# The third wave

*by David Levy*

## Unified communications at your fingertips

A THIRD WAVE OF technological change is about to revolutionize government communications. In the first wave, networked personal computers (PCs) on every desktop linked the organization internally. That set the stage for the second great change, the explosive growth of the Internet for information and service delivery. The third wave, unified communications, promises to make life easier for administrators, cost taxpayers less, and give employees a vastly improved ability to better serve citizens.

Unified communications puts an employee's communications at their fingertips, anywhere they can connect to the Internet. The productivity benefits of instant, universal communication are enormous, but it's just the beginning. Unified communications connects employees outwards, to colleagues and citizens, but inwards as well, to the data and applications they work with. The real payoff comes when communications features, whether fax, email, telephony or videoconferencing, are tightly linked to the business processes they support.

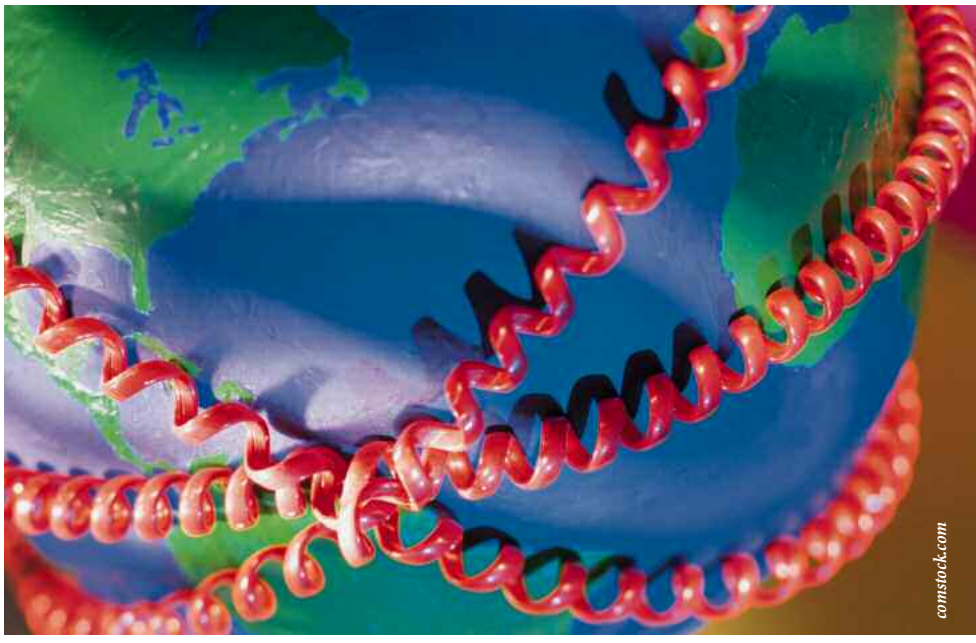
Voice over Internet protocol (VoIP) has lowered telephony costs considerably in recent years, and yet, most modern telephone systems still rely on, in effect, single-purpose, single-vendor computer networks. The power of the Internet is that it is a multi-purpose, multi-vendor network, based on non-proprietary standards. It works equally well at moving video and voice as it does data and instant messages, provided they meet Internet protocol (IP) standards.

IP is a revolution in telephone service because it breaks down single-vendor lock-in. Until now, when a government department or a municipality installed equipment from any one company, the relationship typically became long-term and absolute. On the positive side, vendors worked hard to make sure customers got the value they were paying for, and customers were often willing to pay a premium for peace of mind. On the negative side, there was very little in that paradigm to drive innovation and change. If a vendor could not or would not introduce new products and services at a price the customer considered reasonable, they would not be installed.

In the future, however, customers will look to open standards and a more competitive marketplace for peace of mind. Personal computers are a handy example of how quickly a useful technology can grow, given the right conditions. Clear, open standards and a competitive market mean that organizations today can buy a wide range of PCs with a variety of operating systems from a large number of vendors. Those computers can be customized, and they run a wide range of compatible software. They connect quickly and easily to most networks and immediately provide users with all the functionality and networking capability they expect. The same will hold true for telephones and telephony equipment. Organizations will be able to buy compatible equipment and software from a variety of vendors.

The most important standard in unified communications is SIP, or session initiation protocol. SIP makes connections over the Internet. As well as telephone calls, the connections can be videoconferences, instant messages, faxes or even links between online gamers. The important point is that SIP allows compliant devices to communicate with each other in a growing number of ways. Users will listen to their email over cell phones, using their voice to prompt each message; colleagues will join videoconferences from wherever they can find an Internet connection; users will be able to 'broadcast' important information instantly to predefined groups.

H.323, an older VoIP protocol, set the stage for unified communications, but it was never widely adopted. Traditional incumbent telephone companies favoured H.323 because it allowed them to charge for features and services that under SIP would cost little or nothing. But H.323 was costly and complicated for vendors, requiring detailed information to be exchanged about each and every connection.



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However, widespread adoption of SIP has really thrown unified communications wide open. Both SIP and H.323 are VoIP protocols, but SIP is a more flexible open standard; it simply manages the connections between two 'end-points' (whether they're phones, instant messengers, fax machines, email inboxes, videoconferencing software or devices and so on). In particular, SIP also allows for 'presence,' which is a way to determine if someone is available for conversation and if so, how so. Anyone who's used an instant messenger has experienced presence and the value it provides in terms of touching base with someone.

Basic computers and networks using industry-standard IT interfaces and protocols can replace all the services that traditional PBX (private branch exchange telephony) vendors offer: telephony, auto-attendant, interactive voice response, voice-mail, call forwarding, unified messaging, unified communications, fax servers, conferencing, and automatic call distribution. Organizations that gave up on applications like conference bridges or video calling because they were too expensive or difficult to deploy should look again, because the pricing has changed dramatically.

The first saving in office IP communications comes from reducing the number of networks from two to one by putting voice communications on the data network. In physical infrastructure like switches and cabling alone, the return on investment is immediate. Organizations that merge those networks have taken a giant step towards reaping the rewards of true convergence. The goal is to redefine business communications as computer applications and move those applications to where they really belong – the IT data centre.

What does this mean to a government administrator? First of all, it means that an employee is one single user, not half a dozen. Instead of provisioning email service here and telephone service there and videoconferencing somewhere else, an administrator will be able to authorize all the services that one employee will need, in a single session on a single screen. Managers could then use the same system to authorize employees for building access, security levels or any other permissions they need.

What does this mean to government executives? It means that business process design and communications design will no longer take place independently. Networks, IT data centres and communication systems are becoming one system, rather than separate components, and the work they support is converging as well. Business processes will work with rather than beside information and communication processes. Today a field inspector might return to the office and 'unload' a laptop into the network twice a week. Tomorrow, that inspector will be interacting with a database live from a farmer's field or a factory floor, or bringing a colleague somewhere on a cell phone into an impromptu conference. Those business processes are very different.

What does this mean to the employee? If past experience is any guide, the 'power user' will exploit the new and enhanced communications services in unexpected and creative ways, while the so-called 'average user' will probably surprise us by how quickly they accept new ways of doing things. After all, everyone has long accepted email and voicemail as standard business tools. How soon will we see instant messaging or video communication become as familiar as a telephone call? And when it comes to telephone calls, users will be able to configure their own advanced options as needed, selectively accepting, rejecting, forwarding or responding to calls with prepared messages, all according to their own choices and preferences.

Companies that provide enterprise resource planning (ERP) software to governments know they are in the communications business. Long considered the 'back end,' the SAPs and Oracles of this world, as well as smaller, more specialized ERP vendors realize that the 'front office' has changed. Now they provide their functionality in ways that employees can use, no matter where they are. Governments have spent a lot on ERP functionality like human resources, financials and payroll, and unified communications can provide more return on that investment.

The IT staff can use the same user accounts and security policies as they use in the operating system (OS) environment, without any programming or special integration. Moves, adds and changes are the grind work of office communications and central administration makes them easier. Users are happier, because with single user login, they never have to log into multiple communication systems. In almost every case, using the existing IT infrastructure for communications means the IT staff is al-

ready familiar with the operating system, administration, security and backup, the desktop environment and the applications most users will use.

Just as the open standards of the original IBM PC and the Internet brought an enormous surge of innovation and creativity, so too will the protocols underlying unified communications enable new ways to streamline business processes. It may seem ironic, given Objectworld's commitment to open standards, but we have linked our future closely to Microsoft. If there is a contradiction, arithmetic explains it. About 80 percent of business applications on computers around the world are Microsoft, and 86 percent of business users are running Microsoft XP. Beyond that, in small- and medium-sized business and in many governments and government departments, Microsoft is an integral part of the business processes, from servers in the back office to Microsoft Office™ on the desktop. The marketplace will judge that business decision, but unified communications itself is here to stay.

Decision makers now face communications challenges that go to the heart of the organization. On the purchasing side, executives will look at the investment they have already made in their communications infrastructure, but we would urge them not to do that in isolation. When they consider merging IT and communications, they should also allow for the additional functionality and return on investment they will receive from their existing IT infrastructure.

Perhaps more importantly, senior managers must look to their own organization's needs for flexibility and adaptability. Will the workforce be more mobile or less mobile? Will they be asked to deliver richer services to citizens through more channels? Will employees be more or less willing to use new technologies in their work? Will they look to their own and their children's ability to communicate over the Internet in interesting and fulfilling ways and ask for that same experience in their work? A diverse and growing marketplace of vendors and service providers will answer those questions.

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