year in voice circuit costs. Ingersoll-Rand saw savings in monthly telecommunications spending averaging 43 percent, and expected to realize a 10-month ROI.

Enterprises can also save money through reduced equipment and maintenance costs. SouthTrust Bank replaced 700 PBX and key systems with a Cisco IP Communications solution and is saving millions of dollars in telephony costs annually, while gaining more features and capabilities with the new system. Florida International University has extended IP telephony to 4700 users in 58 buildings and is already saving \$1.12 million annually in communications and administration costs. Cisco itself saved \$1.5 million on wiring costs across six new facilities, because the phone and PC share the same Ethernet port at each desktop. Swiss insurance group Helvetia Patria found the overall operating costs for a Cisco IP Communications solution to be 40 percent less annually than for its legacy PBX system.

Cisco IP Communications solutions can also reduce network administration costs by improving the productivity of network support staff. Cray Inc. increased its productivity by 33 percent just by converging its network. The Ministry of Social Development in New Zealand added 2500 users without increasing the size of its network staff. Savings in moves, adds, and changes can save a typical enterprise \$105 per move. The State University of New York (SUNY) at Cortland is saving approximately 750 hours per year in staff time and \$100,000 per year in expenses by being able to do its own moves, adds and changes for phones and voice mailboxes. The Polish Border Guard has seen more than 800 employees become able to be shifted from routine network maintenance to new roles, saving them considerable costs.



The enhanced mobility features of a converged network allow customer contact agents to be located at remote sites. This setup can reduce overall labor costs and increase employee quality by allowing organizations to recruit on a regional, national, or even international basis, rather than within one market. This can have a positive impact on customer satisfaction—organizations can establish contact centers in other countries and route customers to agents that speak their native languages. Texas Health and Human Services was able to unify 25 disparate call centers into a virtual customer interaction network with their new Texas 2-1-1 initiative, and is saving \$400,000 per year over the cost of a traditional call-center application, as well as being able to save additional money (and improve customer satisfaction) by reducing the need for full-time multilingual staff at all 25 facilities. Samsung Life Insurance in Korea has seen a 20 percent reduction in operational costs and a 20 percent increase in agent productivity, as well as increased customer and employee satisfaction, and the ability to easily handle more than three times its normal call volume.

Additionally, increased mobility enables organizations like NFL Films—who often need to rapidly deploy mobile offices with the same capabilities as the headquarters location—to do so easily, cost-effectively, and with no loss of function. NFL Films has been able to cut its virtual office “go live” time at the Super Bowl in half, due to the Cisco IP Communications solution.

Although unified messaging technology has existed for more than five years—demonstrating tangible productivity benefits along the way—it is still a relatively undiscovered technology. A converged network provides the necessary platform to make unified messaging a reality for many organizations. Employees can easily access their e-mail, voice, and fax messages from wherever they are, and can respond to time-sensitive items quickly. A study done by The Radicati Group, Inc. found that unified messaging systems generate 25 to 40 minutes of additional productivity per employee per day and can reduce IT support and administrative costs up to 70 percent. NFL Films estimates that unified messaging is saving their workers roughly an hour per day by eliminating all of the steps previously required to access messages. Ingersoll-Rand has also seen dramatic productivity gains and business process improvements as a result of unified messaging, and speculates that if company users were asked now if they could do their jobs without the technology, that the majority of them would say no.

A converged network puts the power of videoconferencing and video telephony into everyone’s hands by providing companies with a more cost-effective model that is also easy to deploy. The primary benefit of videoconferencing and video telephony—in which video is simply part of every phone call—is its ability to save on travel costs, minimize downtime due to travel, and provide a richer, real-time, face-to-face form of communication between people at different locations. Minnesota Rubber has saved the costs of nine channels of video on ISDN by deploying video on its data network. The company has seen its video quality improve, and has seen a positive impact on its overall communications and productivity.

IP Communications enables employees to be as productive out of the office as they are when in the office. Solutions like IP telephony, unified messaging, customer contact, and IP video provide an ideal foundation to support today’s increasingly mobile workforce. This is especially important for salespeople, executives, consultants, telecommuters, and computer technicians who spend much of their time away from their offices, but still need access to the same network capabilities and applications regardless of location.

For more examples of customers using Cisco IP Communications solutions, visit:

[http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/networking\\_solutions\\_customer\\_success\\_stories\\_list.html](http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/networking_solutions_customer_success_stories_list.html) and <http://newsroom.cisco.com/dlls/innovators/VoIP/index.html>

## CISCO SERVICE AND SUPPORT

Cisco IP Communications services and support reduce the cost, time, and complexity associated with implementing and maintaining a converged network. Through the Cisco Technology Application Services (TAS) and Partner Consultative Support (PCS) programs, Cisco and its partners have designed and deployed some of today's largest and most complex IP Communications networks. They understand how to integrate an IP Communications solution into virtually any network.

Cisco design tools and best practices help to ensure that solution best fits customers' business needs from the start, eliminating costly redesigns and downtime. Cisco proven methods help to ensure a sound implementation that delivers the right functions and features—on time. Support services include the Cisco Technical Assistance Center (TAC), software updates and upgrades, hardware replacement, and access to Cisco online tools and resources. In addition to these core services, remote network operations and network management tools to administer the converged application and network infrastructure are also available.

Through these services, organizations benefit from the experience gained by Cisco and its partners. Taking advantage of these valuable services, organizations can create and maintain a resilient, converged network that will meet their business needs today—and in the future.

For more information about Cisco IP Communications support services, visit: [www.cisco.com/go/ipcservices](http://www.cisco.com/go/ipcservices)

## FINANCING OPTIONS

Cisco Financing solutions enable today's organizations to make the most of their resources to compete successfully in an increasingly competitive business world. Companies must do more with less, ensure that their technology is up-to-date, and safeguard their capital expenditure budgets. Cisco Systems Capital Corporation—a wholly owned subsidiary of Cisco Systems—has expert financial consultants who can help meet organizations' financial needs, and who specialize in financing networks by providing innovative, flexible, and worldwide financial services to Cisco customers and channel partners alike. Cisco offers leasing options that enable customers to implement a Cisco solution quickly and easily, while safeguarding a capital expenditures budget. In addition to protecting networks from technological obsolescence, leasing Cisco solutions gives customers the flexibility to use revenue derived from enhanced network performance to pay for their equipment.



For more information about Cisco Systems Capital® financing solutions, visit: [http://www.cisco.com/en/US/ordering/or6/order\\_finance\\_and\\_payments\\_concept\\_home.html](http://www.cisco.com/en/US/ordering/or6/order_finance_and_payments_concept_home.html)



## **CISCO—THE BUSINESS COMMUNICATIONS PARTNER**

Organizations cannot afford to ignore the realities of the marketplace. Losing productivity, skilled employees, or valued customers is not an option for companies that wish to succeed in today's increasingly competitive, highly demanding business environment. Additionally, organizations need to be provided with options to enable them to preserve investments in their data infrastructure and business applications.

It is imperative that companies deploy solutions that help bolster and maintain productivity gains. Organizations can improve staff retention by implementing value-added services on an enterprise-wide, instead of a site-by-site, basis, services that help create an effective, empowered work environment. A dedicated, collaborative workforce can also help ensure customer satisfaction and enhance loyalty. All this adds up to measurable ROI a company can count on.

When it comes to networks—be they data, voice, or video—no one does it better than Cisco Systems. Cisco IP Communications solutions deliver proven, measurable ROI by using a single, converged network, improving organizational and employee productivity, and enhancing customer service capabilities.

With Cisco IP Communications, enterprises can be assured that they are investing in a scalable, open, and fully integrated architecture enabled by Cisco AVVID that provides the flexibility of a comprehensive solutions portfolio that interoperates with existing technology.

In the world of business communications, Cisco is the undisputed leader, with more than half of the Fortune 500 relying on Cisco for their IP Communications solutions. Let Cisco be your business communications partner, and put the Cisco expertise to work for you.

For more information about Cisco IP Communications, visit: <http://www.cisco.com/go/ipc>

## CISCO SYSTEMS



### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

### European Headquarters

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

### Asia Pacific Headquarters

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the **Cisco.com Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).**

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