Extending **Enterprise Productivity** with Converged IP-Based **Cisco Solutions**

In the last decade there have been tremendous changes on the communications landscape, and many enterprises have decided to deploy or migrate their separate network infrastructures onto converged IP networks that can carry voice, video, and integrated data on a common transport.

The rapid adoption of next-generation converged networks has been driven by the astounding success of the Internet and the Internet Protocol (IP) upon which it is based. With its flexible and cost-effective packet-based system of transmitting information, IP is the key to leveraging a single network for carrying data, voice, and video.

The need to combine voice, video, and data traffic on converged networks comes mainly because businesses need to reduce administrative costs, provide more flexible application deployments to the desktop, boost personal and workgroup productivity, and provide exceptional customer care to their clients. Converged networks and applications that take advantage of IP empower organizations to increase revenues and decrease costs.

Moving to a converged network can substantially reduce an organization's total cost of ownership and reduce the ongoing cost of maintaining and upgrading networks. Converged networking solutions enable enterprises to reduce capital costs, such as equipment, real estate, and labor costs, while increasing flexibility. Businesses reduce facility costs by removing costly moves, adds, and changes to the network and reducing the cost associated with office real estate by integrating telecommuters with the same levels of network connectivity, quality, and security that office workers experience.

Converged IP-based business applications also increase personal productivity by allowing employees to focus on activities that generate revenue and cut costs. And IP-based applications promote workgroup productivity by enabling workgroups to share knowledge and accelerate decision-making processes.

Enterprises can also improve customer responsiveness and increase loyalty among their existing and prospective customer base by using state-of-the-art customer care IP-based applications. This level of customer responsiveness translates into up-sell and cross-sell opportunities and lower costs of customer retention and acquisition.

In addition, enterprises now have a choice to adopt a centralized or distributed call-processing and application-hosting model that enables them to extend the capabilities of corporate IP voice, video, and data solutions to remote office locations. Centralized services provide remote offices with the same applications as

the main branch without the need to invest in their own infrastructure and software. This also gives corporate system administrators more control over additions to the network, ensuring better systems integration and security. Enterprises of all sizes now have the flexibility to either host all their IP-based solutions in the headquarters office and extend these services across IP out to the branch offices, or deploy distributed solutions across multiple sites.

As the IP expert, Cisco Systems is the business partner that provides the industry knowledge and technology to allow enterprises to reap the benefits of converged networking. Cisco also has core competencies in IP telephony, and other IP-based solutions such as unified messaging and customer care applications. Cisco also has considerable knowledge in centralized and distributed call-processing and application-hosting models and can recommend a plan that best fits each organization's requirements. Along with its expertise in Internet and IP routing technologies, Cisco possesses significant core competencies in data networking, from LAN switching to ATM switching, gateways to multiservice routers, dial access to digital subscriber line (DSL) technology, and legacy SNA networks to cable—all of which provide complete, integrated solutions to meet the unique needs of all businesses.

Business Solutions

A unified, IP-based network that integrates data, voice, and video opens the door to an incredible wealth of applications that make the entire enterprise more productive and increase competitive advantage for businesses.

The Cisco converged network solutions are enabled by Cisco AVVID (Architecture for Voice, Video and Integrated Data), the one enterprise architecture that enables this new breed of applications, services, and technologies to empower businesses to reach their Internet business goals. Cisco AVVID is based upon unparalleled end-to-end Internet business knowledge, experience, and partnerships. With Cisco AVVID, the existing infrastructure is prepared for next-generation IP-based applications.

Integrating essential business communications onto a converged network results in a single point of management, administration, and control. The ability to accommodate integrated IP-based applications improves individual and workgroup productivity while providing for a highly personalized user and customer experience. Best of all, the open, standards-based nature of Cisco AVVID enables enterprises and partners to create applications specific to their own requirements.

Cisco IP-based infrastructure solutions and devices, such as Cisco CallManager, Cisco Catalyst 4224, Cisco Survivable Remote Site Telephony and Cisco IP Phones, reduce operational costs for enterprises by reducing the need for separate network hardware. Cisco IP-based applications, including Cisco IP Phone Productivity Services, Cisco Personal Assistant, Cisco IP SoftPhone, Cisco Unity (Unified Communications), Cisco WebAttendant, and Cisco IP Videoconferencing, enhance personal and workgroup productivity. Still other Cisco applications including Cisco Integrated Contact Distribution (ICD), Cisco IP Contact Center (IPCC), and Cisco IP Interactive Voice Response (IP IVR) increase an organization's capability to respond to its customers' needs.

Business Empowerment Solutions Reduce Operational Costs

Cisco CallManager

Cisco CallManager is the software-based call-processing component of the Cisco IP telephony solution. The software extends enterprise telephony features and functions to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia videoconferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through Cisco CallManager's open telephony application programming interface (API). Cisco CallManager is installed on the Cisco Media Convergence Server (MCS) 7800 series and the Cisco Integrated Communication System (ICS) 7750.

The Cisco CallManager software includes a suite of integrated voice applications that perform ad-hoc voice conferencing and browser-based attendant console functions. The key benefit of all of these voice applications is that special-purpose voice processing hardware is not required. Supplementary and enhanced services such as hold, transfer, forward, conference, multiple line appearances, automatic route selection, speed dial, and last-number redial are available on Cisco CallManager. These features are easily extended to every IP phone in the network through centralized Cisco CallManager administration and automatic configuration. Cisco CallManager also provides extension mobility so users can log in to any IP phone and the extension and the individual's dial privileges are applied to the phone regardless of their location. This gives users the ability to access all of their personal phone features, such as fast dials, personal contacts, voice mail, productivity applications, and more from any IP phone when they are away from their desktop. And because it is a software application, enhancing its capabilities in production environments is a matter of upgrading software on the server platform, thereby avoiding expensive hardware upgrade costs. Further, Cisco Survivable Remote Site Telephony provides a cost-effective solution for extending Cisco CallManager features to small sites while ensuring high availability of basic telephony functions, and allows enterprises to offer value-added capabilities to all employees in the organization regardless of their location.

Multiple Cisco CallManager servers are clustered and managed as a single entity. The capability of clustering multiple call-processing servers on an IP network is unique in the industry. Scalability for up to 10,000 users per cluster is provided. By interlinking multiple clusters, system capacity can be increased to up to 100,000 users per multiple cluster system. Clustering aggregates the power of multiple, distributed Cisco CallManagers, enhancing the scalability and accessibility of the servers to phones, gateways, and applications. Triple server redundancy improves overall system availability. Call admission control ensures that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternate public switched telephone network (PSTN) routes when WAN bandwidth is not available.

To provision, track, and monitor network-wide services, Cisco provides a comprehensive suite of tools including QoS Policy Manager (QPM) and Service Management Solution (SMS). QPM is a policy management tool that delivers differentiated services across network infrastructures with converged voice, video, and data applications. Network administrators use QPM as a complete system for centralized policy control and automated reliable policy deployment. SMS monitors and reports on QoS policies, enabling synergistic end-to-end service-level management (SLM). Together, QPM and SMS bring predictability to the network experience by mapping voice, video, and data applications into service levels, controlling latency and jitter and improving network traffic flow.

Finally, Cisco converged IP-based business applications interact with the Cisco CallManager through telephony APIs. These applications extend the capability of Cisco CallManager and expand the application possibilities.

Cisco Catalyst 4224 Access Gateway Switch

The single-box Cisco Catalyst 4224 integrated platform for Ethernet switching, IP routing, and voice gateway services make it an ideal choice for extending VoIP networks to small branch offices of up to 24 users.

Multiple devices generally mean higher deployment, management, and maintenance costs. By integrating Ethernet switching, IP routing, and voice gateway capabilities into a single chassis deploying data, voice, and video to the branch office with the Catalyst 4224 has reached a new total cost of ownership paradigm. The Catalyst 4224 lowers management and maintenance expenses, and provides an easier deployment path for future technology. A single, remotely manageable solution means that remote offices can be maintained without on-site technical resources.

Deploying the Catalyst 4224 in a centralized call processing environment can further lower ownership costs. By centralizing Cisco CallManager and other IP voice and video applications, the enterprise gains valuable control over call processing and application hosting. Enabling converged IP communications has never been easier or more cost effective with the Cisco Catalyst 4224.

Cisco Survivable Remote Site (SRS) Telephony

Cisco Survivable Remote Site Telephony in the Cisco IOS® Software gives enterprises a cost-effective, reliable mechanism for providing continuous IP Telephony services out to small branch offices. Now enterprises can cost-effectively extend value-added Cisco CallManager features to all their small branch offices. SRS Telephony is an important component of the Cisco end-to-end IP telephony offering, providing feature-rich call-processing redundancy that leverages the existing infrastructure at the branch office. SRS Telephony enables greater flexibility and management control to build scalable networks that support new, leading-edge IP applications across the entire enterprise.

The SRS Telephony capability in the Cisco IOS Software runs on a local branch office access router. SRS Telephony automatically detects a failure in the network and, using the Cisco Simple Network Automated Provisioning (SNAP) capability, initiates a process to intelligently auto-configure the router to provide call-processing backup redundancy for the IP phones in that office. The Cisco 2600 or 3600 Series Router and the Cisco Catalyst 4224 Switch with SRS Telephony provides call processing for the duration of the failure, ensuring that basic phone capabilities remain operational. Upon restoration of the WAN and connectivity to the network, the system automatically shifts call-processing functions back to the primary Cisco CallManager. Configuration for this capability is done once at the Cisco CallManager in the central site, simplifying deployment, administration, and maintenance. Because of the intelligence and simplicity of the SRS Telephony feature, IT staff is not needed at remote sites to enable and disable this functionality. For existing Cisco 2600 and 3600 Series Routers, SRS Telephony can be cost-effectively added through a simple software upgrade.

Cisco IP Phones

The Cisco IP Phone is a standards-based communication appliance. Cisco IP Phones can interoperate with IP telephony systems based on Cisco CallManager technology, H.323, or Session Initiated Protocol (SIP) and, in the future, Media Gateway Control Protocol (MGCP), with system-initiated software updates. This multiprotocol capability is an industry first and provides investment protection and migration capability. This capability allows the Cisco CallManager or an SIP call agent to download new software into the Cisco IP Phone in the field in order to change the protocol that the phone uses.

Cisco IP Phone 7960

The Cisco IP Phone 7960 is a full-featured IP phone primarily for manager and executive needs. It provides six programmable line and feature buttons and four interactive soft keys that guide users through call features and functions. The Cisco IP Phone 7960 also features a large, pixel-based LCD display and can support additional information services including Extensible Markup Language (XML) capabilities. The display provides features such as date and time, calling party name, calling party number, and digits dialed. The graphic capability of the display allows for the inclusion of present and future features.

Cisco IP Phone 7940

The Cisco IP Phone 7940 is a full-featured IP phone for low to medium traffic users who require minimal directory numbers. It provides two programmable line/feature buttons capable of four simultaneous calls and four interactive soft keys that guide users through call features and functions. The Cisco IP Phone 7940 also has a large, pixel-based LCD display and can support additional information services including XML capabilities. The display provides features such as date and time, calling party name, calling party number, and digits dialed. The graphic capability of the Cisco IP Phone 7940 display also allows for the inclusion of present and future features.

Cisco 7910 and 7910+SW

The Cisco 7910 and 7910+SW telephones are primarily for common-use areas such as lobbies, break rooms, and hallways that require only basic features. The Cisco 7910+SW includes a Cisco two-port switch that makes it suitable for worker applications where basic phone capabilities and colocated Ethernet devices such as PCs are needed.

Cisco IP Conference Station 7935

The Cisco IP Conference Station 7935 voice instrument is a full-featured, IP-based, full-duplex hands-free conference station for use on desktops and offices, and in small to medium-sized conference rooms. This device easily attaches to a Catalyst 10/100 Ethernet switch port with a simple RJ-45 connection, and dynamically configures itself to the IP network via the Dynamic Host Control Protocol (DHCP). The Cisco 7935 dynamically registers to the Cisco CallManager for connection services and receives the appropriate endpoint phone number, and any software enhancements or personalized settings, which are preloaded within Cisco CallManager.

Cisco WebAttendant

Yesterday's attendant consoles are becoming increasingly inefficient in light of converged IP-based technology. These old-world consoles are essentially analog telephone sets with expensive hardware line extender devices and numerous buttons and lamps. The lamps serve to monitor and indicate the state of assigned telephone extensions while the buttons allow inbound calls to be rapidly selected and dispatched. The attendant must know which lines are statically assigned to the device, an administrative task that is error prone. Therefore, administrative and capital costs of such hardware-based extender devices are high. In many installations an attendant has both the old-world console on which to dial users' telephone numbers and a PC on which to look up users' telephone numbers. With the Cisco WebAttendant the two tasks are performed on one device.

Cisco WebAttendant is an IP application that accomplishes these same tasks much more efficiently. Its Web-based graphical user interface handles calls and monitors line states. Line-state monitors can be assigned and changed using a software interface, alleviating the need to physically relabel extender boxes with each line monitor change.

Associated with an IP phone, the Cisco WebAttendant application allows the attendant to quickly accept and dispatch calls to enterprise users. An integrated directory service provides traditional busy lamp field (BLF) and direct station select (DSS) functions for any line in the system. The application is Web-enabled and portable to Windows 98, 2000, and NT platforms.

One of the primary benefits of Cisco WebAttendant over traditional attendant console systems is its ability to monitor the state of every line in the system and to efficiently dispatch calls. The absence of a hardware-based line monitor device makes Cisco WebAttendant more affordable and convenient than traditional consoles. Advanced drag-and-drop capabilities and access to corporate Lightweight Directory Access Protocol (LDAP) directories offer decisive advantages over manual attendant stations. In a system with hundreds or thousands of users, the Cisco WebAttendant operator can accept calls and perform directory lookups by selecting the field title in the directory section and typing in the first few characters of the user's extension, last name, first name, or department. Cisco WebAttendant is browser-based, so it can be accessed by any workstation with Web access. A separate product, the Cisco Automated Attendant application, can accept inbound calls, query callers for destination information, and rapidly dispatch calls without operator intervention.

Personal Productivity Solutions Place the Focus on Revenue Generation

Cisco IP Phone Productivity Services

Cisco IP Phone Productivity Services (PPS) is a suite of personal productivity applications for IP phones that uses pixel-based LCD displays, such as Cisco 7960 and 7940 IP Phones. These XML-based applications allow users to check e-mail, voice mail, calendar, and personal contact information using the large LCD display and interactive soft keys on the phone. These applications give enterprises a convenient way to access corporate information servers on the network.

Cisco IP Phone Productivity Services include several applications:

DateView—Allows users to keep track of appointments on the phone device. Because DateView uses the corporate calendar server, no synchronization is necessary. Users can be notified of an upcoming event on the phone display and, if a phone number is included in the appointment, a user can dial that number with the touch of a button. With DateView, users can see an entire day's or week's worth of appointments in one screen.

MailView—Allows users to view a list of the e-mail and voice-mail messages that are in the inbox on the corporate messaging server. When a user presses the Messages button on the Cisco 7940 or 7960 IP Phones, they can scroll through messages and read e-mails right on the phone display. MailView allows users to listen to and delete voice mail using the soft keys. Any operation that can be performed on messages using MailView is automatically reflected in the PC-based e-mail client or traditional voice-mail interface because they use the same message store.

Personal Contacts—Provides access to all of the personal address book entries in the Microsoft Outlook client on a Cisco 7940 or 7960 IP Phone. Users can look up entries on a phone, make a selection, and press a soft key to dial the selected number. This eliminates extra steps on the PC and the error-prone process of manual dialing. Contact information is synchronized between popular repositories such as Microsoft Outlook and compliant LDAP directories through synchronization tools that are provided by Cisco. Even contacts in the Microsoft Exchange contact list are kept synchronized.

Personal Fast Dial—Allows users to assign index numbers for up to 99 Personal Contact entries for quick dialing. Users can maintain a large number of Personal Contacts with the ability to dial a subset of them with minimal keystrokes. Assigning and removing personal fast dials on the phone is quick and easy and does not require the use of a PC.

Personal Assistant Activator—Allows users of the Cisco Personal Assistant to activate rules previously configured on a Web browser directly on the phone. This allows users to choose how to handle incoming calls from IP phones throughout their organizations. Once a rule is chosen, it can be enabled for every day of the week, weekends, or a specific date range.

Cisco IP Phone Productivity Services allow users to log onto any Cisco 7960 or 7940 IP Phone in a Cisco CallManager cluster and have instant access to calendar, e-mail, and voice-mail information. By using the extension mobility capabilities of Cisco CallManager, users can log onto their extensions to place and receive calls as if they were in their own offices and have access to personal contacts and fast dials.

Cisco Personal Assistant

Cisco Personal Assistant is an IP-based telephony application that delivers personalization, ease of use, and enhanced productivity in the workplace. Cisco Personal Assistant streamlines voice communications with personal call rules and speech recognition. It enhances the way that users can manage how and where they want to be reached, and offers a Web-based interface for configuration of rules. Because it is so easy to use it requires minimal training.

As an integral part of the Personal Productivity Suite, Cisco Personal Assistant interoperates with Cisco CallManager and scales to meet the present and future needs of enterprises. Users browse voice mail, dial by name, and conference from any telephone using voice instead of the telephone keypad. The user administration interface allows users to forward and screen calls in advance or in real time.

With the speech recognition interface of the Cisco Personal Assistant, users can issue simple voice commands to perform tasks. Users can verbally "dial" entries in their personal address books or the corporate enterprise LDAP directory. In addition to placing regular calls, by giving spoken commands users can direct Cisco Personal Assistant to establish conference calls. Speech recognition also enables users to voice-navigate messaging functions such as retrieval, replying, recording, and deletion of voice messages. Cisco Personal Assistant supports Cisco Unity™ voice mail.

Cisco IP SoftPhone

A converged network and the applications it enables can significantly improve the performance of employees by providing them with the tools they need to work smarter and faster. Cisco IP SoftPhone is an advanced communications application for the PC desktop. A simple user interface allows the user to easily set up conference calls with the touch of a mouse. Cisco IP SoftPhone can travel with the user so telecommuters with high-speed access can take their phone extensions home with them and receive calls just as they would in the office. Cisco IP SoftPhone also works across most virtual private network (VPN) configurations so users can place and receive calls wherever they are, even across the Internet. Easy to use and highly configurable, it can be applied in any application where a telephone can be used, and is fully integrated with the Cisco line of IP Phones. Cisco IP SoftPhone will also be available in a variety of languages, such as German and French.

Cisco IP SoftPhone can deliver VoIP networks or the PSTN. Because it runs on a PC, the Cisco IP SoftPhone has capabilities and ease-of-use features not available on a private branch exchange (PBX) telephone. When connected to an IP-based network with Cisco CallManager, familiar communications profiles are immediately available from any location. The Cisco IP SoftPhone can be deployed as a standalone application or a computer telephony integration (CTI) control device for a physical IP phone.

The Cisco IP SoftPhone is a Microsoft Windows compatible application that uses standard APIs. Adherence to the Cisco open ecosystem ensures compatibility across a wide range of services.

Cisco Unity (Unified Communications)

Cisco Unity combines powerful unified messaging with enhanced, convergence-based communication services to deliver an unprecedented level of communications control for organizations.

Cisco Unity helps enterprises deliver better customer service and enhance employee productivity, while lowering their total cost of ownership and leveraging their technology investments. Cisco Unity also complements the full range of Cisco IP-based business applications by providing advanced capabilities that unify data and voice.

Cisco Unity delivers every voice, fax, and e-mail message into a single inbox, giving the freedom to access and manage all message types with the click of a mouse or the push of a button. Cisco Unity allows users to listen to e-mail over the telephone, check voice messages from the Internet, and forward faxes anywhere. Cisco Unity makes communication instant, convenient, and efficient. Cisco Unity also offers voice messaging with robust automated attendant functionality, intelligent routing, and easily customizable call screening and message notification options.

Cisco Unity solutions include a graphical interface that gets users up and running as quickly as possible, resulting in greater productivity for organizations. Moreover, Cisco Unity simplifies system administration because it uses a single message store and single directory service, providing superior performance and reliability. With Cisco Unity, administration tasks can be handled conveniently from a Web-based system administration console that IT staff can access from any PC using the Microsoft Internet Explorer browser.

Cisco Unity supports IP-based and leading legacy telephone systems, even simultaneously, to help businesses transition to IP telephony at any pace while protecting their investments in existing infrastructure.

Workgroup Productivity Solutions Accelerate the Decision-Making Process and Provide Exceptional Customer Care

Cisco IP Videoconferencing Solutions

Cisco videoconferencing solutions provide organizations a ready-to-deploy tool to humanize and evolve the way businesses communicate. IP videoconferencing provides face-to-face and real-time interaction that businesses cannot achieve through online or taped interactions. Organizations can now provide the workforce productivity tools for users to collaborate in real time from anywhere in the world, eliminating costly travel. Workgroups can also make decisions quickly by initiating a

videoconference call anytime, which translates to increased client and market responsiveness. Users can refine skills on an ongoing basis, resulting in more knowledgeable and productive workers. IP-based desktop videoconferencing solutions from Cisco effectively eliminate the barriers of time, distance, and resources, enabling enterprises to harness the power of the Internet and humanize their communications.

Cisco videoconferencing solutions include several products. The Cisco IP/VC™ 3500 Series consists of the IP/VC 3510 and 3540 Videoconferencing Multipoint Control Units, which enable videoconferences between three or more endpoints; the IP/VC 3520 and 3525 Videoconferencing Gateways and IP/VC 3530 Video Terminal Adapter, which connect IP-based H.323 videoconference endpoints to circuit-switched H.320 systems; and software for scheduling conferences. In addition, the Cisco Multimedia Conference Manager is an H.323 gatekeeper/proxy. These Cisco products, which run over a converged IP network combined with any H.323-compliant endpoint, create a complete videoconferencing solution.

Cisco IP Contact Center (IPCC)

Meeting customer expectations for personalized service requires accommodating individual preferences for multimedia contact options, including access to several channels during a single transaction and delivering consistent levels of service across contact channels. The Cisco IP Contact Center (IPCC) customer experience is one of comprehensive care, where agent-assisted help is smoothly integrated with customer self-service capabilities.

The Cisco IPCC delivers intelligent call routing, network-to-desktop CTI, and multimedia contact management to contact center agents over an IP network. By combining software ACD capability with IP telephony in a unified solution, IPCC represents the next generation of contact center applications.

The Cisco IPCC delivers an integrated suite of proven products, including Cisco ICM, that combine Cisco IP telephony and contact center solutions and enable agents using Cisco IP Phones to receive both time-division multiplexing (TDM) and VoIP inquiries. Specific capabilities include intelligent call routing, ACD capability, network-to-desktop computer telephony integration, interactive voice response integration, call queuing, and consolidated reporting. Cisco IPCC integrates easily with legacy call center platforms and networks, enabling organizations to continue to leverage the investment in legacy systems while providing a smooth migration path to an IP infrastructure.

The Cisco IPCC can be implemented in single-site and multisite contact centers. It uses an organization's existing IP network, leveraging the wide-area network infrastructure, lowering administrative expenses, and extending the boundaries of contact center enterprises to include branch offices, home agents, and knowledge workers. Whether enterprises are expanding an existing operation or establishing their first contact center, the Cisco IPCC can help them realize the cost and performance benefits of converged networking.

Cisco Integrated Contact Distribution (IP ICD)

Every customer service organization is managed differently. Organizations possess different agent skill sets, unique ways in which to access customer account data, specialized databases for product service information, and different operating procedures. Customer response applications such as Cisco IP Integrated Contact Distribution (IP ICD) can be customized to meet the operational requirements of each individual service group.

Cisco IP ICD provides automated voice call distribution within the enterprise and supports custom contact interaction management. The Cisco IP ICD is one in a series of solutions built around the Cisco Customer Response Application Engine, an open platform for converged media business applications. The Cisco IP ICD is seamlessly integrated with all other customer response applications, such as the Cisco IP Interactive Voice Response (IP IVR) and the IP Automated Attendant applications. This architecture offers a drag-and-drop approach for programming the workflow best suited for each customer service operation. System administrators can easily program the flow of phone calls into the response center and whether to

forward calls to the next available agent via Cisco IP ICD, to be first prompted with a set of instructions that allows the customer to choose between automated information retrieval services, via the Cisco IPIVR, be connected directly to someone within the company, or again be directed to the next available agent.

Using the Customer Response Application Editor for the Cisco IP ICD and IP IVR applications, users can easily configure these call flows. Moreover, customers and integrators can use Java beans to develop database scripts and other call flow steps. The net result is that the Cisco IP ICD and IP IVR products offer a flexible, open approach for handling the call flows coming into any customer service organization.

Cisco IP Interactive Voice Response

Today's call centers must contend with myriad communication channels. Cisco simplifies their operation with an IP-powered interactive voice response solution that provides an open, extensible, and feature-rich foundation for the creation and delivery of IVR solutions through Internet technology.

Cisco IP IVR automates call handling by independently interacting with users. For example, it processes user commands to facilitate command response features such as access to checking account information and user-directed call routing. Cisco IP IVR also performs "prompt and collect" functions to obtain user data such as passwords and account identification. Additionally, the Cisco IP IVR system can extract and parse Web-based content and present this data to customers through a telephony interface, which facilitates the delivery of Web-based information to voice media users.

Cisco IP IVR includes a multimedia application-generation environment that enables rapid application development. It is written completely in Java and constructed by Cisco for concurrent multimedia communication processing. Cisco IP IVR applications (also called "flows") are stored in an industry-standard Lightweight Directory Access Protocol (LDAP) directory. Applications are tested and debugged easily through built-in debug tools.

Cisco IP IVR offers Web-based activation and administration and can be deployed anywhere in an IP network.

Cisco Infrastructure Solutions Sets the Foundation

Businesses are increasingly looking for an infrastructure to serve as a solid foundation representing a standards-based, open-systems framework for emerging applications. Cisco infrastructure solutions provide a highly available and robust backbone of scalable solutions using the switches, routers, servers, gateways, and Integrated Communication Systems over which the Cisco IP fabric of intelligent network services run. The foundation of the network infrastructure is the Catalyst 6000 Series Switch in the enterprise campus. This foundation enables quick and easy deployment of applications and call control. All employees can use services and applications regardless of physical location on the network, and these applications are guaranteed the necessary bandwidth using Cisco QoS capabilities, which are easily managed using Cisco management tools. Branch office solutions include the Cisco Catalyst 4000 Series Switches, Cisco VG 200 Voice Gateway, Cisco 7200 and 2600/3600 Series Multiservice Routers, and the Cisco ICS 7750 Integrated Communications platform, all of which ease the deployment and management of voice, data, and applications services.

The Cisco infrastructure is the basis for end-to-end converged networking solutions that support IP-based applications to increase employee productivity and competitive advantage.

Paving a Smooth Migration Path

Migration to a converged network, enabled by Cisco AVVID, can take place at a businesses' own pace. An enterprise can start by diverting long-distance voice traffic to the data WAN, which delivers immediate cost savings. An organization can then initiate an IP telephony trial at the corporate headquarters and extend it to all of its branch offices. Finally, a company can migrate all voice mail and add other IP-based applications throughout the enterprise.

Cisco AVVID enables tremendous flexibility for deploying converged networks. All Cisco converged IP-based applications and devices can coexist with a businesses' existing system until network convergence is complete. For example, the Cisco DPA-7930 and DPA-7610 allow the Cisco CallManager to share an existing Octel 200/250/300/350 voice-mail system with an existing PBX. This greatly eases migration of large PBXs to IP telephony. In addition, the Cisco CallManager can interoperate with Avaya and Nortel PBXs to exchange calling name and calling number information using ISDN Primary Rate Interface (PRI).

Cisco Service and Support

Cisco support solutions are designed for one purpose: to ensure customer success by delivering a suite of proactive support solutions. Cisco support solutions offer presales network audit planning, design consulting, network implementation, operational support, and network optimization. Leveraging Cisco expertise and experience customers gain interactive knowledge transfer solutions to enhance their success. By including support with Cisco equipment purchases, customers immediately gain access to a wealth of support and resources.

For information on Cisco converged IP-based products and solutions, please refer to http://www.cisco.com/warp/public/779/largeent/avvid/.

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