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Going VoIP

IHEs are at different points when it comes to VoIP, but many see the same benefits, and face the same challenges.

BY ELIZABETH MILLARD
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AS TECHNOLOGY ADVANCES DRIVE MORE educational opportunities and administration efficiencies, VoIP is high on the list of strategies that have sparked more than interest in the past few years. Many IHEs have ventured down the VoIP trail, from a small pilot-level approach to a full-scale rollout that reaches every room on campus and beyond.

Besides bypassing traditional voice services, colleges and universities can use VoIP for desktop video and videoconferencing, emergency notification, and audio conferencing. What follows is a look at why a half-dozen colleges and universities have decided to hang up their old phone service and go with VoIP.

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Redirecting Maintenance Costs Franciscan University of Steubenville

When Franciscan University (Ohio) saw that its contract with communications firm Centrex was to expire last September, at the same time as its long-distance phone contract, the school decided to redirect its Centrex maintenance charges to a VoIP system.

In terms of technology, the university opted for Siemens HiPath 4000 with HiPath Xpressions HiPath Manager—basically, a package with a technology backbone that enables unified messaging and internal management of the VoIP. The products are part of what Siemens calls "open unified communications," which means that users can collaborate regardless of IT environment, making interoperability less of an issue when blending VoIP with other technology components.

The university was also installing a new student information system at the time, making for a somewhat frazzled technology team, but Siemens reps and help from local Walczak Technology Consultants helped to set deadlines and to provide advice on upgrading parts of the university networks.

The new voice network provides features that improve communications and staff productivity according to Kevin Siebolt, director of IT at the university. These include conference calling, programmable voicemail for students, faculty, and staff, and support of a 911 service that displays caller's location. An administrative feature enables the university to create voicemail "blasts" that display information visually rather than by voicemail. So, for example, if there was an emergency, professors could see an alert on the screen rather than retrieving a voicemail after class.

"It's lived up to our goals," says Siebolt. "We have a better menuing system, and we can progra

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different departments, which was more control than we had over our old system."

Quick VoIP Facts

How it works: VoIP technology takes analog audio signals like those transmitted by telephone and turns them into digital data that can be transmitted over a data network, including the internet.

What it includes: A system can have voicemail, videoconferencing, emergency notification services, and audio conferencing.

Security issues: There have been some concerns in the past about security and VoIP, including a PBX or phone could be hacked. But many IT managers have noted that since VoIP is on a data network, it can be protected in the same way as data and applications. Also, IT and IS departments have more control over telecommunications, allowing them to tweak security settings.

Benefits: Potential long-term cost savings, more control over management, advanced features.

Drawbacks: VoIP is still an evolving technology; costs can vary depending on existing infrastructure. Costs can be high if all new equipment is needed; training is required for users and support personnel.

Bolstering Classroom Support University of North Carolina at Charlotte

Although some VoIP implementations are done with the objective of saving money on long distance and PBX costs, the University of North Carolina at Charlotte had a different goal in mind: to increase significantly classroom support.

The recently developed Office of Classroom Support was created to provide services to 21,000 students and 1,400 faculty members across the thousand-acre campus, with support services running the gamut from changing light-bulbs to fixing projectors. With a large user base and 74 buildings, the previous method of communication—basically, calling to report a problem and frequently leaving a message—meant that issues often took about two days to fix, especially since they had to be addressed by library personnel who had other tasks to do.

The university wanted two-way communication systems that were easy to use so there would be minimal training costs and hassle. After evaluating PC-based software that required extra microphones and a network-based intercom system that would have required hardware infrastructure upgrades, UNC Charlotte opted for the ii3 Internet Protocol Intercom from Digital Acoustics. 170 units were installed across campus and plugged into the university's existing networks. The university also supplied management software, called TalkMaster Enterprise Edition, that could help route help requests.

'Our PR director called to ask if we do VoIP, and I told her she was talking on a VoIP phone. People don't even realize the switch was made.'
- Brenda Helminen, Michigan Tech

The response time went from 48 hours to 10 minutes, says Steve Clark, director of Classroom Support. "We have instructors that are so used to quick support that they'll let us drag a ladder into the classroom to change a light-bulb, and a few minutes later, the class goes on as usual," he says.

Like all VoIP implementations, power was a concern, since any kind of outage would automatically kick out the phone system if backup power weren't part of the system. To prevent such an issue, the university put in more emergency power equipment.

The general telephone system is being migrated to VoIP as well, with sections of the campus switched over at a time, although all new buildings automatically get VoIP. The university believed that getting classroom support on the network was a priority and replacing other phone systems would be rolled out more gradually.

"It's made us a very popular group on campus," says Clark. "People are constantly amazed that they can push a button and something happens."





Creating an IHE Network Southwest Virginia Community College

Part of the buzz surrounding VoIP is its ability to save money in the long run. But in the short run, IHEs have to contend with forking over budget funds for network upgrades, new equipment, IT support, and sometimes tweaks for power, since the phone system will be significantly upping electricity demands for a campus.

Southwest Virginia Community College (SwVCC) has a tendency to embrace technology, and President of Finance and Administration Richard Hudson notes that the college would buy "the gadget if we had the money." VoIP was a natural choice because it felt forward thinking, but he says it represented an expensive upgrade.

To justify the cost, the college banded together with the other community colleges in the state and discussed a VoIP deployment that would connect all 23 schools. Currently, SwVCC and 19 others are connected together, with the other three in the process of making the necessary upgrades to move toward VoIP.

Another reason for the investment was SwVCC's own, aging systems. The college has a small number of students—just under 6,000—but the older PBX system that had been in place for 20 years forced the college to think about a large-scale implementation, since PBX replacement parts are no longer available.

The ability to broadcast emergency messages to all 23 schools became especially compelling after the recent tragedy at Virginia Tech.

IT services provider Dimension Data helped in creating a technology roadmap with Cisco products and gave recommendations about better overall network security and VPN connectivity. The upgrade has cost about \$400,000, with about a quarter of that going toward improving the network backbone.

One advantage of going with an all-Cisco implementation at SwVCC and the other schools is the benefit of single vendor interoperability, says Hudson. "It's like speaking German together," he says. "By using Cisco on a statewide basis, everyone could use the same language."

The ability to broadcast emergency messages to all 23 schools became especially compelling after the recent tragedy at Virginia Tech, he added.

"We all feel more connected," he says. "I can use my phone to call a pizza place across the state. I was just down the block. Granted, I don't really need to, but psychologically it does cut down the feeling of distance."

Meeting Student Needs Bryant University

Providing cutting-edge technology is more than a way to keep an IHE well poised for the future; it can give a school a competitive edge, notes Richard Siedzik, director of Computer and Telecommunications Services for Bryant University (R.I.).

"When you look at it from that viewpoint, you can see that VoIP is excellent for setting a school apart, because it can provide so many services for students, as well as meeting the needs of the entire institution," he says.

An important aspect of the system for Bryant was the health and safety issue that it could address. Like other schools, Bryant was well aware of the communication challenges that happened at Virginia Tech and wanted to implement a system that could provide emergency broadcast services quickly.



Because VoIP can be controlled from within the university and directed by IT, messages can be broadcast or sent as text to the entire campus, to one building, or even to just one room.

Bryant's VoIP deployment to the entire campus in 2004 allows the university to communicate with students more easily, thanks to a Cisco IP telephone in each room, notes Siedzik. The phone has a push-to-talk button that interoperates with the public safety radios carried by campus police and residence directors, so students can reach help quickly and can talk from anywhere in the room.

The ease of communication isn't just a safety measure, though. Siedzik says that different types of messages can be sent on a student-by-student basis. For example, if a professor is ill and has to cancel class, the system can check which students are in the class, make a list of their extensions, and automatically send a message alerting them to the cancellation. That sure beats having to hustle to class, only to find a cancellation note on the door.

Building the Team

WHEN IT COMES TO VOIP, ONE OF THE MAJOR CHALLENGES for IHEs of any size lies in the technology, budget, and network infrastructure, and with the team assigned to implement the system and manage its daily workings. Some schools opt for a specially designated group, but within such a team, there can be varying levels of expertise.

At **DePaul University**, most of the university's phone system is still on Nortel Networks equipment, but there has been a gradual shift of 350 people onto VoIP, mainly for critical operations that needed more functionality than the PBX would allow, says John Ourada, DePaul Senior Enterprise Architect. The university plans to keep advancing toward VoIP because it prefers that tactic rather than putting money toward upgrading the Nortel system, but one major sticking point could be whether it can manage the expertise.

"Money is always an issue, but we're in good shape with our operational budget," says Ourada; it comes down to its personnel. We're trying to break down the silos that exist, these boundaries among traditional telecom people, data people, and operational people that manage servers. There's not a lot of crossover in terms of skills, but there has to be for a VoIP system."

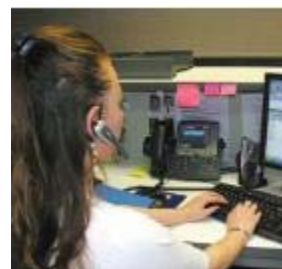
Ourada notes that there seems to be a lack of a "common language" even though all three groups grow with technology every day. Cross-training is helpful, but there are also challenges when it comes to responsibility and accountability. "There needs to be more communication and collaboration," Ourada says. "We're still working on goals and tactics to bring the groups together, but it's definitely not easy."

Taking Charge Case Western Reserve University

As at Franciscan University, the Centrex contract at Case Western Reserve University (Ohio) was due to expire, and the school saw the opportunity to switch to VoIP for a more streamlined, efficient system, particularly since it had just done a large network upgrade.

One major draw was the on-campus management capabilities of VoIP. Going from standard telephony to VoIP brings all the components of a phone system under the university's control, from adding lines and physically moving phones to revamping voicemail options and adding services like audio conferencing to classrooms.

Such features done through a third-party source would come with fees and require the presence of phone company support reps. The university converted 7,000 phone lines to VoIP in the summer of 2005, and since it had been an all-Cisco shop in the past, it chose other Cisco equipment for the changeover, according to Peggy Watts Gup, project manager of VoIP Telephony in the Information Technology Services office.



'We can interconnect our clusters and save money, since we'll be disconnecting from the phone company.'
-Peggy Watts Gup, Case Western Reserve University

"It's nice, not having to deal with the phone company," she says. "We've been able to roll out

number of features, and created user guides that can be accessed from a website so that us have control over making changes themselves." A campus directory is also on every phone, students, faculty, and administrators can find numbers from any location.

More control has also led to reduced support costs, Gup adds. Before the switch, the on-call telephone office employed four people to handle support calls and call the phone company w needed. Now there's just one full-time VoIP engineer, who often instructs callers on how to r changes themselves to caller ID and voicemail.

For the future, the university is discussing a VoIP move at local hospitals, since many studen Case Western's medical schools work in the hospitals. "We can interconnect our clusters anc money, since we'll be disconnecting from the phone company," says Gup. "We'll be our own network."

Preparing for the Future Michigan Technological University

Although Michigan Tech began looking into upgrading its telephone systems in 2000, the university realized it didn't have the physical infrastructure necessary to put in private branch exchange equipment. "Basically, we leapfrogged over that technology and went on to the next generation, which was VoIP," says Brenda Helminen, director of Telecommunications Engineering.



The university conducted two years of pilot tests before converting 1,450 telephones to VoIP in 2003 for its administrative and academic offices. Since then, Mic Tech has been changing all office phone systems, department by department, and expects to complete the project by the start of the fall semester.

"Our PR director called me recently to ask if we do VoIP, and I told her she was talking on a ' phone," says Helminen. "And that's exactly the way we wanted it; to be so seamless and eas use that people don't even realize the switch was made."

The focus now is already on phase two, she adds. The IP platform can enable wireless phon dual-mode cell phones, and the university is looking into ways to extend its VoIP into those a to reduce cellular phone costs and partnerships with cellular companies. Michigan Tech is al: conducting trials with soft-phones, which can turn a computer into a phone and would be use researchers and other academics that travel to conferences.

Several researchers took university IP "teleworker phones" with them on recent trips to Europ Helminen notes. The phones have a five-digit campus number, and work in Europe, so if a st needs to call a professor, she can just call the university extension and it will ring wherever it plugged in. "It's a bit of a niche use at this point, but it's been really popular," says Helminen.

The university has also begun looking into IP security cameras and IP public address system adds. "You have to think broader when you have this technology, because there's more that do with it than just cut down on calling costs," she says. "This is the fun part, where you wait what features and technology come into play."

Elizabeth Millard, a freelance writer based in St. Louis Park, Minn., specializes in covering technology.

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