Cisco IP Telephones on Converged Network Enable Rapid Emergency Response

When Connecticut's Hartford Public Schools selected Cisco partner Total Communications to replace their conventional PBX telephone system with over 4,000 Cisco IP Telephones, they expected to realize significant technical advantages and cost savings. However, once this converged voice and data network was in place, the staff quickly learned what a critical difference this communication technology could make in an emergency situation.

On the morning of September 11, 2001, public and private institutions in the tri-state area were reeling from the World Trade Center disaster. It was crucial for the Board of Education to be able to communicate with schools, principals, teachers and parents. Almost as soon as the board began to respond to national events, they were faced with an order from the Governor to evacuate their Central Office due to a bomb threat.

Acting quickly, the Hartford Public Schools IT staff established an emergency operations center at nearby Barnard Brown elementary school. Additional Cisco Catalyst® 3524 XL switches were placed in the second floor school library and patch cables were laid out and taped to the floor. According to Mike Vasquenza, Director of the Hartford Public Schools IT Department, "We relocated our offices in about 15 minutes utilizing the Cisco technology, where we just literally unplugged our phones, brought them over here and put a switch in place. Fifteen minutes later, all of our phones were operational as if we were still in Central Office. The technology was invaluable and allowed us to communicate with our schools and keep our business operations running smoothly."

School System Chooses Cisco IP Telephones Rather Than Conventional PBX System

This rapid response would have been virtually impossible with a traditional telephone system. Cisco IP Telephones can be plugged in—and the extension can be recognized—anywhere on a local or wide area network. By contrast, with a conventional PBX telephone system, extension moves can generally only be accomplished by manual database adjustments or wiring changes.

In 1998, the school system could have elected to replace their aging telephone system with a conventional PBX telephone system. "However," says Bob Richter, Manager of Network Services for the Hartford Public Schools, "this was an opportunity to go beyond installing a new telephone system to create a platform for advanced technology."

The existing telephone system was "a poorly planned patchwork of ill-functioning equipment," said Richter. In fact, the school system was dealing with 20 different telephone systems and eight exchanges. "Functionality was non-existent—we had no internal dialing, there were all these different exchanges to deal with. The whole system needed to be scrapped."

He drafted an RFP for a new system that was open to all possible solutions. Jeff Nyland, Director of Total Communications' Data Network Division, was impressed. "Bob knew he was stretching the envelope, but also knew where the technology was going," Nyland said.

Total Communications had long recognized the power of converged networks and made a conscious decision to develop in-house expertise in the technology. "We believe the migration to IP/voice will be similar to the client/server migration that took place in the mid-80's," said Nyland. "We took the steps necessary to learn the technology and gain in-depth experience. Becoming a Cisco partner was a big part of that—it's the big kid on the block!"

In-Depth Voice and Data Experience Key to Success

Total Communications and Cisco submitted a consolidated bid for a Cisco IP telephone system that would utilize the school system's data network, to enable a converged voice, data, and video network. After reviewing all of the bids, Richter and his staff decided the solution Total Communications and Cisco proposed best fit the school system's present and future needs. Additionally, Total Communications has expertise with both voice and data, unlike other area firms who install IP Telephony solutions and converged networks, but are strictly data providers.

After contracting with Total Communications and Cisco, the next item on Richter's list was hiring a telecommunications person for his staff. He chose Maureen Cmara, a professional with 14 years of telecommunications experience, and she hit the ground running.

Team Successfully Meets Challenges in Installing Leading Edge Technology

With a strong technology team in place, this major installation proceeded to a successful conclusion despite a number of challenges. "We took the plunge to install leading edge/bleeding edge technology because we trusted that Cisco would not let us fail," Richter said.

"Part of Bob's vision was a uniform dial plan for all the facilities throughout the city," said Maureen Cmara. "We purchased a new exchange and worked with Total Communications to put the dial plan together." The teams used the Cisco technology to break the 43 facilities into six main cluster sites. The employees are now enjoying a five-digit dial plan that allows them to connect easily with others throughout the system. Also, prior to the new network many schools were under-trunked and blocked from getting an outside line. Now employees know that when they pick up the phone, they're going to be able to make a connection.

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The school system was doing a network rollout simultaneous to the Total Communications/Cisco rollout, so a 'leap frog' effect took place. Some schools were ready for phones before the underlying infrastructure to support the phones was in place. Fortunately, Total Communications' experience with traditional phone systems allowed them to develop a plan to support the legacy phone systems until each location was ready to accept the new IP phones.

The planning and attention to detail paid off handsomely when it was time to turn on the new phone system. They literally brought the old system down on a Friday and on the following Monday morning the district's 3,500 employees returned to new and working IP telephones at their desks. "We had a lot of employees to train!" notes Richter. Because of class scheduling it was tough to gather groups of employees for training. Total Communications set up "train a trainer" classes to get everyone up and running on the system quickly.

"Cisco stepped up to the plate to make sure every piece of this installation was successful," commented Richter. "They were there when we needed assistance and when problems escalated they were fixed. They chose a wonderful partner in Total Communications. It was a multiple win situation and a great partnership all the way around."

Plans to Exploit Potential of Converged Network

Next on the agenda is taking advantage of the converged voice, data and video network. The school system has an IPTV box that it will dedicate to Cisco video conferencing capabilities. Because the school system's cable provider is located close to the central office, Richter can run live video, such as CNN, Discovery Channel and History Channel, over the network. Students will then be able to watch this educational programming on classroom computers.

Besides creating a robust video learning environment, Richter wants to exploit the XML features of the IP telephones. For instance, the city library system has an online Web-based card catalog. Richter has plans for an application that will enable card catalogs and book searches right from the phone. "We don't have a computer in every space in the school system," Richter notes. "But we do have a phone in every space. With this application, anyone can search the public library resources from any space within the school system."

Unified System Offers Significant Cost Savings

Along with the added functionality of the new system, Richter is looking forward to realizing a cost savings for the school system. The six clusters that make up the network can be logged onto and managed from a single point, instead of managing separate voice and data networks. And the unified system can be maintained with one service contract rather than separate phone and data contracts. Another significant savings is the new technology and hardware. "The other equipment was so old we often couldn't even buy replacement parts," he said. "This new system is easier to manage, costs less, and delivers vastly improved functionality."

Increased Demand for Converged Networks

While the school system is enjoying the cost savings and technical advantages of a converged network—not to mention the flexibility in emergency situations—Total Communications is focusing on communicating these advantages to other customers. To date, the firm has installed more than 50 systems with over 5,000 IP telephones.

"We're seeing increased demand for converged networks," said Nyland. "Other customers see the productivity and cost savings being realized, and they start realizing how it can help them." With customers in the Biomedical, Healthcare, Financial and Manufacturing industries, as well as Education, Total Communications looks forward to many additional converged network installations, and knows that Cisco will be behind them every step of the way.

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