



Customer Success Story

University Learns the Advantages of a Converged Voice and Data Network

Executive Summary
Customer Name LeTourneau University
Industry Higher education
Employees 600 full-time and part-time faculty and staff
Business Challenge <ul style="list-style-type: none">• Reduce or eliminate copper cabling costs• Replace aging, inefficient phone system• Manage growth and expand services within existing budget
Network Solution Cisco Business Communications solution
Business Value <ul style="list-style-type: none">• Significantly reduces voice and data operation costs• Provides the network reliability needed to launch new education offerings• Improves IT and administrative staff productivity

A Cisco Business Communications solution featuring an integrated IP voice and data network helps LeTourneau University recover cabling costs, offer more education programs, and expand services for faculty and administrative staff.

Business Challenge

LeTourneau University is an interdenominational Christian university based in Longview, Texas, with satellite facilities located in Austin, Bedford, Dallas, Houston, Tyler, and Longview’s East Texas Regional airport. It offers graduate and undergraduate degree programs spanning more than 60 academic areas. Along with flagship programs in aeronautical science and engineering, the university includes majors in business, the liberal arts, natural sciences, mathematics, and education. The university employs 600 full- and part-time faculty, staff, and administrative personnel, and is continually expanding its educational reach, most recently adding adult education and online-only degree programs.

To accommodate resident and nonresident student growth at both its main campus and at satellite sites, the university has been undergoing near-continuous construction. However, LeTourneau University has some unique environment issues that made construction challenging on its main campus and frequently brought down its private branch exchange (PBX) system.

Ken Johnson, the university’s manager of Network Services, IT, explains, “Our main campus is built on the site of a World War II army base and hospital, with miles of buried iron pipe. East Texas is famous for frequent and violent lightning storms, and the electrical discharge from ground strikes often travels through the metal pipes and destroys sections of our underground copper cabling.”

To eliminate the risk of damage to its data network, the university built a fiber optic network interconnecting campus buildings in 1997; but the PBX system remained vulnerable, and the IT staff continued to replace or resplice phone cable. In early 1999, Johnson heard about an exciting new technology called voice over IP (VoIP), and believed he could take advantage of the university’s infrastructure investment by running voice as well as data over the fiber network.

Although the university’s PBX system was reliable and paid for, the NEC switch was operating at its limit. Adding capacity and new feature upgrades to support growth was extremely expensive – and as Johnson admits, “had no technological advancement benefits.” The PBX system also required specialized expertise; only one or two IT staff members were qualified to maintain it. Moves, adds, and changes could take days since a technician had to enter the wiring closet and physically rewire phone connections.

Network Solution

When planning a new science and engineering complex, Johnson approached a few PBX and networking vendors about deploying IP telephony. “While some vendors showed us their plans, they were really not very encouraging,” Johnson recalls, “only Cisco Systems® was solidly behind VoIP.” A Cisco® account manager demonstrated the Cisco Call Manager and Cisco Unity™ Unified Messaging system to us, and we spent the afternoon unsuccessfully trying to find flaws in the design.” Impressed with the secure, integrated solution, LeTourneau University’s IT department decided to roll out VoIP to its faculty and administrative staff to make the best use of functionality and productivity features.

With no additional budget to fund the IP Communications project, IT Director Gary Holeman tried some creative financing with existing monies. “The price for installing VoIP throughout the new complex was less than the cost required for a PBX switch capacity upgrade,” he explains, “so we used the PBX allocation to fund our first VoIP installation.” From then on, Holeman channeled PBX upgrade funds for new student residences into expanding VoIP in administration and faculty buildings. Freed-up PBX capacity from VoIP expansion was used for new residence halls. Thanks to a number of building projects, VoIP growth has been gradual but steady.

Ultimately, VoIP’s convenience and cost-saving features convinced university management of its return-on-investment (ROI) potential when employees began to embrace the IP phone interface and rave about its advanced capabilities. “By our third building rollout we began hearing, ‘Great, we’re going to get those cool new IP phones,’ and we knew we were on our way,” Johnson says.

“Cisco service and support was great,” he continues. “The Cisco engineers jumped right in to provide an integration solution with the old PBX switch.” He and his staff members have also benefited from networking with other Cisco users through the Cisco IP Telecommunications User Group (Cisco IPTUG). He adds that when the university’s IT group exhausts its expertise, staff members rely on Cisco IP Specialized Reseller Flair Data, and of course, on Cisco.

LeTourneau University’s resilient, converged network is powered by Cisco Catalyst® 4000 and 4500 series Layer 3 switches. Located in redundant data centers with fail-over capability, they support all administrative and academic operations.

Main campus and remote sites are connected over a WAN; Cisco 2800 Series integrated service routers pass voice and data traffic over T1 lines. The integrated service routers support an integrated set of advanced capabilities such as quality of service (QoS), security, and survivable voice gateway and call-processing services. Cisco Catalyst 3560 switches provide 10/100/1000 Mbps bandwidth, Power over Ethernet (PoE), and intelligent network features. “Cisco Catalyst switches and integrated service routers enable us to provide converged voice and data services at our campus and remote sites,” says Johnson.

Cisco CallManager provides access to simple, centralized administration for campus IP voice systems from any location, while Cisco Unity Unified Messaging consolidates e-mail and voice-mail services, offering users a single, powerful communications experience. Cisco 7970, 7960, and 7940 IP phones sit on user desktops; Cisco IP Conference Station 7936 phones are deployed in meeting rooms; Cisco 7920 wireless IP phones provide roaming access to campus phone services over the university’s wireless network.

Recently the IT staff members installed IP phones in their own homes. Now they can respond to customer support lines and department extensions from home while simultaneously and securely connecting to the campus network using Cisco virtual private network (VPN) technology.

“There is a substantial advantage to working with a vendor who can support what it sells and who offers a comprehensive product line so you can create a complete, integrated solution.”

Ken Johnson, Manager of Network Services, LeTourneau University

Business Value

LeTourneau University's converged voice and data network is creating immediate savings in network expenses, as well as setting the stage for ongoing cost savings.

- **Significantly reduced cabling expenses** – Combining voice and data traffic over the fiber network eliminates the need for phone cabling to new and remodeled administrative and academic buildings. VoIP also halves in-building wiring costs because voice and data run over the same Category 6 twisted pair. The university saves approximately US\$5,000 per small office building. In larger installations, the savings can reach \$10,000 to \$15,000 per building.
- **Flexible, affordable connectivity** – Advanced QoS capabilities prioritize data and voice traffic over WAN connections to intelligently serve high-bandwidth applications. The Cisco IP Communications solution also cost-effectively supports network communication anywhere the IT staff can aim a wireless signal on campus.
- **Increased system uptime** – Online degree programs require 24-hour network uptime. IP network architecture redundancy extends throughout the WAN; if a line problem develops with a remote facility, the IT staff members can easily reroute its voice and data traffic. “We’ve built in redundancy very cost-effectively with our Cisco switch and router infrastructure,” Holeman says.
- **Improved customer service** – System redundancy also helps ensure that online and call-in student registration systems are always up and running; call overflow from busy offices is easily routed to other sites. Call history and speed dial functionalities simplify the task of returning missed calls.
- **Higher IT staff productivity** – IT staff can support a fast-growing student population without increasing headcount because everyone handles voice and data administration. Cisco Network Assistant management software on Cisco Catalyst switches simplifies administration tasks for local and remote switches, routers, and wireless access points. In addition, because all Cisco products use a consistent programming interface, IT applications engineers can write code to interface with Cisco equipment faster and more easily.
- **Faster Helpdesk response time** – “Moves, adds, and changes happen in minutes rather than hours using the Cisco CallManager admin interface,” Johnson says. LeTourneau University’s Helpdesk staff members use the “barge” feature to jump on support calls and help each other solve problems more quickly. Large, clear IP phone displays enable them to effectively manage a substantially higher number of simultaneous calls, so fewer incoming calls go to voice mail.
- **Improved administrative and faculty productivity** – “Cisco IP phones give our users greater freedom of movement and help them be more productive,” observes Johnson. He says the university faculty and staff members tell him they love the ability to access both voicemail and e-mail through a computer or IP phone, and that access is convenient and fast. They also appreciate the simple, smart convenience of the Cisco CallManager MeetMe application to set up instant voice conferences.

Next Steps

Looking forward, Johnson and Holeman plan to replace remaining third-party voice-data gateways with Cisco 2800 Series integrated service routers to improve voice quality and provide additional service-level guarantees for administrative applications. They also plan to extend VoIP service to residential halls in the next few years. One lesson Johnson has learned is the value of a single point of contact for products, service, and support. “There is a substantial advantage to working with a vendor who can support what it sells and offer a comprehensive product line so you can create a complete, integrated solution,” he says. Johnson is confident his Cisco Business Communication solution will easily sustain them as LeTourneau University’s plans grow and evolve.



For More Information

Cisco Systems has helped educators improve the quality of education and reduce costs, while advancing new learning techniques and making education accessible to all students. To learn more about how Cisco Business Communication solutions can help your school or university, contact your local account representative or visit <http://www.cisco.com>.

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