

JULY 10, 2006
CEO Guide to Technology
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Internet Telephony: Coming in Clear

Companies are upgrading old phone networks to reduce bills and add features. But cost savings can take time, and IP systems aren't risk-free

When Robert Fort took charge of information technology at Virgin Entertainment Group in North America, he was dazzled by the company's array of music, movies, and games—and the hip in-store kiosks customers could use to sample the wares. What he found decidedly less dazzling: the communications system that connected those stores.

It was expensive, cumbersome, and couldn't deliver sample content to would-be buyers. So last year Fort made a radical move. He scrapped the old phone network altogether, and, with the help of SBC Communications (now AT&T (T)) and Cisco Systems (CSCO), he moved the voice traffic from the fifteen U.S. Virgin Megastores onto the company's data network.

CALLING ALL DATA. He relied on a technology called Voice over Internet Protocol (VoIP) that can reduce costs and increase calling flexibility by delivering voice communications in much the same way e-mail travels over the Internet or a corporate data network.

The result? Virgin expects to save \$700,000 a year, mostly in long-distance phone bills, on a network that cost \$330,000 in the first year and will ultimately carry a price tag of \$1 million. Best of all, the new network also lets Virgin stream content—250,000 CDs, 11,000 DVDs and 7,000 games—to any kiosk in the store.

Like Fort, a lot of IT executives are taking the VoIP plunge, ditching dated, feature-poor phone systems called private branch exchanges (PBXs) that send voice calls over copper wire networks. By the end of the year, there will be 14.7 million enterprise IP telephony lines, about 21% of the North American installed enterprise base, according to Gartner (IT). That's up from 11% in 2004. Global sales of enterprise IP telephony gear are projected to reach \$4.9 billion this year and more than double to \$10.6 billion in 2009, according to Synergy Research Group.

The number of enterprise VoIP vendors is growing, too. In the past two weeks alone, Microsoft

(MSFT) and Vonage (VG) have announced plans to enter the fray. They're angling for a slice of a market dominated in the U.S. by Cisco, Avaya (AV), Nortel (NT), NEC, and Mitel.

WIN SOME, LOSE SOME. Why the increasing interest in IP? Many are drawn to VoIP systems by their potential to slash long-distance phone bills. Indeed, the move can reduce operational costs by 21%, not including troubleshooting, according to Nemertes Research in New York. And big savings come when employees move desks. With conventional PBXs, moves are a hassle, often requiring a costly visit from a service technician. But workers can plug in their IP phones anywhere.

Still, costs for equipment, network upgrades, and professional services can eclipse near-term savings. For some, it can take anywhere from six months to several years to see a return on the investment. On average, companies with fewer than 1,000 users can expect to spend \$887 per user on capital equipment such as IP phones and switches as well as planning, installation, and troubleshooting, says Nemertes. That figure drops to \$563 in cases of more than 1,000 users.

And businesses need to be prepared for some cost increases as well. "An outage on a Voice-over-IP network takes one to three times longer to isolate and fix," says Robin Gareiss, executive vice-president and senior founding partner of Nemertes. Executives will also need to spend more time planning and installing VoIP. Costs associated with planning, installation, and troubleshooting increase by about 20%, says Gareiss.

ADDED CONVENIENCE. With cost advantages uncertain, at least at the outset, many users find that the biggest benefits are some new capabilities that come with routing calls over the same network that runs business applications and data. For instance, employees can set up spur-of-the-moment audio and video conferences without reserving a conference bridge in advance. Another feature: they can use so-called presence awareness—similar to the feature in instant messaging that lets a user know if someone is online and available—to know whether a colleague is traveling or in a meeting before picking up a handset or dialing a number.

For executives, VoIP means greater control over calls. "The average knowledge worker is interrupted every three minutes and it takes them eight minutes to get back to work," says Howard Thaw, chief operating officer and co-founder of iotum, an Ottawa startup that has created a service to help executives prioritize phone calls based on where the workers are, what they're doing and who is calling.

Another appeal of VoIP: letting companies take advantage of the many on-ramps to the Internet. An executive traveling in Shanghai, for example, can log onto the Internet from a hotel and make phone calls around the world through the company network at little or no cost.

MOBILITY. The technology can also allow for more flexible work arrangements. Alpine Access, for instance, uses 7,500 home-based agents to handle calls for clients such as J.Crew (JCG), 1-800-Flowers, and Office Depot (ODP). Because quality and reliability are increasing with VoIP, Alpine Access is planning to use the technology to route calls to home agents in the near future. By using home-based agents, Alpine Access saves on the overhead costs of operating a physical call center.

VoIP gives companies added leeway in managing other employees who operate outside of traditional office settings. “Nearly 40% of the time, workers are away from their desk,” says Lior Nir, senior product manager in the enterprise business group at Nokia (NOK) Enterprise Solutions. Workers at Lowe's (LOW), for instance, use mobile handsets from SpectraLink (SLNK) that let them communicate over the company's Wi-Fi network.

Then there's the advantage of what's called unified messaging, which lets executives manage voice, e-mail, and fax messages in one location. At Virgin Entertainment Group, an executive traveling on business can check into a hotel room, log onto the company's network and check voice mail and e-mail messages—all from a Microsoft Outlook inbox. “My CEO came to me one day and told me he loved unified messaging and then he came back later and said it's the best thing I've done since I've been here,” Fort says.

UPGRADING PITFALLS. If executives are hoping for similar kudos from colleagues, they'll need to gird for the risks associated with making a switch to VoIP systems (see BusinessWeek.com, [“CEO Guide to VoIP: Tip Sheet”](#)). When companies move voice communications to a data network, suddenly they are at risk for Internet security problems such as denial-of-service attacks or rogue software being downloaded to handsets (see BusinessWeek.com, 6/13/06, [“Is Your VoIP Phone Vulnerable?”](#)). Dan York, best practices chair for the VoIP Security Alliance and an employee at Mitel, recommends making sure the vendor supports encryption.

IT execs also need to ensure the new systems include safeguards, or so-called quality of service, that give priority to voice calls in the event of heavy network congestion. “Voice adds traffic and that traffic behaves differently, so you will see new bottlenecks emerging,” says Jeff Snyder, research vice-president at Gartner.

Another challenge for companies upgrading to VoIP is making sure the network can handle 911 calls. Because IP phones can be plugged in anywhere, it can be much more difficult to find employees in the event of an emergency. Most vendors have worked out solutions to this problem, but most require that employees manually update location data each time they move.

But there's good news on the security and service-quality front. Enterprise VoIP vendors have gone a long way toward addressing shortcomings in recent years. “There were problems with system uptime, security issues, and training employees to use new desktop phones,” says Lisa Pierce, vice-president of Forrester Research.

LOTS OF OPTIONS. VoIP providers also have wasted no time coming up with a vast array of products and services (see Slide Show, [“New Voices Mean Big Business”](#)). Generally, these can be grouped into two categories: enterprise hardware, and software and hosted services.

The market for hardware and software is led by Cisco, which had 24.3% share in the first quarter, according to Synergy Research Group. Avaya came in second with 23.4%. Companies looking to make a conversion in one fell swoop are likely to opt for what's known as an IP-only system offered by vendors including Cisco, Nortel, 3Com (COMS) and others.

This is the approach taken by Virgin and it typically involves installing the Ethernet switches that connect computers in a given network and the servers that run call-control software and IP phones. It also requires a special capability called power over Ethernet for keeping the phones running should power fail.

Businesses looking for something less radical can opt for a hybrid system that uses a combination of VoIP technology and conventional telephone network equipment. It lets companies migrate incrementally to IP telephony and still use some existing voice platforms. It's ideal for companies concerned about the price of an upgrade or that have already made significant investments in conventional voice networks that haven't yet reached end of life. For instance, Fossil—best known for its fashion watches—has been migrating to VoIP for the past five years, using VoIP equipment from Nortel. The company has installed nearly 700 IP phones at its headquarters in Richardson, Tex.

Microsoft, according to its late-June announcement, wants to add a third approach that relies on the computing power of the end-device, whether it's an IP phone or a computer, and doesn't require any special telephone switches (see BusinessWeek.com, 2/1/06, [“Voice over Microsoft Protocol?”](#)). Microsoft plans to launch its Office Communications Server 2007 and a line of IP phones that run Microsoft Office Communicator software by the second half of 2007.

Hosted VoIP may work for companies that want integrated voice and data communications without some of the hefty up-front costs or hassle of maintaining and upgrading a VoIP network. Typically, a company would buy IP phones but not the larger switches. The service provider manages all the equipment and delivers the service for a monthly fee based on the number of users. Typically these services are ideal for midsize companies or branch offices.

Covad (DVW) now leads the market in hosted VoIP services, but the company has plenty of competition. Last week Vonage announced its entry into this market with an enterprise hosted service for \$34.99 per user. The service works with Vonage's V-Phone, which retails for \$39.99. Vonage Chief Executive Officer Jeffrey Citron is putting his phones where his mouth is. Vonage is issuing V-Phones to employees, replacing the existing Cisco IP phones.

INEVITABLE SWITCH. Whatever vendor they choose, most companies will eventually move to VoIP, many analysts contend. “IP telephony is absolutely inevitable, but the timing is up to each enterprise,” says Gartner's Snyder. “There's no reason to feel rushed to adopt that technology unless there's a legitimate business case,” he says.

Fort says he upgraded Virgin's network to stay ahead of the competition. “I was doing this not only to save money, but to position us for where the future was headed,” he says. As more companies take a similar tack, the business case is looking more legitimate all the time.