

Empowering Small and Field Offices with IP Communications

Extending All-in-One Cisco IP Communications Solutions to Employees at Small and Medium-Size Businesses

Introduction

Facing stiff competition and a slow economy, today's small and medium-size businesses are striving to maximize workforce productivity. Networked applications and communication tools have already helped many companies generate more value from existing resources and staff members. But extending these productivity gains to employees in small and remote offices has proven more difficult.

Although many companies have improved their delivery of data services to small-office workers, voice services still lag far behind, and most companies are still using traditional key systems. These systems are often inflexible and can be expensive to maintain. The productivity of workers at small offices and remote sites might also suffer if they don't have full access to the features and dialing plan of the phone system at the main business office. Large companies have addressed these issues by extending full-service telephony over the IP data network. Until recently, however, this has not been a cost-effective option for small and midsize companies.

Now, a new generation of IP-enabled voice solutions is available to small and medium-size businesses. These solutions combine voice, data, and other critical

network services into a single, manageable platform ideal for a business with small offices or branch deployments. Thanks to these solutions, even small companies can now realize the benefits of IP communications: streamlined voice system management, lower total cost of network ownership, and dramatically improved productivity of small-office and remote-office workers.

Workers on the Front Lines

Today's small and medium-size businesses are more dispersed than ever before, and many employees work in branch offices. According to Reed Electronics Group's networking quarterly In-Stat MDR, 60 percent of the workforce in the United States works from a remote location. In many cases, these remote employees are the primary point of contact for customers—managing client relationships, working with local customers, and driving sales. And yet too often these employees have the fewest telephony resources in the business.

Remote-office voice systems are often surprisingly primitive. Many branch-office employees don't even have basic phone features such as call forwarding, voice mail, or online employee directories. These workers must rely on handwritten



messages—if the office has a receptionist to write them down—and waste valuable time trying to reach colleagues and customers. Such conditions would not be tolerated at the main company office, and they are equally unacceptable at remote sites. Field-office employees are more likely to be out working with customers than their counterparts at the main business office, making them heavily reliant on voice mail, call forwarding, and other telephony features. Without them, worker productivity and customer service both suffer.

Limits of Older Phone Systems

Productivity and customer service aren't the only problems inherent in traditional private branch exchange (PBX) or key telephone system (KTS) technology. The cost and complexity of managing these remote systems can also be substantial.

Companies often rely on disparate key systems at multiple sites and have no centralized template for how voice systems work. To support and manage these services, organizations must either train telecommunications staff members how to use each system or rely on expensive local service providers. When a problem arises with a remote phone system, telecommunications staff members must work with multiple voice service and PBX/KTS vendors just to identify the issue. Repairs can cost \$150 per hour or more, including travel time to reach rural or satellite offices.

The cost of ongoing maintenance is even higher. In addition to leasing traditional switches and public switched telephone network (PSTN) trunking equipment, companies must also shoulder monthly service fees for local vendors to manage each remote phone system. According to a 2003 Yankee Group survey, many companies see these fees increase by 15 to 20 percent each year. In addition, basic operations such as phone moves, adds, and changes are anything but simple (or quick) when branch offices use proprietary PBX/KTS systems.

Need for Business Agility

To succeed in today's economic environment, companies must be agile enough to respond rapidly to changing business conditions. That means being able to make changes quickly at physical sites, restructure departments, and freely move employees as needed. However, traditional small-office and branch-office key systems can make this agility hard to achieve.

With many conventional voice systems, adding new, productivity-enhancing features is extremely expensive, if it is possible at all. Simply adding additional lines for a growing office can cost tens of thousands of dollars when companies have to purchase proprietary PBX/KTS extensions. And because PBX/KTS leases are usually long-term commitments, companies are locked into these inefficient, inflexible systems for years.

A lack of phone system consistency and scalability also means that it takes longer to deploy new offices, impeding a company's ability to expand. Workers who move from site to site must learn a new phone system at each location. Organizations operating multiple proprietary phone systems also find it difficult to plan accurately for future costs.

IP Communications for Small Offices and Branch Offices

For companies struggling with these issues, IP communications presents a compelling telephony alternative. By delivering both voice and data services over a single network architecture, companies can eliminate the cost and complexity of distributed PBX/KTS phone systems and give remote workers the modern telephony features they need. However, until recently, the cost and scale of IP communications solutions placed them out of reach of most small and medium-size businesses.



Now, a new generation of converged network technologies is available to these organizations. Platforms such as Cisco Systems® access routers can deliver the complete range of services and productivity features that workers require, in a form factor specifically designed for small offices and remote sites. Supporting data, voice, video, security, and remote connectivity with a single, integrated router, these all-in-one solutions offer a cost-effective platform for extending consistent, manageable network services to their small-office and branch-office workers.

One of the many features of the Cisco® access router is IP-enabled voice services, through Cisco CallManager Express for call processing and Cisco Unity™ Express for voice-mail services. Delivering high-quality voice and productivity features, streamlined management, and lower total cost of network ownership, the solution is ideal for optimizing telephony systems at small or remote offices.

Cisco CallManager Express

Cisco CallManager Express provides a cost-effective, entry-level IP telephony solution for small offices and branch offices that employ as many as 100 workers. Essentially a scaled-down version of the premier Cisco CallManager IP communications platform, Cisco CallManager Express enables companies to give workers the phone system features they need—like basic voice mail, intercom, and auto-attendant functions—without paying for large enterprise features they don't need.

Organizations that support small-office data systems with Cisco access routers, such as the Cisco 2691 or the Cisco 2600XM or Cisco 3700 series, need only add a voice module to transform the router into an all-in-one voice and data gateway. CallManager Express operates within the router's existing Cisco IOS® Software, using advanced quality-of-service (QoS) technology to provide intelligent call processing for all locally attached IP phones without any additional hardware. The solution supports all common digital and analog PSTN interfaces, including Foreign Exchange Office (FXO) with loop or ground start, direct inward dialing (DID), Foreign Exchange Station (FXS), T1, E1, Basic Rate Interface (BRI), and Primary Rate Interface (PRI).

State-of-the-Art Business Phones

As the single point of contact between workers and the office telephony system, IP phones play a critical role in delivering productivity gains to users. Modern IP phones are much more intelligent and intuitive than traditional business phones, offering display-based access to phone features, directories, online help, and customization options.

To support the Cisco CallManager Express solution, Cisco IP Phones can accommodate any business need. Simple, single-line display phones like the Cisco IP Phone 7912G provide basic business functions, and the full-featured Cisco IP Phone 7960G can support multiple phone lines, attendant features, and an easy-to-use graphical interface. Mobile employees at the site can receive calls on the wireless 802.11b-enabled Cisco IP Phone 7920G.

Unlike traditional PBX/KTS phone systems, Cisco IP Phones also offer native support for Extensible Markup Language (XML) applications, giving businesses a powerful new tool for communicating with remote workers. These solutions let companies broadcast instant information to all users with the Cisco IP Phones' graphical display. Companies can extend corporate messages, policies, product promotions, financial data, conversion rates, and other useful information to small or remote locations and reach even those workers who don't have PCs.



Branch-Office Voice Mail—Cisco Unity Express

As the preferred voice-mail component for Cisco CallManager Express, Cisco Unity Express integrates easily with CallManager Express and provides local support for as many as 100 mailboxes with 100 hours of message storage. Businesses simply add a Cisco Unity Express network module to the Cisco access router, enabling a complete small-office voice solution with all message storage and connectivity managed in a single integrated platform.

Cisco Unity Express offers workers a range of voice-mail and auto-attendant features specially designed for the small office, including:

- General delivery mailboxes accessible to an entire group of employees, such as a sales or customer service group
- Multiple greeting options
- Message playback controls
- Message tagging for private or urgent messages
- Message editing, allowing callers to listen to a message and rerecord it if desired
- Local name confirmation when sending internal messages
- Non-delivery notification
- Basic auto-attendant features, including customizable welcome greetings
- User directory accessible via name or extension number
- Ability to transfer to the auto-attendant after leaving a message

Businesses can license the solution with 12, 25, 50, or 100 mailboxes to meet the needs of any office environment. The software-based mailbox platform allows companies to add more mailboxes as the office grows simply by expanding the license. And because Cisco Unity Express is integrated into Cisco IOS Software, IT staff members can configure and manage these services using a Web-based graphical user interface (GUI) or the Cisco IOS Software command-line interface (CLI) that they are already familiar with.

Additional Voice-Mail Options

Although Cisco Unity Express is the preferred voice-mail application, CallManager Express can also support the full-featured Cisco Unity application as well as other third-party voice mail systems.

The Cisco Unity Unified Messaging solution offers organizations the ability to centralize voice mail, e-mail, and faxes into a single Microsoft Exchange or Lotus Notes inbox. Users can access any message type from a telephone, a desktop PC, or the Web. Cisco Unity provides more sophisticated voice-mail and auto-attendant features than Cisco Unity Express and can support several hundred to several thousand mailboxes. The solution can be deployed in a central location to serve multiple Cisco CallManager Express locations.

Value at Small or Remote Offices

Once an IP telephony solution is in place, workers at small or remote offices—and their customers—can immediately begin to benefit from improved productivity and communications. And by delivering telephony, voice-mail, and data services over a single router, companies reduce network complexity and costs and provide a more flexible foundation for the future.



Enhancing Worker Productivity

Employees can save hours each week by using voice-mail, intercom, and auto-attendant features. According to a 2003 Sage Research survey of 100 companies using IP communications solutions, 48 percent reported improved productivity of branch-office employees within six months of deployment. These companies realized an average time savings of 4.3 hours per employee per week—almost a full month of recovered productive time per year. Half of the companies surveyed also reported fewer repeated messages, or “telephone tag,” for employees using the solution; many employees saved as much as three hours per week, or 150 hours per year. With the average U.S. worker earning about \$35 per hour, an office with 25 employees can recover more than \$130,000 in productive work time annually.

Converged Voice and Data Applications

Once the basic IP communications architecture is in place, businesses can also add converged voice and data applications that further enhance the productivity of small-office workers. Web-based XML applications can extend a variety of information and services to employees. Using Telephony Application Programming Interface (TAPI), businesses can deploy intelligent telephony applications that let workers dial Microsoft Outlook contacts simply by clicking an icon. All of these solutions are now available to small and medium-size businesses, but none is possible with a traditional small-office or branch-office telephony system.

Reducing Network Costs and Administration

By consolidating voice and data services into a single network using an all-in-one router solution, companies can simplify the network architecture and reduce back-office administration. The result is more effective network services and lower total cost of network ownership.

A converged voice and data network is inherently less expensive than operating two separate systems because it allows companies to eliminate ongoing PBX/KTS lease and maintenance costs and manage all data and communications services with a single IT staff. Businesses using Cisco CallManager Express can realize even further savings. Because all voice services are managed through the router’s familiar Cisco IOS Software CLI, IT staff members require little additional training to manage the voice system. Because Cisco CallManager Express with Cisco Unity Express is based on Cisco IOS Software, the solution does not require a separate server. Installation can be done very quickly and at a fraction of the cost of a server-based IP communications solution.

All Cisco access routers are also rack-mountable and take up much less space than traditional PBX/KTS systems, enabling companies to reduce the office floor space devoted to communications equipment and cut communication room cooling costs.

Simplified Phone System Maintenance

IT departments can save valuable hours by distributing basic telephony maintenance to users. Instead of calling the company’s main office or a local service provider when changing offices, remote workers can simply take their Cisco IP Phones with them and plug them into any open Ethernet port. The network automatically recognizes the unique user and updates call routing lists with no administrative effort required. Sage Research reports that 72 percent of companies using IP communications enjoy faster moves, adds, and changes; on average, companies save an hour and a half per event.



IT staff members spend less time setting up phone features because users can configure features such as speed dial themselves with an easy-to-use, Web GUI. In addition, most Cisco IP Phones use intuitive soft keys that perform multiple functions depending on what the user is doing. Cisco IP Phones also eliminate the need for traditional paper phone labels that must be frequently updated and reprinted for every move or personnel change.

When companies can manage Cisco IOS Software-based remote office voice systems internally, they also eliminate dependence on third-party vendors. If an issue arises, companies operating a converged voice and data network need contact only one provider. Problems can be documented better and resolved more quickly and at less cost.

Equipment Standardization

With an all-in-one voice and data solution, companies can standardize small-office and branch-office voice and data platforms, enabling easier central management and faster deployment of new locations with a smaller staff. Maintaining consistent equipment at all remote sites makes it easier to track and resolve network issues and enables more accurate cost planning for new and existing offices.

Cisco CallManager Express offers scripting options that allow a central IT staff to deploy and manage multiple sites simultaneously and identically. According to Sage Research, 86 percent of companies polled stated that this type of branch-office standardization was the best way to reduce total cost of network ownership.

Voice over IP

Companies with multiple offices can also use Cisco CallManager Express as a foundation for toll-bypass voice-over-IP (VoIP) service. By deploying Cisco CallManager Express at each location, companies can move interoffice calls to the company WAN, eliminating toll charges for site-to-site phone calls. Once such an architecture is in place, companies can also use a common dial plan between all offices, allowing remote workers to dial employees anywhere on the WAN with a simple office extension instead of requiring them to remember long, 10-digit phone numbers.

Cisco CallManager Express also gives businesses the freedom to choose the most effective method for deploying company-wide phone services. If the company WAN does not provide the QoS necessary to support voice services, site-to-site voice traffic can also be directed to the PSTN.

Complete Investment Protection

Businesses adopting a Cisco small-office IP communications solution need not worry about whether the solution will grow with the company. IP communications platforms based on the Cisco access router offer a level of built-in scalability unique in the business networking industry. With Cisco CallManager Express, companies can upgrade to a centralized, full-featured Cisco CallManager solution down the road and continue to use all existing Cisco IP Phones, analog phones, PSTN connectivity voice modules, data switches, and Cisco IOS Software licenses.

When companies move to a centralized Cisco CallManager solution using Cisco Media Convergence Servers, Cisco remote-office access routers become high-availability gateways as part of the Cisco Survivable Remote Site Telephony (SRST) system. Instead of investing in new equipment to provide around-the-clock availability, companies can use their existing Cisco remote office routers to ensure that phone service continues even if connections to the company WAN go down. In addition, when companies upgrade to a centralized Cisco Unity Unified Messaging or voice-mail system, the system interface for users remains basically the same, and little or no retraining is required.



Cisco access routers also support full services for advanced video, security, and VPN capabilities, providing a robust, versatile foundation for adding new applications and services as businesses evolve.

Cisco Partnerships, Service, and Support

For the best results, small and midsize businesses considering a small-office IP communications solution should work with a Cisco certified partner. These experienced resellers have extensive training and familiarity with business networks and Cisco IP Communications systems.

Cisco also offers customers a broad range of service options for supporting converged networks. These services include:

- *Technology and service specialized partners*—Cisco trains specialized technology partners to provide presales, basic deployment, and post-sales operational support.
- *Cisco direct and partner-enabling services*—Cisco SMARTnet[®] technical support services augment the resources of operations staff members by giving them access to a wealth of expertise, both online and via telephone. These services include the ability to refresh system software at will and a range of hardware Advance Replacement options to respond quickly to any device failure. Cisco SMARTnet Onsite incorporates these services, as well as complementing the hardware Advance Replacement feature with the services of a Cisco field engineer. This feature can be critical for locations where staffing is insufficient or unavailable to replace parts.
- *Advanced service*—Cisco Total Implementation Solutions (TIS) offer a full range of implementation services, including project management; project engineering, configuration, staging, and rollout coordination; and installation and deployment.

Cisco Financing Options

Cisco offers an array of financing options to help small and midsize businesses. As a wholly owned subsidiary of Cisco Systems, Cisco Capital Corporation specializes in financing networks and network components. Cisco Capital Corporation works closely with companies' Cisco account managers, resellers, or channel partners to offer innovative, flexible financial services at competitive rates. Cisco Capital Corporation's global coverage and commitment to customer success has made it one of the fastest-growing finance companies in the world.

Only Cisco Offers a Complete Solution

By adopting an IP communications solution such as Cisco CallManager Express, companies can transform their small-office and branch-office employees into a more productive, better-connected workforce while reducing network complexity and administrative costs. The solution extends the benefits of modern telephony features to workers in small or remote sites while allowing businesses to eliminate the expense of PBX/KTS leases and service providers and retain greater control of the company-wide data and communications infrastructure.

As the worldwide leader in VoIP for corporate networks, Cisco has a long history of success with converged voice and data solutions. Cisco serves more than 10,000 IP communications customers worldwide, using more than 2 million Cisco IP Phones and more than 12 million Cisco VoIP gateway ports.

With the Cisco access router, Cisco now offers the industry's only platform that can deliver full-feature voice, video, data, security, and remote-connectivity services in an all-in-one form factor designed specifically for branch offices. Working with Cisco, companies can deploy a reliable, high-performance network that can evolve and grow with the businesses.



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.
Capital Tower
168 Robinson Road
#22-01 to #29-01
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 Web site at www.cisco.com/go/offices

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland
Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland
Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden
Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

All contents are Copyright © 1992–2003 Cisco Systems, Inc. All rights reserved. Cisco, Cisco Systems, the Cisco Systems logo, SMARTnet, and Unity are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company.
(0304R) ETMG 203074—BM 09/03