



ADVANCED MULTIMEDIA  
IP COMMUNICATIONS FOR  
SMALL, MEDIUM AND  
LARGE ENTERPRISES

3Com® VCX™ IP Communications

Solutions Brochure

# ONE IP NETWORK. MANY APPLICATIONS.

## **Making business more effective through enhanced collaboration.**

In today's increasingly mobile world, organizations need to leverage talent wherever it resides. To ensure high productivity, their communication systems need to accommodate flexible work styles and support global business models. Their infrastructures must facilitate adapting business processes to current needs and be able to quickly implement applications that save time, reduce costs and optimize exchanges among colleagues, partners and customers.

When face-to-face meetings are not possible or economical, a rich and flexible communications environment brings people together in a single, virtual space that leverages an organization's existing directories and databases. New tools with integrated presence information help workers choose the most appropriate time and vehicle—phone, instant message—to initiate a contact. Advanced systems also provide the option of encouraging remote collaboration and extending conversations with video and desktop sharing, so that communication becomes effortless, and decision-making and response time decreases.

The revolution in collaborative work is tied to a revolution in communications technology. Open infrastructures that implement industry standards and web-delivered services make costly, proprietary vendor lock-in a relic of the past. Similarly, unified communications solutions, designed for easy use, scalability and resiliency, help small and large networks deliver anytime, anywhere access to people and information.

The 3Com® VCX™ family of IP communication solutions is based on an architecture that can scale to suit organizations that have from 30 users to 50,000, so that growing businesses always have the network support they need. It offers the ideal combination of design and features for effective unified communications: an open, standards-based, multimedia infrastructure that lets organizations meet their business requirements and align their choice of applications with their budgets. A simple 3Com VCX IP telephony implementation can be easily expanded by additional telephone handsets or other SIP devices. Fully future-proofed, it can also be enhanced as the need arises by advanced 3Com applications such as unified messaging, conferencing, presence, contact center and mobility solutions. Whether used for communicating internally or with customers and partners, VCX solutions facilitate internal and external information exchanges, promote collaboration and maximize both customer satisfaction and business revenue.

## THE VCX FAMILY: COMMON ARCHITECTURE, OPEN STANDARDS

3Com VCX platforms and their suite of IP communications applications were the first in a new category of network products when launched in 2003. By integrating telephony, messaging, presence, conferencing and contact center services, VCX solutions provided a unique opportunity to optimize the benefits of network convergence for organizations of all sizes. Today, these solutions continue to lead the industry by leveraging industry standard computing platforms, a common operating system (Linux) and the Session Initiation Protocol (SIP) standard to help organizations speed application integration, reduce costs and increase productivity. Security is optimized as a result of VCX application modules running on the open source Linux operating system. The vulnerabilities of systems that run on Microsoft Windows and need constant patching and virus protection are avoided.

## ECONOMY AND FLEXIBILITY

Modular software running on industry-standard servers cost-effectively supports small, medium and large organizations. Whether staff are located at a single site, on a multi-building campus, in branch offices or at geographically distributed locations, 3Com VCX solutions deliver reliable connectivity for business-critical communications. Computing power is economical, and pay-as-you-grow licensing enables deployment of VCX systems with centralized or distributed server architecture for as few as 30 users and as many as tens of thousands of devices.

For organizations with up to 250 users, VCX Connect solutions integrate IP telephony and messaging applications onto standalone or redundant servers. For large organizations, VCX Enterprise systems provide the flexibility of fully modular software solutions that can be implemented on separate servers to maximize performance and system capacity. The Enterprise edition also supports deployment of servers at branch sites to ensure business continuity. Should a remote office be isolated through an IP network failure, the branch server will support phones and gateways at the branch site, allowing unimpeded full communications functionality.



## GRADUAL MIGRATION TO IP COMMUNICATIONS MATCHES BUSINESS NEEDS

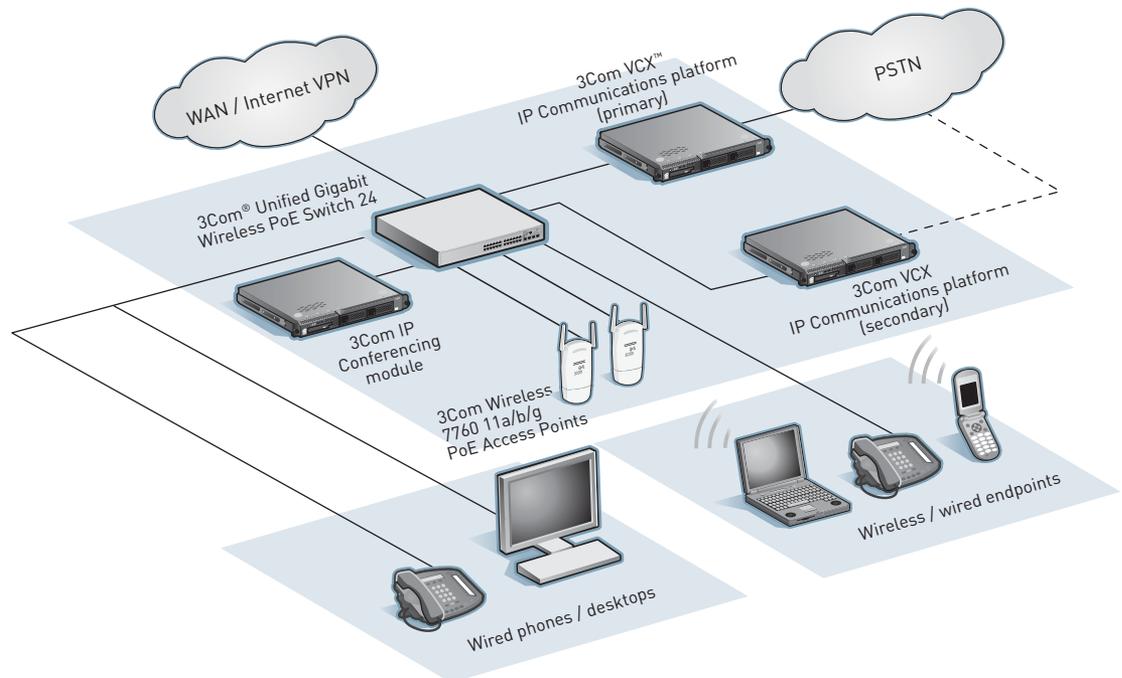
3Com communications systems architecture facilitates a gradual migration from traditional legacy PBX-to IP-supported services, including an incremental upgrade path to IP phones and IP-based applications. When business requirements change, organizations can add sites by interconnecting existing PBXs over IP, or by replacing PBXs with IP phones and gateways. The cost of the system is broadly proportional to the number of users and, in many cases, capacity can be increased simply by purchasing additional phones and licenses. New users are easily provisioned by administrators, and IP phones are made operational by simply plugging them into a network port.

A range of gateways support interconnection with the PSTN or with existing PBXs. Analog FXO gateways and digital T1 or E1 gateways support legacy systems during a phased migration to a fully converged infrastructure. Existing analog fax machines or phones can also be supported through analog FXS gateways. Centralized provisioning and management help to reduce the cost of administering the system and a single web interface allows an administrator to carry out user, dial plan and call routing configuration for all servers in the system.

The VCX IP Telephony Module provides a robust call processing application that delivers traditional PBX features such as call forwarding, transfer, conference, paging and pickup, letting users easily make the transition to a new phone system with minimal training. In addition, as a SIP-based system, VCX solutions automatically support multimedia calls, letting users with suitable software and cameras benefit without delay from video, text and desktop sharing applications.

Phones can be configured to align with business needs. Dynamic extensions let users login to phones at any location just by entering their extension number and PIN or password, enabling mobile workers who use hotdesks to be as productive as if they were using a permanent desktop phone. They can enjoy the full features of the VCX system on any 3Com phone. When login occurs the system automatically configures the phone with the user's profile. Additional mobility can be provided using SIP/Wi-Fi phones in any wireless network environment. Products such as the 3Com Unified Gigabit Wireless PoE Switch 24 solution support both wired and wireless SIP phones. Telecommuters can also use VPN broadband connectivity to the VCX system for real-time telephony and voice messaging.

The diagram below indicates a 3Com VCX deployment that provides advanced telephony, messaging and optional multimedia communications services with application redundancy. Cost-effective scalability eases migration to advanced VoIP solutions.



## The real benefits of a converged network are delivered by the applications it supports.

### ADVANCED COMMUNICATIONS APPLICATIONS

3Com VCX solutions deliver a core set of highly integrated solutions across an organization, as well as a range of third-party SIP-compliant applications that extend communications capabilities and enhance productivity.

#### IP MESSAGING

3Com IP messaging software can be deployed in a redundant configuration to ensure communications continuity. Using a secondary server to which all stored messages are automatically copied, the application provides a hot standby solution that records and delivers messages in the event of a main server failure. It provides true unified messaging with many standard features that include:

- › **Voice Mail** An automated system for taking a message when a call recipient is unavailable, 3Com voice mail offers features that can be easily customized to address unique business requirements. For example, personalized greetings can be defined to reflect time of day and differentiate between unanswered calls and calls diverted because the caller was busy.
- › **Unified Messaging** 3Com messaging services let users integrate voice, fax, and email communications within a single inbox. Users can listen to voice mails using their PC's media player, and they can read faxes on screen or print them to their usual PC printer.
- › **Find Me/Follow Me** Particularly relevant to mobile workers, this service personalizes reachability by defining a list of contact numbers that are automatically dialed by the IP messaging system. To optimize productivity, users can configure filters to offer this service only to selected callers.
- › **Auto Attendant** This software enables self-service switchboard operation that can deliver consistent, high-quality service to callers. The auto attendant can be programmed to provide dial-by-name routing into the organization, as well as interactive access to pre-recorded information. VCX systems can be configured to allow an unlimited number of auto attendants, letting larger organizations deploy these attendants at smaller offices or at departmental or even personal levels.

#### 3COM IP CONFERENCING AND PRESENCE MODULES

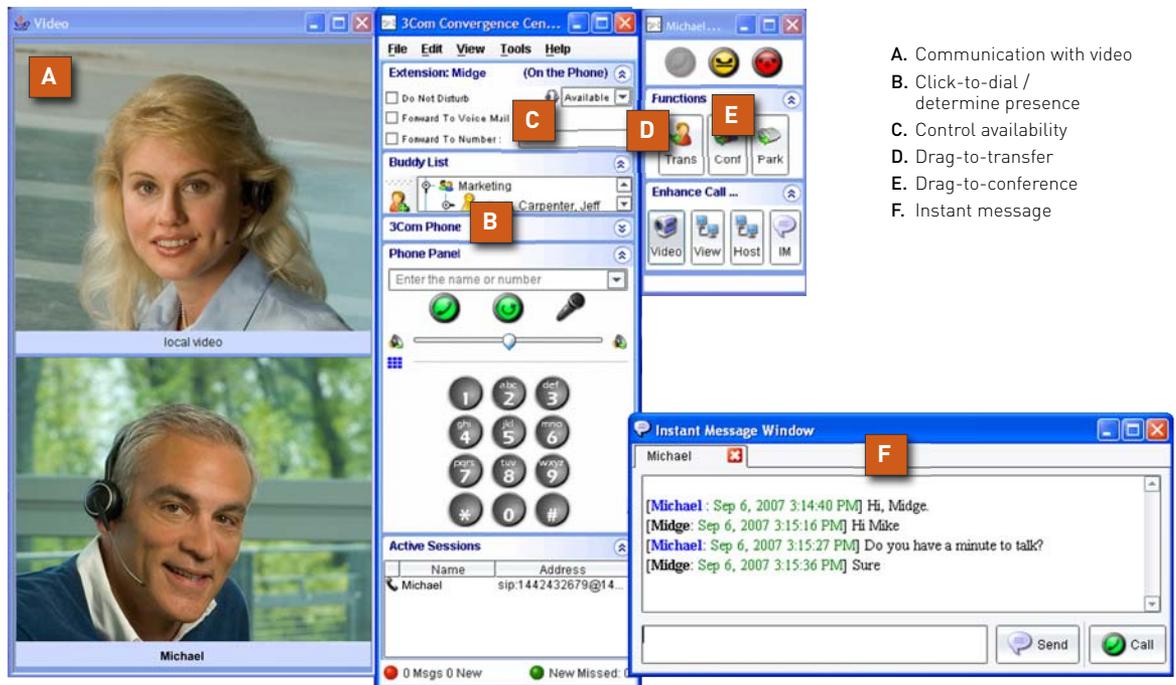
The optional 3Com IP Conferencing Module provides audio conferencing, video conferencing and desktop sharing, letting organizations promote collaboration among remote workers without the need for expensive external services or incurring travel costs. It assists enterprises in increasing employee productivity and in enhancing service when used with customers and partners. Multiple conference types—including meet-me, ad hoc, scheduled, instant and restricted conference—can be run simultaneously. Optional alerts, such as name announcements when persons join or leave a session and end-of-conference warnings, can be turned on to assist participants. Users can also request a roll call, and the conference host can mute, disconnect or place a participant on hold. Capacity is extended simply by purchasing session licenses up to the maximum supported by the conferencing server. Even the smallest server will support up to 200 simultaneous users in conference. With a maximum 12-server system, up to 3,000 simultaneous sessions can be supported.

The 3Com Presence Module, an application that provides updated real-time information on the current state of a user on the network, is included with the IP Conference Module. It indicates online/offline, on-hook or off-hook status. Used with the 3Com Convergence Center Client, workers can initiate contact based on a colleague's availability as displayed in the buddy list window. The Module communicates with the VCX system to automatically populate its database with users, but users retain the option to be hidden from selected colleagues or from all colleagues by simple changes to their Client configuration. The status of VCX system phones is made available only to Convergence Center Client users who have authorization to view a fellow worker's presence state.

#### 3COM CONVERGENCE CENTER CLIENT

This integrated, user-centric communications software client for Windows PCs is included with the 3Com IP Presence server and the 3Com IP Conferencing server. It unifies access to telephony, messaging, presence, instant messaging, audio conferencing, video conferencing and desktop sharing through a single, intuitive

interface. The Convergence Center Client supports click-to-call and click-to-conference capabilities utilizing the solution's integrated contact list. It also can be used as a softphone with a suitable headset connected to the PC, or with a 3Com desktop phone remotely controlled by the Client.



One-click convenience and a comprehensive set of capabilities give the 3Com Convergence Center Client its unique productivity-enhancing value.

### 3COM CONTACT CENTERS

Contact center applications are designed to ensure fast and efficient service to callers. Using skills-based routing, enhanced call management software connects callers quickly to the person who can provide the best assistance. 3Com contact center solutions support multimedia contacts as well. Email and web chat interaction options, managed within the same set of business rules and company-defined response metrics, allow callers to choose their preferred media and businesses to ensure consistent service.

3Com contact center software delivers standards-based, automatic call distribution (ACD) capabilities to replace rigid and costly proprietary hardware-based ACD systems. Flexible deployment and easy scalability result from using off-the-shelf servers with Intel general-purpose processors and a Windows or Linux operating system. Optionally, multiple, dispersed contact centers can be configured and managed as a single facility, enabled by next-generation functionality and a SIP-based, distributed hub and node architecture. Contact centers can be regional operations of a single business line, or they can be completely distinct business lines serving different customer bases and utilizing separate databases.

### 3COM ENTERPRISE MANAGEMENT SUITE

This enterprise-class management package provides administrators with a top-down, all-encompassing view of the converged voice-data network. The Suite becomes a critical troubleshooting tool, performing periodic self-tuned upgrades, inventory checks and managing stress points within the network. It not only monitors key system elements, it also can be used to manage many other networking components, such as wired and wireless switches, routers and security devices.

## VCX PLATFORMS

Each member of the family of VCX communications solutions is tailored to organizations with particular requirements, while all VCX offerings share common code and a unified application set.

### VCX CONNECT PLATFORMS

For smaller network deployments, modular VCX Connect platforms include bundled IP telephony and IP messaging applications with licenses for 25 users. Both the VCX Connect 100 and VCX Connect 200 models work with a range of 3Com IP phones and VoIP gateways, allowing multisite deployments over IP networks, as well as integration with existing PSTN facilities and retained legacy PBXs.

VCX Connect 100 platforms—well suited for organizations with fewer than 100 users—provide a complete IP-PBX with integrated gateways. VCX Connect 200 platforms support up to 250 users. Both platforms can be expanded with additional gateway modules for analog and E1/T1 connections.

### VCX ENTERPRISE PLATFORMS

Able to meet the needs of organizations of any size, VCX Enterprise applications can be centralized or distributed using a combination of standard servers and integrated branch office communications platforms. Multiple applications can be consolidated onto a single server for minimum cost or, for maximum scalability and performance, servers can be dedicated to each application module. To maximize availability, individual servers can be deployed at points throughout a network to create server and application redundancy.



VCX IP communications solutions include a range of business phones, gateways and platforms so that businesses can align their needs and budget. The IP phones shown above from top left to right are the 3Com 3101 Basic Phone, 3101 Basic Phone with Speaker, 3103 Manager Phone, 3102 Business Phone and 3105 Attendant Console. The 7111 Analog Gateway appears just below the phones. The stack on the right from top to bottom shows the V7122 Digital Gateway, VCX Connect 100 platform and the VCX Connect 200 platform.

## IP PHONES

Organizations can select IP phones that align with their business needs from a variety of 3Com devices that deliver traditional telephony features and a full range of advanced services. Convenient feature buttons and optimized LCD panels allow easy access to capabilities that include viewing incoming and outgoing call logs from the phone display and searching the internal name directory with a simple touch of a button. Self service relocation of phones saves time and maintenance call expenses, lowering total cost of ownership. Moving a phone involves simply plugging it into a network port at a new location; all personal settings, directory entries, and voice mail travel with the phone.

### **3COM 3101 BASIC PHONE AND 3101 BASIC PHONE WITH SPEAKER**

These IP phone models offers simple, affordable, easy-to-use features. One model provides listen-only speaker and the other, a half duplex speakerphone. Both models have a multiline display and four programmable buttons that allow convenient call management and access to frequently used capabilities. The Hold and Message buttons are clearly distinguished and an intuitive display with three softkeys and a four-way cursor controller provides instant access to user directories and call logs. With Power over Ethernet (PoE) support, the phones are ideal for classrooms, manufacturing floors, or common areas where fast, flexible deployment is needed. In addition, the 3101 models include a switch port that allows a computer or similar Ethernet device to share the same wiring, eliminating the cost and complexity of running a second cable to each location.

### **3COM 3102 BUSINESS PHONE**

Sophisticated capabilities and excellent acoustics distinguish the 3102 Business Phone. A high quality speaker and microphone are carefully matched with the phone's external housing design to maximize speaker volume and minimize "clipping" during full-duplex speakerphone calls. In addition, the phone is designed to support emerging wideband audio standards, and includes a built-in headset jack. Users can easily access standard features—Speaker, Redial, Conference, Transfer and Hold with oversized buttons. And they can customize dozens of additional capabilities to meet individual requirements.

### **3COM 3103 MANAGER PHONE**

This 3Com multiline IP phone delivers state-of-the-art telephony services with Gigabit connectivity. Sharp acoustics and ergonomics-inspired design, a unidirectional microphone in the full-duplex speakerphone and wideband audio support for high-clarity audio handset and headset attachments optimize performance. A large 320x120-pixel display, augmented by 10 softkeys, eight programmable feature buttons and a four-way cursor control lets users access features such as account codes or zone paging with ease. Additionally, two switched 10/100/1000 ports support Gigabit-speed network connectivity for other desktop digital devices.

### **3COM 3105 ATTENDANT CONSOLE**

The 3105 Attendant Console helps organizations make a good first impression by providing attendants, receptionists, workgroup administrators and other first-contact workers with the tools needed to handle inbound calls efficiently. Its 50 programmable buttons can be instantly doubled to 100 via the console's Shift button; up to three Attendant Consoles can be connected in parallel to service larger locations. Four more buttons are reserved for frequently used call handling features such as Transfer, Call Park, Transfer to Voice Mail or Hold. And multiple speed dials provide one-touch access to functions such as the monitoring of messages waiting in user mailboxes and access to direct line appearances. Furthermore, flexible programming allows combinations of capabilities to maximize productivity.

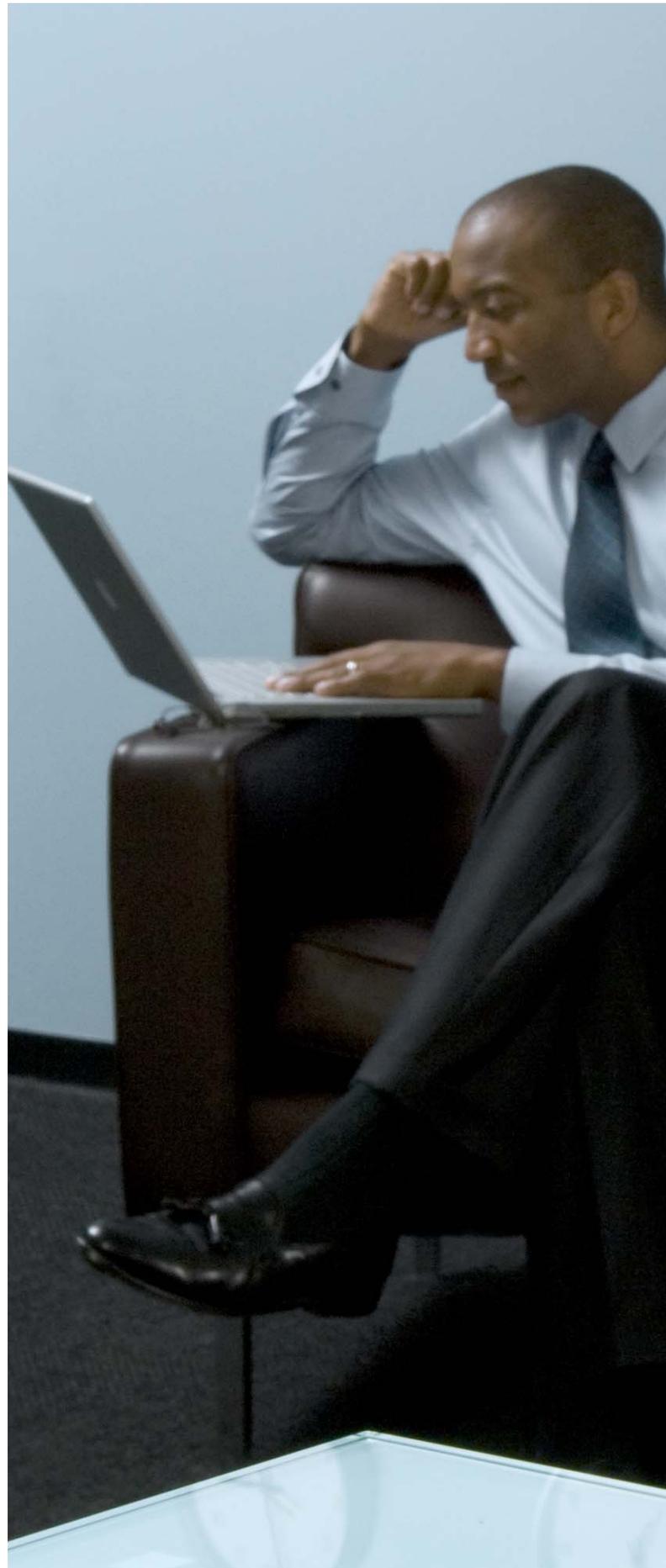
3Com and third-party SIP-compliant phones and soft clients such as the Xten eyeBeam and EyeP Phone Desktop can be used with 3Com VCX IP communications platforms and applications. More information about similarly compatible products is available at [www.open.3com.com](http://www.open.3com.com).

## 3COM VOIP GATEWAYS

3Com gateways (analog and digital) are used to connect the PSTN, existing PBX systems, analog phones and fax machines with the IP communications system. They offer a cost-effective solution in areas where an IP phone is not practical, such as in a factory or manufacturing facility, or for lift/elevator emergency phones. 3Com V7111 FXS Analog Media Gateways (available in 2- to 24-port models) easily connect analog phones, cordless phones, speakerphone extensions and other industry-standard tip/ring (2500 set) analog devices such as Group 3 fax machines. Other V7111 models support FXO connectivity with analog PBXs or PSTN lines. Mixed FXS/FXO gateways (available in 2/2- or 4/4-port models) enable both PSTN and local analog devices to be connected to the IP communications system and offer the added advantage of maintaining direct connectivity to analog lines in the event of a system failure.

For digital connections to the PSTN, there are two 3Com VoIP gateway options. One is a modular chassis that can be equipped with up to four (4) E1/T1 PRIs. The chassis can also be used as an integrated branch communications platform when the call processor unit (CPU) and hard drive are installed on it. Without the CPU, the chassis offers a resilient and flexible gateway solution for PSTN connectivity. Redundancy can be ensured with installation of duplicate modules and optional redundant power supplies.

For large sites with a high volume of PSTN traffic, V7122 digital VoIP gateways—software configurable for T1 or E1 lines—are available in fixed configurations of 1, 2, 4, 8 and 16 spans. They connect to PBXs or T1/E1/PRI PSTN circuits and can handle up to 384 (T1) or 480 (E1) channels.



## LOOKING AHEAD

For decades, 3Com has created technology solutions based on the premise that communications is like any other application on the network. This vision now empowers 3Com customers to take advantage of an array of innovations made possible by use of an open architecture. Forward-looking 3Com solutions leverage IP and SIP standards to protect an organization's infrastructure investments, while simultaneously supporting the immediate, cost-effective deployment of best-of-breed applications.

With an eye to the future, 3Com VCX solutions not only provide resilient, easy-to-use, media-rich communications now, they also enable integration of evolving applications into today's and tomorrow's IT environments.





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