

## Cisco Unified Communications: Bringing Innovation to Accessibility



Today's diverse workforce creates extraordinary value for business, government, and education. At the same time, it introduces new challenges. How can organizations empower all people, regardless of hearing, vision, and mobility level, to contribute equally? And how can those same organizations provide equal service to their customers with disabilities? The extent to which an organization provides equal access shapes its productivity, responsiveness, and ability to attract and retain the most qualified employees, regardless of disability. It also increases the organization's service levels to a distinct segment of its customer base, positively affecting customer satisfaction and revenue.

Equal access is a sound business strategy—and it is the law. For example, in the United States, the Americans with Disabilities Act, Section 255, of the Telecommunications Act, and Section 508, of the Rehabilitation Act protect the rights of people with disabilities by encouraging organizations and manufacturers to provide telecommunication and Information Technologies (IT) resources that everyone can use. Other countries have similar regulations, such as the United Kingdom's Disability Discrimination Act. Cisco Systems® is committed to providing accessible and usable solutions to improve the way all people conduct their lives. The Cisco® Unified Communications system conforms to the Americans with Disabilities Act, Section 255 and Section 508, and in the process helps all Cisco customers to fully realize the value of their diverse workforce. Everyone benefits: employees with disabilities, their co-workers, customers, and shareholders. As the global leader in network communications, Cisco devotes extensive resources to ensuring the accessibility of its unified communications systems, including dedicated accessibility experts. And because Cisco is its own most demanding customer, its employees with disabilities use Cisco products in their daily work, providing immediate, relevant feedback to designers about accessibility and usability.

Cisco's commitment to accessibility also extends beyond the company walls. Cisco actively participates in standards committees and industry boards, and collaborates closely with consultants, universities, interest groups, and experts who specialize in accessibility. To better understand the needs and concerns of people with disabilities and validate its designs, Cisco engages people with disabilities for focus groups and usability studies. Many of their suggestions have become standard features in the Cisco Unified Communications family of products. Cisco takes advantage of open IP standards to lift accessibility to a new level, creating a more collaborative and productive workforce. Unlike traditional phone systems, Cisco Unified Communications is based on open interfaces and industry standards, meaning that Cisco customers also enjoy access to complementary solutions from industry-leading, third-party technology developer partners, including Berbee, Tenacity, IP blue and NXi Communications. These and other technology developers take advantage of the open interfaces within the Cisco Unified Communications system to extend the power of IP to every person in the organization.

**“In testing usability and Section 255 and Section 508 conformance, we found Cisco’s solutions to be highly accessible. In many places their accessibility exceeds regulatory requirements and meets the needs of users with disabilities to an unprecedented level. The attention to details, such as TTY message handling, speaks well of the company’s commitment and allocation of resources.”**

—Jim Tobias, president, Inclusive Technologies

## Accessibility Solutions from Cisco Systems

### Cisco Unified CallManager

Cisco Unified CallManager even extends accessibility to areas in the administration of the system that in the past were inaccessible to the visually impaired. Most recent versions of Cisco Unified CallManager Administration are interoperable with screen reader applications, allowing visually impaired people to administrate the system. Screen reader applications also enable individual users to access web pages to configure their preferences and features on Cisco Unified IP phones.

### Cisco Unified IP Phones and Endpoints

Cisco Unified IP phones provide people who are disabled with easy access to the rich feature set, beyond the telephone basics, long enjoyed by others in the organization. For instance, Cisco Unified IP phones provide both audio and visual alerts of phone states, including dial tone, ringing, mute status, and more. Visual alerts are displayed on a large liquid-crystal-display (LCD) screen integrated into the phone. For people with reduced vision, an optional color LCD screen provides high contrast and backlighting. Hearing-aid compatibility (HAC) is standard on all Cisco Unified IP phones.

Cisco Unified Communications solutions also support Telecommunication Devices for the Deaf (TDD) or text telephones (TTY). Like voice over IP (VoIP), transporting Baudot tones over IP requires quality of service (QoS) for reliable delivery, a feature that Cisco Unified Communications has offered from the outset. To make or place a TTY call, employees can either acoustically couple

a TTY to the Cisco Unified IP phone or directly connect it to the IP telephony network through any analog gateways, including the analog telephone adapter 186 (ATA-186). With equal access to the mobility features of Cisco Unified Communications, TTY users can make and receive calls from different locations in the organization while retaining the same phone number by bringing only their TTY and an ATA. Also, Cisco Unified Communications addresses a critical safety concern for TTY users. Cisco Emergency Responder supports TTY users in accessing emergency 911 services through the TTY device.



As an alternative to TTY, deaf and hearing employees can communicate easily among co-workers with American Sign Language using Cisco Unified Video Advantage or the Cisco Unified IP Phone 7985G. Cisco Unified Video Advantage adds video telephony capabilities to Cisco Unified IP phones. This solution includes Cisco Unified Video Advantage software and Cisco VT Camera II, a video telephony USB camera. The software and camera are both installed on a PC co-located with the employee's Cisco Unified IP phone. Cisco Unified Video Advantage makes video telephony as easy as making a phone call. The Cisco Unified IP Phone 7985G is a personal desktop video phone with all the components to enable incorporation of a video call into one easy-to-use unit—camera, LCD screen, speaker, keypad, and a handset. As a result, a video call is just a phone call. Both Cisco Unified Video Advantage and Cisco Unified IP Phone 7985G offer the ability for people who rely on sign language to communicate visually, instead of using legacy TTY devices, productivity-enhancing tools that make instant, face-to-face communication possible.



### **Cisco Unity<sup>®</sup> Unified Messaging: Accessible Voicemail and Unified Messaging**

In the past, retrieving TTY voicemail messages could be daunting, and even discouraged the use of voicemail. A sluggish 45.45-baud retrieval rate eroded productivity, making users wait minutes to pull a short TTY voice message. Hearing users in mixed environments did not know whether a message was TTY or voice until the Baudot tones sounded, the cue to quickly insert the handset into a TTY device. Cisco Unity Unified Messaging software surmounts these problems by giving users the option to retrieve TTY messages as e-mail messages. The TTY tones within the message are converted at the desktop, appearing as text in a fraction of a second. In addition, TTY message recipients can respond quickly by typing on their PCs, and the Cisco Unity system automatically encodes the text into Baudot tones for transmission.

Cisco Unity prompts extend to all levels of the menus including automated attendant and directory services. They provide Baudot tones for the menu structure that is typically only reserved for voice callers.

The Cisco Unity Voice Messaging system accommodates other disabilities as well, with features such as adjustable playback speed for messages and adjustable response times for people who need more time to respond to system prompts.

For message notification, Cisco Unity Voice Messaging provides an effective alternative to stutter tones or message-waiting-indicator (MWI) lamps. Employees can use a phone or Web interface to instruct the system to call one or more phones or pagers when a new message is left. When the employee answers, the Cisco Unity system prompts the employee through voice or TTY to log in and retrieve messages.

**“With our Cisco Unified Communications systems, for the first time our deaf staff can contact outside resources on their own, without having to rely on someone else to dial the phone or interpret. And they can receive calls without assistance as well.”**

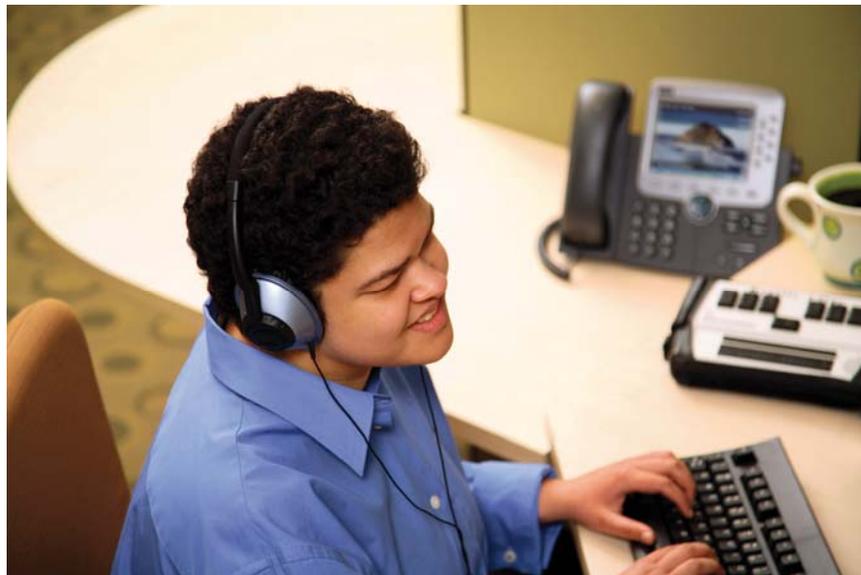
—Lorana Myers, WSD supply officer, Washington School for the Deaf

### **Cisco Text Relay For Baudot Phones**

Cisco Text Relay, a new technology, implements a mechanism for transporting TTY signals over VoIP calls in a highly reliable manner. TTYs or TDDs are specialized phones that enable people who are deaf, hard-of-hearing, or speech-impaired to communicate over TDM or IP networks by allowing them to type messages back and forth to one another instead of, or in augmentation of, talking and listening. Cisco Text Relay enables the TTY text characters to be sent over the voice channel concurrently with voice in both directions, thus enabling support of both Voice Carry Over (VCO) and Hearing Carry Over (HCO). Cisco Text Relay is based on the new ITU standard V.151 and enables reliable transmission of TTY characters in a network with up to 10% packet loss.

The Cisco Text Relay for Baudot Text Phones feature supports both Baudot 45.45 baud and Baudot 50 baud standards-based TTY phones. These TTY phones are commonly used in countries including the United States, Canada, Ireland, Australia, New Zealand, and South Africa.

### **Accessibility Solutions from Cisco Technology Developer Partners**



#### **IP blue: Providing Audio-Assisted Phone for the Visually Impaired**

An accessible soft phone specially built for the Cisco Unified Communications system, the VTGO-PC Softphone from IP blue can be deployed alone or in conjunction with the Cisco Unified IP Phone 7960G. Users choose which phone to use on a call-by-call basis. With built-in text-to-speech translation, the VTGO-PC Softphone provides audio assistance for all features of the Cisco Unified IP phone, including caller ID, call hold, line status, advanced services such as call directory and missed calls, and even prompts and messages from third-party applications. IP Blue also supports

Cisco Text Relay. This allows the IP blue Softphone to receive and place TTY calls natively within the software without the need for legacy TTY devices. Employees accustomed to a JAWS screen reader can either continue to use it with the soft phone or switch to the integrated IP blue speech engine. Mobility capabilities help employees retain the same phone number as they work from various locations. The VTGO-PC Softphone operates much like a typical phone: users do not need to use special keys for audio assistance, nor do they need to memorize or mark special-purpose keys.

#### **AccessAPhone by Tenacity—Breaking New Ground in Accessibility**

AccessAPhone is the first comprehensive set of Computerized Telephony Accessibility Provider (CTAP) solutions. The unique approach of AccessAPhone is to employ input options such as keystrokes and voice commands, which allow for easier and quicker control of the telephone. For example, keystrokes D, H, and T can be used to perform dial, hold, and transfer. And AccessAPhone keystrokes can be mapped to voice commands, enabling hands-free telephone usage. AccessAPhone makes full use of text-to-speech technology to provide important information such as audio caller ID, audible MWI, and call-logging history. Convenient verbal prompts inform the user about the state of the telephone and guide the user through even advanced features such as conference calling. The AccessAPhone built-in speech engine enables users to customize their own user options and default choices with minimal outside assistance or the need for a separate screen reading program. And all AccessAPhone interfaces, forms, options menus, and help documents are low-vision-accessible.



#### **NXi: Advanced Text Communications for the Hearing Impaired**

NXi Telephony Services (NTS) complements the Cisco Unified Communications solution to provide advanced text communications over IP networks, transforming the PC into a TTY device for sending and receiving messages. Using the NTS client software on a PC, TTY users can take advantage of a visual interface to dial extensions and other phone numbers, use the computer keyboard to type TTY messages, and read them on the computer monitor. NTS also provides automated attendant, interactive voice response (IVR), and messaging options such as e-mail, fax, alpha paging, and instant messaging services.

### Berbee: Visual and Audio Emergency Notification Through the Phone

Overhead paging often does not reach deaf employees, compromising safety. Berbee InformaCast helps ensure the safety of all employees by simultaneously sending an audible broadcast and text message to Cisco Unified IP phones. In this way, the organization helps ensure that all employees have equal access to vital information about emergencies or network outages, for example. Administrators can select a prerecorded message or record a live broadcast, and send it to all phones or selected groups.

### A Strong Commitment to Accessibility

All employees deserve equal access to their workplace's communications system, and every organization deserves the collaboration and productivity gains that result. Cisco Systems leads the industry in its commitment to accessible systems, demonstrating that commitment through its programs, solutions, and relationships with third-party technology developer partners. Accessible Cisco Unified Communications solutions based on open standards lift the limits to equal access, paving the way to a more collaborative and productive workforce.

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

For more information about the Cisco Accessibility Initiative and Cisco's conformance to accessibility regulations, visit:

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



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