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HML APPLICATIONS DEMONSTRATE THE POWER OF
IP PHONES TO STREAMLINE BUSINESS
PROCESSES AND BOLSTER PRODUCTIVITY.

CALLING ON INNOVATION

BY
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IN REAL ESTATE, it is oft-stated that the three most important considerations are location, location, location. In the world of IP communications, and specifically as it pertains to Cisco IP phones, it can be said that the three top considerations today are *applications, applications, applications*.

The business value of a converged voice and data network has grown beyond the proven 20 to 50 percent (or sometimes greater) savings companies yield by eliminating leased-line charges and lowering maintenance fees and management costs. The value proposition now taps directly into a company's existing investments in IP communications and the customizable, easy-to-use nature of IP phones to enable innovative, business-enhancing applications. Viewed as a strategic business asset, these applications marry



communications with business processes to boost employee productivity, drive new efficiencies and revenue, and enhance customer service and satisfaction.

“In addition to the total-cost-of-ownership benefits of running a converged network, IP telephony has the ability to transform business processes and deliver improved user productivity and satisfaction,” according to Zeus Kerravala, vice president of enterprise infrastructure at the Yankee Group. “The applications running on an IP phone over a converged network will transform enterprise communications from a static, delayed communications environment to one that is more real time and proactive. . . . The IP telephony applications will make convergence more of a business decision rather than one focused primarily on technology.”

Just ask Maurice Ficklin, director of technical services at the University of Arkansas, Pine Bluff. For more than two years, Ficklin has managed approximately 2000 Cisco IP phones and Cisco CallManager clusters in each of four cores at the university campus with “no complaints, no problems,” he notes. Slowly but surely, however, Ficklin moved toward a more technologically self-sufficient IP network, offering phone, data, and wireless services to students and faculty, including using Cisco IP phones to

conduct surveys and enable other productivity-boosting applications. “Of course, the return on investment is very important to us, but we look far beyond that now,” says Ficklin. “We have gone from *paying* for something [the IP phones, for example] to *receiving cost recovery* on something.”

A 2003 survey conducted by Sage Research offers further evidence of the benefits of IP communications. One hundred organizations that have deployed IP communications reported the following:

- Faster moves, adds, and changes—respondents report an average saving of 1.5 hours per move
- Easier-to-use features on IP phones—average saving of 5.5 hours per week for each IT employee involved in phone support
- Less “telephone tag” among employees—average saving of 3.9 hours per week (or 25 days a year) per employee
- Improved remote worker productivity—average benefit of 4.3 hours per week (or 28 days a year) for each remote worker

MANAGING YOUR IP COMMUNICATIONS NETWORK

To successfully administer, maintain, and plan for the present and future of an IP communications network, network managers must fully understand their voice and data traffic and how it can affect the behavior of corporate networks. Establishing a process to evaluate, document, and monitor this important operational resource is imperative. The CiscoWorks product line includes comprehensive network management tools that cover the full management lifecycle, from planning and design through implementation/deployment, operations, and maintenance. They are designed to improve productivity and lower total cost of ownership (TCO) through automation, integration, and simplification.

CiscoWorks software includes tools to centrally manage critical network characteristics such as availability, resilience, responsiveness, and security. Among these tools are CiscoWorks IP Telephony Environment Monitor (ITEM), CiscoWorks QoS Policy Manager, and the Cisco Catalyst® 6500 Series Network Analysis Module. The Cisco CallManager user interface also simplifies the most common subscriber and telephony configuration tasks by adding software and Web-based applications.

CiscoWorks ITEM, through the WAN Performance Utility (WPU), is used for both the planning phases as well as routine operations phases of managing your IP communications network. CiscoWorks ITEM uses Service Assurance Agent (SAA) functionality of Cisco IOS® Software to measure latency and jitter between key points in a network that deploys Cisco IP telephony. WPU is used to help assess IP telephony readiness of Cisco-based IP networks. It also provides real-time health and fault monitoring of converged IP networks, and the ability for operations and administrative staff to monitor and manage telephony resources to capture and record per-

formance and capacity management data. Powerful tools, such as CiscoWorks IP Phone Help Desk Utility, enable operations and help-desk staff to respond to customer issues efficiently and maintain surveillance on the introduction and movement of IP phones in their environment.

Another important application in the CiscoWorks ITEM suite—CiscoWorks IP Telephony Monitor 2.0—features a user interface with a Web-based operations screen that gives you real-time network status and alerts of actual and suspected problems in the underlying IP network and IP telephony implementation. This Alerts and Activities Display (AAD) can be customized to show all or selected elements in the managed space.

Call control is also critical in managing your IP communications network. Management applications help to assess the aggregate number and distribution of calls, identify peak hours, and monitor analog FXO/FXS connections and PRI channel activity. This data can be used to assess best and worst performance and to support trend analysis and forecasting. Platform metrics such as CPU utilization and memory allocation can also be tracked.

Another IP communications management application, CiscoWorks IP Phone Information Utility, can assist with system maintenance, monitoring, and reporting by providing real-time fault analysis and management, including fault history and information about all the phones on the network, their operational status, and implementation details. Utilities such as CiscoWorks ITEM Gateway Statistics Utility collect key performance and behavior statistics about the gateways and trunks to ensure systemwide health and device availability.

To learn more about managing your IP communications network, see cisco.com/packet/162_6c2.

Open Standards, Easy-to-Deploy Apps

Cisco IP phone applications are based on open industry standards such as Extensible Markup Language (XML), Telephony Applications Programming Interface (TAPI), and Java-based TAPI (JTAPI), which provide the ability for software developers to create telephony applications. Because developers write to the intuitive, point-and-click, browser-based interface, there's no need for IT personnel and other end users to know anything about the lower layers.

Enterprises can take data from their back-office business applications and deliver select information to the LED screens of their Cisco IP phones. Softkeys on the phones are used to access and display data from the XML applications—extending real-time business information, services, and enhanced images to every corner of an organization, even in settings where PCs are typically inaccessible to employees such as warehouses, factory floors, and sterile lab environments.

XML support is available on the Cisco IP Phone 7905G and 7912G monochrome displays for text-based applications; the Cisco IP Phone 7940G and 7960G with monochrome displays for both text-based and graphics-based applications; the new Cisco IP Phone 7970G model that features high-resolution, 234-pixel color graphics on the phone display along with touch-screen access to features and applications; and the Cisco IP Communicator (Softphone). For Cisco IP Phones 7940G and 7960G, Cisco CallManager Version 3.1 or higher is required for XML support. Cisco IP Phones 7905G, 7912G, and 7970G require Cisco CallManager Version 3.3 or higher. CallManager upgrades are available free; to download, visit the Cisco Software Center: cisco.com/packet/162_6c1 (Cisco.com login is required for full access to the software downloads).

To date, the most prevalent Cisco IP Phone applications have been developed for use in information-laden vertical-market industries, notably in education, retail, hospitality, and government. Among the many applications being deployed are administrative and attendance solutions for school districts and universities; inventory tracking and lookups for retail branches; concierge, restaurant listings/reservations, and other guest-service applications for

hotels; emergency notification and audio streaming systems for government and public-safety personnel; and time-clock applications for use on manufacturing floors, and in hospitals, bank branch offices, and other work environments with large numbers of hourly-wage employees.

Likewise, enterprise applications readily available on desktop PCs—e-mail and unified messaging, corporate directories, conference-room booking, and expense reporting, for example—can be provided on IP phones. In this way, the phone serves as an always-on communications and information vehicle for business, critical, and time-sensitive communication with employees—anytime and anywhere they are. No doubt, the simplification of menu-driven information access improves efficiency and expedites day-to-day business processes.

Another benefit of Cisco IP phones: they are managed like PCs. Deploying new applications and services to the phone sets is as easy as distributing software and automating installation on a remote PC. Upgrading business applications, enhancing telephony services, and extending phone-based transactions can be accomplished smoothly and rapidly (see the sidebar, “Managing Your IP Communications Network,” page 42).

IP Phone Productivity Applications

Many of the XML-based, off-the-shelf productivity applications are being developed by, and can be purchased from, Cisco partners for easy customization to suit a company's business requirements. What's more, these applications are already proving their worth in both measurable productivity gains and cost savings, results that were demonstrated with enthusiasm at the Cisco Innovation Through Convergence (ITC) Expo last September.

More than 70 Cisco AVVID (Architecture for Voice, Video and Integrated Data) IP communications and wireless technology partners showcased their integrated voice and data software applications for IP phones. An independent panel of judges from the CIPTUG selected 13 application developers that demonstrated the most compelling benefits in categories such as “Employee Productivity,” “Return on Investment and Innovation in a Vertical Market,” “Cost Controls and

Reductions,” and “Best Innovative Single Idea,” among others.

The PhoneTop K-12 application from AAC Inc., for example, won for customer satisfaction and best innovative use of technology in education and government. PhoneTop K-12 (see Figure 1) lets grade-school and high-school teachers use their Cisco IP phones to perform tedious, otherwise manual administrative tasks such as taking daily attendance and managing student hall passes.

AAC's application is helping Frederick County Public Schools in Virginia streamline communications between its 20 networked facilities, and reduce costs by eliminating the 20-plus different existing phone systems (offered by half a dozen vendors) and centralizing telephone processes into a single, easy-to-manage voice and data IP communications structure.

In the government arena, AAC is applying its PhoneTop AMBER Alert Services software to help find missing children in and around the Town of Herndon, Virginia. For more on this and other IP communications applications being deployed in vertical markets, see “License to Communicate,” page 36.

Chosen best in the category of “Cost Controls and Reductions” was Aptigen



FIGURE 1: AAC's PhoneTop K-12 application gives teachers the flexibility to perform routine, otherwise paper-based processes on their IP phones—freeing them up to devote more time to students in the classroom.

Designer from EDCi, a horizontal application that allows anyone to create IP telephony prototype solutions quickly and easily—no XML coding skills required. “Ninety percent of Cisco CallManager deployments don't have applications deployed to them,” says Aptigen Vice

NET IMPACT 2004: FROM CONNECTIVITY TO PRODUCTIVITY

A newly released study by Momentum Research looks at the effects of integrating Internet applications, networking technologies, and business processes on the public sector in Europe. The study—called *Net Impact 2004: From Connectivity to Productivity*—asked nearly 1400 IT and business decision makers in eight European countries what technologies, applications, and processes they had implemented to accelerate e-government or e-health. The survey found that organizations were between three and seven times more productive than their peers if they invested in network functionality beyond the minimum required to support their applications (for example, deploying layered security or sophisticated traffic management

tools), changed their business processes before deploying a new application aimed at increasing efficiency, and automated business processes with Internet applications and integrated those processes with other service functions. Interestingly, but not surprisingly, a desire to accelerate operations and improve citizen satisfaction ranked significantly higher than cutting costs as the top goals among respondents for improving productivity.

Net Impact 2004 is the fourth in a series of research projects sponsored by Cisco to evaluate the impact of Internet technologies on organizations and productivity. For more on the Net Impact research, see netimpactstudy.com.

President Nick Tseffos. Aptigen Designer is helping to change that.

With this application, you can design, demonstrate, and deploy the full value of IP phone technology *immediately*, emphasizes Tseffos. Instead of merely talking through the productivity benefits of an IP phone application, you can use Aptigen Designer's Windows-based interface and drag-and-drop environment to create a custom application, publish it to a phone emulator to check your work, and instantly deploy it to the enterprise, thus increasing your ROI and reducing development time to production.

Named best in the "Return on Investment/Vertical Market" category was Vyteck's *ExtendTime* application. A complete time and attendance solution targeted at a broad range of industries, *ExtendTime* replaces traditional time clocks, and automates time data collection, auditing, and reporting via IP phones. With a unique employee ID number and password, workers can "clock in" and "clock out" using any Cisco IP Phone in their organization. They can also receive messages, view scheduled work hours and accrued benefits such as vacation or sick days, and locate company-wide resources using the *ExtendTime* directory (see Figure 2).

Flexible, Instant Communications

The flexibility and advanced capabilities of IP phones offer the opportunity for software developers to use text, graphics, audio, alerts and now, with the Cisco IP Phone 7970G, color to deliver a rich user



FIGURE 2: *ExtendTime* 3.1, developed by Vyteck, replaces traditional time clocks, automating time data collection, audits, and reporting via Cisco IP phones.

experience. Many of these users, for example, are benefiting from an application developed by Twisted Pair Solutions called WAVE (Wide Area Voice Environment). Chosen for "Best Innovative Single Idea" at ITC Expo 2003, WAVE allows integration between IP-based networks and other systems such as IP telephony and mobile radio environments—enabling you to create new, scalable group communications consisting of audio, video, and data content.

WAVE not only leverages your existing IP network but brings together communications among previously disparate groups. A firefighter and a police officer, for instance, with their different VHF and UHF radio communications, can now instantly talk to each other while their streams of audio are carried over an IP infrastructure.

As Twisted Pair Solutions and many other software developers are demonstrating, IP communications solutions can be considered strategic business assets that are transforming how organizations communicate—internally and externally. Productivity gains result not simply from adding applications to your network, but by integrating business processes with communications to tap into your network and the technology that will make those *applications work for you*.

To learn more about the applications showcased at ITC Expo 2003, and for general information on developing and deploying XML applications and IP phone services, visit Cisco IP Communications Applications Central (AppsCentral) at cisco.com/go/apps. ▲▲

FURTHER READING

- "Thinking Outside the Talk Box," *Packet*® Third Quarter 2002: cisco.com/packet/162_6c3
- Cisco IP communications: cisco.com/packet/162_6c4
- Cisco ITC Expo 2003 Video: cisco.com/packet/162_6c5
- CIPTUG: ciptug.org