

## REAL WORLD CASE 4

# Boeing Company and Others: Converging Voice and Data Using Voice Over IP

**M**ore businesses are deploying unified network architectures, and they're using them to carry more of their voice and data traffic. Boeing Company is so happy with VoIP and converged networking that the aircraft manufacturer, which has been testing the technology for several years, plans to deploy it over the next five to seven years to more than 150,000 employees working in 48 states and 70 countries. "We've been looking at the convergence of the packet-switched world and the circuit-switched world since the mid-1990s," says Cliff Naughton, director of network services. Boeing plans to use its companywide intranet, based on equipment from Cisco, to carry voice and data traffic, as well as collaboration technologies such as audio- and videoconferencing and product-design applications.

"The first stage will be basic IP dial tone," says Mike Terrill, manager of the network-convergence program. "The next logical stage will be to combine e-mail with voice mail, and then to add audioconferencing, collaboration technologies, and video."

What's the cost of deploying VoIP or building a converged network? That's difficult to calculate, since each deployment is unique. "If you have to upgrade your entire LAN infrastructure, it can be quite costly," says Maribel Lopez, VP of communications research at Forrester Research. She sees companies beginning to deploy VoIP and converged networking in new offices and branch offices, or where infrastructure upgrades are taking place. "They're not doing it everywhere all at one time," Lopez says.

Businesses need to answer a number of questions before they can begin to calculate the cost of moving to a converged IP network. How many users are involved? IP phones still cost \$100 to \$200 apiece. How many locations need to be connected? How much of your existing infrastructure can be used, and how much needs to be upgraded or replaced?

Companies that route domestic long-distance voice calls over corporatewide area networks can achieve savings, Lopez says, but declining long-distance rates have reduced potential savings. Businesses that use their IP networks to carry expensive international voice calls can save even more by avoiding the high international calling rates and the fees and taxes imposed by foreign countries and phone companies, she says. But many businesses are reluctant to tinker with communications systems—especially voice systems—that work well.

"This is a long and slow migration. The primary reason is that phone upgrades aren't a trivial thing, and voice systems aren't broken at most companies," Lopez says. Over the long run, businesses won't have a choice and will have to move to VoIP. "Eventually, hardware vendors aren't going to offer new PBXs," she says.

The potential savings from operating a single communications network are appealing. John Haltom, network director at Erlanger Health System, a regional medical center

with 22 locations in Tennessee, is expecting a three-year payback from the company's move to a unified communications infrastructure. Instead of installing two lines to support voice and data, "You save money every time you pull just one line into an area to support both voice and a computer," Haltom says.

Haltom notes that Erlanger will save \$60,000 a year simply because moving, adding, or changing phones is much easier on the Nortel gear than it was using an old-fashioned voice PBX. Other savings will come from reduced staff training and improved productivity. Haltom also expects more gains as the deployment progresses. His goal: to provide all workers with access to the same set of applications and the same user interface, regardless of where they work or what device they use, whether it's wired or wireless, desktop, mobile, or handheld. "It gives the nurses the ability to do everything they need to do, whether they're sitting at a computer or using a PDA," Haltom says.

Erlanger's Haltom advises businesses to do a lot of advance planning before implementing a converged network. "There's no cookbook," Haltom says. "Everybody's going to have to develop their own plan." With better planning, Erlanger would've installed larger uninterruptible power supplies and more redundant fiber paths in and out of each wiring closet. "We're just starting to go back in and install those," Haltom says.

Haltom also recommends a network audit to check that PCs, servers, switches, routers, and other gear are configured properly before making the move to a converged network. "We were humbled by our network health check," Haltom says. "It found so many problems. Don't even think about running voice on your network until you fix those problems."

The good news is that those problems are fixable. And the benefits of merging voice and data networks are compelling to business-technology managers seeking to simplify their infrastructure requirements and reduce the demands of managing and operating separate networks.

### Case Study Questions

1. What are the main benefits that can be gained by companies that switch to VoIP systems?
2. What are some of the major cost factors that may limit a positive rate of return from investments in VoIP projects?
3. Should more companies switch to VoIP systems? Visit the websites of Avaya and Cisco Systems to view their VoIP news, products, and services to help you answer.

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