

VoIP Makes Itself Heard

Use your network to increase capabilities, boost productivity and dramatically reduce your communication costs.

Executive Summary

Communications lies at the center of the modern enterprise. It's impossible to make it through a day without sharing data and talking to customers, business partners and other employees.

As organizations embrace powerful networks to manage the massive amounts of data required to compete in today's global environment, many are finding that using these same networks to handle voice traffic makes sense and saves dollars.

Although Voice over IP (VoIP) isn't a new technology — it has been around in earnest since the late 1990s — it is finally hitting full stride and making a major impact on small businesses. When it is used effectively, VoIP can provide enhanced communications capabilities while reducing long distance phone costs by 30 percent or more and crumpling administrative overhead.

In fact, according to Nemertes Research, VoIP can trim moving, adding and changing (MAC) costs by 90 percent over traditional phone systems. Finally, by combining data and voice traffic over the same network, it's possible to use enhanced voice messaging, next-generation data services, number portability, message broadcasting and other features.

Make no mistake, VoIP has moved into the mainstream. It is helping small businesses gain a big business presence in a crowded and highly competitive marketplace. Increasingly, companies with fewer than 20 employees are finding VoIP systems affordable and efficient.

According to IT market research firm Infonetics, 14 percent of small businesses in North America were using VoIP products and services in 2005. By 2010, nearly half of small businesses will be using VoIP. Already, U.S. firms are installing more Internet-phone connections than conventional lines.



Net Gains:

Popular VoIP communication features include:

- **Unified Messaging** Allows an individual to view e-mail, voicemail and faxes from a single inbox on the computer.
- **“Find-Me Follow-Me” Capabilities** Allows workers to receive calls wherever they are at — in the office, at home, on their notebook PC or on cellular phone.
- **Visual Voicemail** Lets workers view messages by preference rather than by the order of the queue. This saves time and helps staff use messaging more efficiently.
- **Unified Messaging** Consolidates voicemail, e-mail and faxes into a single inbox — a boon for road warriors but also helpful for anyone who needs to manage messaging and information more effectively.
- **Call Transfer** Calls are quickly and seamlessly transferred across offices and geographic distances. This helps a small firm look like a large company.

VoIP network advantages include:

- Network administrators manage only one consolidated network rather than separate voice and data networks.
- No need to pull cable for phone extensions.
- There's no costly and time consuming PBX reprogramming when employees are hired, retired or move to another office location. The latter can lead to costs savings of 90 percent.
- Integration with computer databases, including contact lists and customer relationship management (CRM) applications, improves service and support.
- Integrating voice, data, video, audio and collaboration tools on the same network ratchets up productivity.

Dialing Up Performance

For years, businesses large and small relied on the conventional telephone network to transmit calls across town and around the world. This voice network, referred to as the Public Switched Telephone Network (PSTN), provided a high level of reliability and, for the most part, excellent voice quality.

But the cost didn't come cheap. For a small business, long distance charges could run into the hundreds of dollars per month. Businesses also found themselves managing and maintaining separate voice and data networks. Reconfiguring a PBX (Private Branch Exchange) was often a major headache.

VoIP — also known as IP Telephony, Internet Telephony and Voice over Broadband — became commercially available in 1996, after the widespread adoption of the Internet. Unfortunately, early systems could not connect to the PSTN network, thus limiting their scope and effectiveness.

Another issue was the limited bandwidth available for calls. In many instances, users would find themselves coping with drop-offs and delays in audio (latency), digital distortion (jitter) and disconnected calls. Finally, VoIP phones offered limited features. Many didn't include voicemail, Caller ID, call waiting and forwarding, and other functions that business users now take for granted.

Today, a growing number of broadband providers, particularly cable companies, offer digital voice service that uses IP telephony. However, these services — while typically offering lower cost and bundled features such as Caller ID, voicemail, call waiting, call forwarding and speed dialing — do not provide the robust capabilities of a VoIP solution that's installed on a business network.

Likewise, services such as Skype, while lowering phone expenses, particularly for international calls, don't offer the enhanced features and computer-telephony integration that comes with leading VoIP systems. Instead, companies such as Avaya, Cisco Systems, Polycom, ShoreTel and TalkSwitch are redefining the marketplace and the way small businesses act and interact.

To be sure, the technology has advanced and network bandwidth has increased. Over the last few years, the widespread adoption of data networks has opened the door to new and compelling possibilities, including merging voice and data over the same network to create innovative features and functions.

For example, VoIP makes it easy to assign a phone to a person, have that individual plug it in at any desk or cubicle and receive calls and voicemail without additional setup or configuration. In other words, the phone — and the individuals using it — breaks free of the constraints of a desk or other physical location.

VoIP Communication Services

This intelligent call routing allows companies to boost their customer responsiveness. “Find-me, Follow-me” capabilities make it much easier to locate highly mobile employees, such as doctors, nurses, retail salespersons, warehouse workers, janitors and many others. It also allows a small business to set up offices in different locations but transfer calls seamlessly and route incoming calls effortlessly.

Because VoIP can work across an internal local area network (LAN) as well as the Internet, it doesn't matter whether a person is sitting in a hotel in Madras, India or a coffee house in Madras, Oregon. Once an individual plugs the phone in to an Ethernet port or a telephony-equipped notebook PC with a broadband connection, she's ready to send and receive phone calls. What's more, others can view her status and get in touch without dialing several numbers.

Another popular VoIP feature is unified messaging. It allows an individual to view e-mail, voicemail and faxes from a single inbox on the computer. Clicking a button plays back the voicemail message. However, at the same time, it's possible to listen to these voicemail messages on the phone and view e-mail messages on a display built into the handset.

Mobile executives often find themselves traveling and otherwise unable to retrieve faxes — or forced to check multiple devices for different types of messages. This group often finds that unified messaging simplifies their day.

The voicemail features don't stop there. Another benefit of VoIP is visual voicemail. Instead of listening to a batch of voicemail messages in the order they were received, an individual views the entire list of messages and chooses which one he wants to listen to in whatever order he chooses.

Typically, the person's name or Caller ID information appears on a message list that's displayed on the phone's LCD. Listening to messages is also easier because buttons or soft keys on the phone's display control functions such as rewind, replay, skip, save and delete.

There's no need to remember cryptic codes and number strings. Sage Research reports that IP-based unified communications saves a typical firm 32 minutes per day per employee — just by connecting to others more efficiently.

Likewise, VoIP makes it possible to integrate a phone with applications on a computer. With the right software, an individual can dial from an onscreen contact list (without punching in any numbers on the keypad).

It's also possible to integrate Caller ID with software that pops up a customer's contact data along with notes or a past order history. Similarly, a VoIP phone with a built in display can show data that's useful for particular tasks and situations.

For instance, a sales person in a retail store might view inventory data while talking to a customer who has called in to inquire about a product. A specialized application might allow a physician to pull up data about a drug while talking to a pharmacist.

VoIP audio conferencing has also made inroads. An organization that has VoIP in place can connect callers over the network at the touch of a button or two. VoIP makes it simple to bring together employees in different offices and locations while trimming long distance costs and expenses associated with a conventional audio bridge.

Moreover, it's possible to use collaboration software, so that a group or team can simultaneously view PowerPoint slides, Excel spreadsheets, video, audio and more within their Web browser. This eliminates the need for a separate audio bridge while the presentation is taking place.

Mobile VoIP is also growing in stature. It lets workers carry phones with them and use the devices within a business environment, such as a warehouse or retail sales environment. Operating over a WiFi network, a business can create point-to-point accessibility.

With the right software in place, smart phones and PDAs can connect to the network and provide even greater flexibility. Indeed, as the technology marches forward, the opportunities and possibilities grow. Today, small businesses have resources available to them that were unimaginable only a few years ago.

"For salespeople and executives on the road, the ability to use a softphone [software used for making telephone calls over the Internet] with a laptop will not only be cheaper, but will allow a business to keep track of the calls made and received in an integrated way," said Robin Gareiss, an analyst at Nemertes Research, a market research firm based in Mokena, Ill.

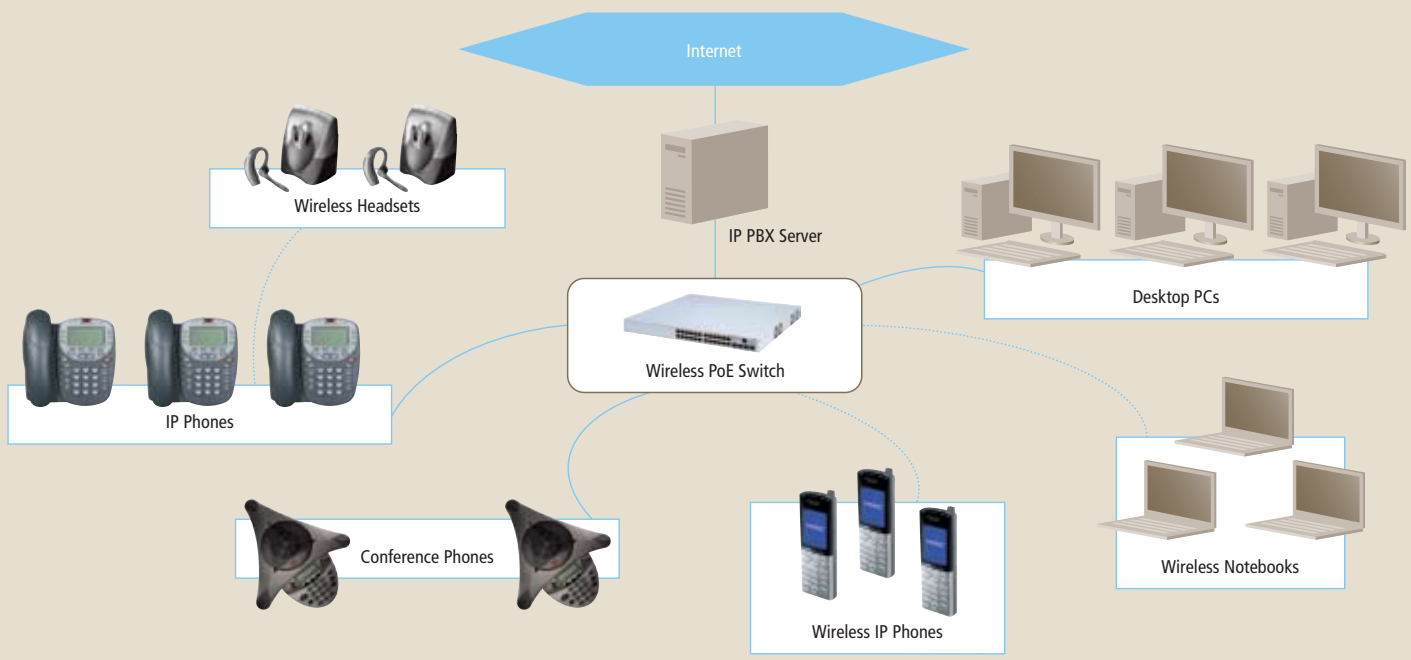
What's more, moving to VoIP will prepare the company's network for the future, allowing it to leverage new applications that come out of the IP world, she adds.

This is one of the reasons why Analytical Graphics Inc., a small business that provides analysis software to security and space professionals, moved to unified communications.

When the Exton, Penn.-based company needed a modern, integrated telephony solution to replace its aging system, it looked for one that would support and connect its headquarter's location with sales offices and mobile workforce while offering other state-of-the-art capabilities, such as multisite conferencing and the ability to automatically direct incoming calls.

Eventually, the firm settled on the Avaya IP Office solution, consisting of Avaya IP telephones and softphones. All locations are networked via Avaya Small Community Networking, while messaging management is supplied by Avaya VoiceMail Pro and phone management through Avaya Phone Manager Pro.

As a result, the company's highly mobile workforce stays connected via a flexible and easy-to-manage system — all while reducing overhead and telephony expenses.



From VoIP to True Convergence

Often, the move to VoIP is just the first step for small businesses seeking a more efficient, productive environment. Increasingly, enterprising small businesses are following in the footsteps of their larger counterparts by moving to an environment where voice, data and video are integrated seamlessly.

Called convergence by some and unified communications by others, it's basically a way to allow users to receive, sort and respond to any type of communication — voice, fax, e-mail, images, landline phone calls, wireless phone calls, pages and video — from any location, from one in-box.

"It's about finding ways to become more efficient and productive. For example, being able to connect voice, data and video to important tools like Salesforce.com, Microsoft CRM or other third-party applications can result in significant advantages for small businesses," explained Eren Hussein, Cisco's senior manager of SMB solutions marketing.

Convergence can yield real savings, both in terms of cost and efficiency. For example, Nemertes Research found a 23 percent savings in network costs with converged systems, versus running separate video and data networks.

For Seyfer Automotive, a small automotive repair shop in Wheat Ridge, Colo., moving to unified communications was about improving the productivity of its technicians and service and

sales staff while boosting customer service and responsiveness and reducing costs.

The solution was the Cisco Unified Communications 500 Series for Small Business, which extended voice and data access to all areas of the building. With the new system, customers can reach the right employee quickly, and employees can respond quickly to messages from customers and suppliers.

In addition, the company saw increased productivity due to greater efficiency, and it reduced the number of network devices that had to be maintained from four to one. The unified communications system also saved the company's service manager 30 minutes per day, increasing daily sales potential by up to \$400, noted operations manager Donny Seyfer.

Building on Sound Strategies

VoIP phones look a lot like the analog handsets that have long adorned business desktops. They typically have dialing pads, dedicated buttons for functions such as a speakerphone and headset; mute and hold buttons; and redialing.

But the similarities stop there. Most VoIP phones offer programmable soft keys and an enhanced LCD display. And because the phones use IP protocol — the same standard used over the Internet and by most local area networks — they're able to accommodate a variety of other features and tools, including instant messaging, data, and IP video and audio.

Several manufacturers have introduced sophisticated yet affordable phones for the SMB market. For example, the Cisco Systems 7940G IP Phone is ideal for workers looking for advanced IP telephony features in a basic device.

It features a high quality, hands free speakerphone, build-in headset connectivity, dedicated buttons for managing functions, Microsoft NetMeeting compatibility and a large pixel-based display. It's ideal for transaction-oriented environments.

Meanwhile, Cisco's 7975G VoIP Phone features a backlit color touchscreen display that accommodates video, visual messaging and call functions—as well as third party add on applications. The unit is designed for executives, sales professionals and others that work in data intensive environments and rely heavily on a phone.

Other leading vendors with VoIP phones include Avaya, Polycom and TalkSwitch. In fact, the latter firm offers a complete solution tailored to the needs of a small business.

Its TalkSwitch Phone System includes a dedicated switch to manage the VoIP environment and the software and hardware to make IP telephony a cost effective and compelling business proposition. "The technology eliminates many of the technical challenges and makes VoIP affordable for small businesses," says Ron Reddick, Marketing Manager for TalkSwitch.

A TalkSwitch device supports as many as eight phone lines, including analog and digital extensions. Combined with other switches, it can handle as many as 32 phone lines, 64 extensions and 32 VoIP trunks.

Because the system is a hybrid PBX — offering both analog telephony and digital functionality — it is highly flexible and scalable. A call manager, which routes all the voice traffic, is built into its VoIP phone system.

This simplifies installation and eliminates the cost and complexity of adding a separate call manager. Designed for firms with fewer than 20 employees, the cost of a fully functional system is available for less than \$1,000.

Systems such as TalkSwitch are revolutionizing the way businesses approach communications.

"The technology is ideal for a group of small offices within the same company, or when two or three people work out of the same office but have others within the company working from home offices," Reddick points out.

No less important: "VoIP allows a customer calling in to a company to have a unified and professional experience," he says. "They call one number and can be transferred to another office or transferred to somebody's home office. The process is seamless. It gives a segmented small office the look and feel of a large company."

Cisco also offers sophisticated solutions aimed at SMBs (Small- and Medium-Sized Businesses). For example, its Unified Communications 500 Series for small businesses provides an array of advanced features in a single, affordable package.

The solution supports up to 50 users and offers integrated voicemail, video, an automated attendant, a basic call center, music on hold, optional wireless access and management features. It is ideal for mobile workers and extends VoIP into home offices.

Individuals can use their notebook PCs and PDAs (Personal Digital Assistants) as secure office phones. The system provides an integrated firewall as well as virtual private network (VPN) capabilities. This makes it ideal for today's highly mobile and decentralized work environments.

The common denominator is that VoIP is emerging as a foundation for today's sophisticated communication requirements. It's raising the profile of small businesses and giving them equal footing with larger companies that have much deeper pockets. The flexibility that VoIP provides is also leading to new and more efficient ways to work.

Ringling in a New Era

Although VoIP offers significant advantages over conventional telephony, putting a system in place and realizing a return on investment (ROI) isn't as simple as buying a product and switching it on.

There are configuration issues to deal with, quality of service (QoS) issues to address and flexibility and scalability factors to consider. An

organization that makes a hasty buying decision may find itself hamstrung rather than liberated by the technology.

It's essential to understand that VoIP isn't a panacea for all the various communications problems today's small business faces. It's important to approach the technology realistically and recognize its capabilities and limitations.

On the other hand, it's important to move beyond myths and misinformation. Too often, small business executives and entrepreneurs cling to the notion that VoIP is unreliable, low quality, difficult to deploy, resource intensive, a headache to administer and expensive. They see the risk of switching from PSTN to VoIP as risky and fraught with risks and problems.

In the early days of VoIP (the 1990s), these concerns were legitimate. However, the technology has matured over the last decade. In fact, it is now so reliable that all the major telecommunications firms use it to transport voice traffic over their networks.

At the same time, the reliability of broadband connections that business and consumers use for Internet access have and has spiked. Many broadband network providers have reached the so-called five nines for quality of service (99.999 percent uptime). This puts VoIP on par with conventional telephone service offered by the "Baby Bells" and others.

Voice quality has also improved dramatically. Routing technology and more advanced software have helped organizations allocate bandwidth and prioritize traffic far more effectively than in times past.

In fact, in some instances, voice quality now surpasses that of conventional phone service, thanks to systems and software that reduce background noise, electronic distortion and other nuisances.

Installing systems has also become less complicated. It's no longer necessary to purchase entirely new and different IT gear to install VoIP — or pull wire for new extensions and locations (VoIP can cut cabling and wiring costs by 40 to 50 percent).

For most businesses, Ethernet already exists and it's possible to get IP telephony up and running with standard, off-the-shelf IT equipment. Most organizations with a 100Mbps to 1Gbps LAN can accommodate VoIP traffic (each call typically uses 100Kbps of bandwidth).

What's more, configuring a VoIP system is now simpler than setting up a traditional PBX. A Web browser manages an administration console and allows "drag and drop" functionality. And when the time comes to make changes, there's no complex reprogramming. It's possible to accomplish the task in seconds, with a few clicks of a mouse.

Despite numerous advantages, it's wise to plan carefully before migrating to VoIP. Businesses that rely on phone systems for crucial services — such as in the medical arena — must ensure that a backup power supply exists.

Unlike conventional PSTN telephone service, which retains functionality during a power failure, VoIP goes dead without electricity. It's essential to configure a system properly and use QoS capable equipment.

Voice traffic must receive priority over data traffic or latency, jitter and packet loss can occur. An e-mail that's delayed by a minute or two isn't likely to cause any harm to the organization. However, a garbled conversation with a customer or business partner could endanger a sale or strain a relationship.

Security is also an important issue when deploying VoIP. Because these telephony systems operate over standard networks and come into contact with standard servers and PCs, they are susceptible to viruses, worms and Trojan Horses.

Consequently, network-based antivirus protection is a must. In addition, a business should use data encryption to protect privacy and intrusion detection systems to prevent hackers from breaking into the network and eavesdropping on calls.

Getting Down to Business

It's not surprising that small businesses are adopting VoIP and making it a mainstream tool. One small law firm now uses the technology to simply communication, scheduling and project

management among lawyers, paralegals, administrative assistants and others.

Teams can check schedules through the phones and reach each other in an instant — despite the fact that they're scattered in different locations, including home offices and client sites.

A boutique luxury hotel relies on VoIP to simplify communication and messaging for its staff, including maintenance engineers, housekeeping, room service personnel, bell staff and others who must be accessible and reachable at any given moment.

In addition, customers can view and play back voicemail messages over the VoIP phones or on the television set in their room. They can also view current charges and order through room service using the phone's LCD and the built-in buttons.

Meanwhile, a large real estate firm with offices in multiple locations within the same region has put VoIP phones in the hands of brokers, so they can view current listings on their phone's LCD while they're talking to a client.

Brokers can also view their calendars through the phones and use visual voicemail to access the most important messages first. What's more, transferring calls between offices is now a snap.

Finally, an international trading company with offices in San Francisco, Hong Kong and London is able to keep its 25-person staff in constant communication with each other — all while accommodating trading partners more effectively.

When customers call the company, account reps view the on-hold queue and pick up their calls first — even if the person is third or fifth in line. In the past, a customer dialing in would often have to work with a rep that wasn't familiar with their situation and needs.

Brokers can also transfer calls between offices without delay or interruption. The system saves the company between \$3,000 and \$5,000 in toll charges each month.

The possibilities are almost limitless. Many small businesses start with VoIP and then use it as a foundation for building a more holistic, unified and converged communications strategy. Within this environment, an instant messaging conversation can morph into a one-on-one videoconferencing session.

Then, another worker may enter the conversation and the discussion could evolve into a group meeting that uses a collaborative Web-based workspace. All of this can take place without ever hanging up a phone or starting a new session. It also nixes the need for expensive third party services.

It's a winning approach. Many companies find that they're able to achieve their return on investment within 12 months. More important, they are able to boost their performance and productivity—and keep customers, business partners and employees happier and more satisfied.

Today, VoIP is more than a substitute for conventional PSTN telephony; it's a mainstream and comprehensive business solution that can help a business achieve a distinct competitive advantage.

Conclusion

Choosing the right approach and putting the technology to work effectively requires an understanding of business needs, opportunities and return on investment (ROI). An organization must understand how to evaluate products from different vendors and how to assemble a flexible and scalable solution rather than a patchwork of technology tools.

In addition, it must configure the network properly in order to achieve an acceptable level of performance. Finally, it's essential to provide training for employees — so that they can maximize the benefits of the technology and use leading edge features built that work with VoIP.

VoIP has evolved into a mature and mainstream tool — and one that's affordable and cost effective for small businesses. The ability to trim phone bills, network administration expenses and infrastructure costs is compelling, though these benefits represent only part of the appeal.

In the end, VoIP creates a far more robust communications infrastructure while converging voice, data, video, audio, collaboration tools and more into a single, seamless environment. On the front lines of business communication, VoIP produces impressive bottom line results. ♦



Avaya IP Office 500

IP Office 500

Avaya IP Office is an intelligent communications solution specially designed to meet the communications challenges facing small and midsize businesses. Intelligent Communications for small and midsize businesses addresses basic telephony needs, leverages built-in convergence capabilities and capitalizes on the robust unified applications to deliver intelligence to users and customers. IP Office provides solutions that simplify processes, streamline information exchange within systems to create simple and prosperous experiences for all.

IP Office 500:

Included with IP Office R4.0 Standard Edition, the IP Office 500 system supports up to 32 telephones, with capacity for 16 analog trunks or 4 digital trunks (96 T1/PRI or 120 E1). Optionally, SIP trunks are also supported. With Professional Edition software, the IP Office 500 system supports 8 expansion modules, providing for a combination of 270 analog, digital, and IP extensions. Additional analog trunks can be provisioned using the IP400 Analog Trunk 16 module.

\$519.99 CDW 1162561



Cisco Unified Communications 500 Series for Small Business

8-user configuration with 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 VIC slot for expansion

Cisco Unified Communications 500 Series for Small Business, a critical part of the Cisco Smart Business Communications System, is a unified communications solution for small businesses that provides voice, data, voicemail, Automated Attendant, video, security and wireless capabilities while integrating with existing desktop applications such as calendar, e-mail and customer relationship management (CRM) programs. This easy-to-manage platform uses business-class, proven unified communications technologies to full advantage and supports flexible deployment models based on your needs — a wide array of IP phones, public switched telephone network (PSTN) interfaces and Internet connectivity.

\$3493.99 CDW 1226709



ShoreWare Mobile Call Manager

The ShoreWare Mobile Call Manager gives mobile employees seamless remote access

The ShoreWare Mobile Call Manager gives mobile employees seamless remote access to all of the productivity features linked to their extensions, allowing users to communicate more effectively and work more productively. Consisting of client and server software components, Mobile Call Manager offers visual access to all extension capabilities directly from the user's mobile device — a much faster, more intuitive approach than traditional dial-in access to corporate voicemail solutions. Mobile Call Manager is an intricate part of ShoreTel's Unified Communications solutions — transforming the way people communicate.

Benefits:

- Improves mobile phone users' productivity by providing seamless remote access to Visual voicemail, QuickDialer, Call History, Office Anywhere and Call Handling Mode setting
- Easily deployed via client and server software components
- Supports select RIM BlackBerry mobile devices

\$109.99 CDW 1333785

