

Bryant University Enhances Learning and Student Career Opportunities with Converged Network and Cisco IP Communications

Executive Summary

CUSTOMER NAME
Bryant University

INDUSTRY
Higher Education

BUSINESS CHALLENGES

- Enhance campus telephony system without added cost
- Provide support for voice, video, and data applications
- Extend network connectivity outside the classroom to support mobile users

SOLUTIONS

- Comprehensive Cisco network delivers multiservice networking over a single, easy-to-manage IP infrastructure
- Cisco IP Communications solution provides intelligent phone services to more than 2,700 students
- Cisco wireless network provides unrestricted mobility to students and faculty throughout the entire campus

BUSINESS RESULTS

- Innovative use of technology improves instruction and learning, while enhancing Bryant University's competitiveness
- Single, converged network infrastructure saves money on network administration and support
- Wireless network allows students to collaborate easily, from anywhere on campus

Bryant University has deployed an intelligent Cisco® network to support a rich variety of voice, video, and data applications that enrich learning and collaboration, improve student career opportunities, boost administrative productivity, and extend networking resources beyond the classroom.

Business Challenges

Bryant University is a student-centered college that offers undergraduate and graduate degrees in business, liberal arts, and information technology. Located in Smithfield, Rhode Island, Bryant presently enrolls a diverse mix of 2,729 undergraduate students representing 31 states and 33 countries. Nearly 500 graduate students are also enrolled.

Technology is an important part of a Bryant education and of students' experience. Over the last five years, the university has implemented an extensive technology initiative as part of its larger strategic plan. In 2004, Bryant was ranked as the "second most wired campus" in Princeton Review's "Top 25 Most Connected Campuses," and recognized with the Cisco Growing with Technology Award.

To maintain its competitive advantage, attract the most qualified students, and better prepare students for the career marketplace, the university is continually seeking ways to enhance its network infrastructure to support new applications and services.

"The network is the foundation for all of our technology initiatives," says Art Gloster, vice president of Information Services at Bryant University. "We believe that we need to develop it in the most cost-effective manner possible." Gloster and his team began by evaluating the university's phone services. They wanted to implement technologies that would help enable Bryant to provide users with better service for roughly the same cost as a traditional phone system.



The university also had a vision of extending its network to support wireless connectivity, video, and content delivery, and essential campus services like heating, ventilation, and air conditioning (HVAC) and public safety. Network administrators determined that a converged multiservice network would help enable the university to cost-effectively support these and a host of other applications. Migrating Bryant's multiple networks to a single IP infrastructure would also help to ease network administration and support.

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Solutions

After considering a range of vendors, Bryant selected a comprehensive networking and communications solution from Cisco. The Cisco IP Communications solution provides support for voice services in student residence halls and other locations, as well as sophisticated telephony and messaging applications that enhance communications and improve productivity—at about the same cost as the university's previous phone system.

"Bryant considered several vendors, and found that Cisco offered the most comprehensive solution," says Gloster. "I'd had a very positive experience when I implemented a Cisco IP Communications system at another institution, so why change?"

At the heart of the voice system is Cisco CallManager software, which offers sophisticated call handling and brings network intelligence to telephony applications. One Cisco IP phone is placed in each dorm room, with two extensions and two distinctive rings—one for each student. The solution also supports voice mail, and allows students to access an up-to-date campus directory, and receive text messages over the phone's LCD panel. "It has a lot of features that the students really like, and it's been wildly received by parents as well," says Gloster.

Because the telephony solution runs over Bryant's converged network, Gloster and his team can provide these new services without incurring new costs.

"We weren't looking specifically to save money," Gloster says. "We were looking for better service within the confines of our budget," he says.

The university's Cisco network also plays a vital role in instruction. As an end-to-end solution, it provides Internet 1 and 2 access, support for Gigabit Ethernet service to the entire campus, and 100 Mbps full-duplex throughput to all devices on campus.

Faculty depend on the network to work with students electronically outside the classroom through Blackboard, a Web-based course-management system. Blackboard allows students, faculty, and staff to share documents, collaborate synchronously and asynchronously, and monitor and assess their own goals and activities. Response to the system has been overwhelmingly positive.

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Cisco Catalyst® 6500 and 4500 Series switches deliver optimum performance for these demanding applications in the network core and distribution layers. Cisco Catalyst 3550 switches at the access layer extend network intelligence and quality of service (QoS) that time-sensitive multimedia requires. Cisco PIX® 500 Series Firewalls and Cisco VPN 3000 Series Concentrators help protect the network from outside intruders and keep sensitive student and faculty data secure.

To extend access to the network outside the classroom, Bryant University installed Cisco Aironet® 1200 Series Access Points, which deliver high-speed 802.11a/b/g wireless connectivity nearly everywhere on campus. Wireless access was first deployed at Bryant University's George E. Bello Center for Information and Technology.

"We decided to provide wired and wireless connectivity at this state-of-the-art facility when it was completed almost two years ago," says Gloster. "We then expanded coverage to the rest of the campus." According to Gloster, every student is issued an IBM ThinkPad that is wireless-equipped and designed to work closely with Cisco wireless networks.

The Bello Center is a centerpiece of Bryant's use of technology for instructional and research purposes. The 71,000 square-foot facility houses the college library, and instructional and conference facilities, and a cybercafe, and provides access to a rich variety of information resources. The Bello Center offers more than 1,200 wired network ports and ubiquitous wireless access, as well as help-desk phones for use if students encounter technology issues. Group study rooms allow students to meet and collaborate with one another, just as they would in a corporate environment.

"Our librarians can reference content in any electronic form—not just print," says Gloster, "and they're participating more in instruction, training, and working with students to facilitate information access in a networked environment."

One specialized learning environment, the Bello Center's Financial Services Laboratory, provides students with hands-on learning opportunities to apply financial theory and risk management principles in a simulated trading environment. The laboratory provides networked connectivity to real-time financial market data feeds and complex analytical and risk-analysis software.

"The network enables users to do anything on our trading floor that you can do on a trading floor on Wall Street," says Gloster.

Bryant's network also provides support for video-streaming technology, which has been used for both live and prerecorded events and training programs. Video-streaming technology supports conferences and training activities, helping to enable participants to take part in programs at a time and location that is most convenient to them. The university also utilizes Cisco IP videoconferencing solutions to support collaborative and shared learning, and to deliver distance education and facilitate meetings off campus.

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While on a recent visit to China, the Bryant University president welcomed incoming class and parents through a two-way videoconferencing connection.

Another innovative component of Bryant’s video initiatives can be found in the rotunda of its Unistructure Building, which features a compelling digital-signage system. Two 100-inch Mitsubishi custom rear-screen projection displays serve as an electronic bulletin board. Using networked or cable video, the university can communicate with students using attractive visual imaging.

Bryant’s network is also being used to improve safety on campus. Staff in residence halls are testing radios that integrate voice-over-IP (VoIP) technology, which allows them to pick up public safety and other emergency radio communications. Cisco IP phones in dormitories can be used as a paging system to broadcast emergency announcements, while Cisco Emergency Responder provides support for Enhanced 911 service (E-911). And the university has linked its security cameras to the IP network, saving money and increasing its coverage areas. Bryant is now working closely with local emergency services personnel to explore how its technology infrastructure can integrate communication systems under the Homeland Security initiative.

“Local police and fire services are all on different radio frequencies, and we’re moving forward to bring them together using our network,” says Gloster. “Additionally, we’re looking at providing them with video streaming using wireless security cameras, so they can actually see an emergency situation before they arrive at the scene.”

Business Results

Bryant University completed its network upgrade in June 2004, and the system has quickly demonstrated its benefits in instructional settings. For example, the campuswide wireless network is helping to enable students and instructors to work together more easily than before, both inside and outside the classroom. As a result, faculty productivity increased 15 percent, and ubiquitous network access has boosted student productivity by more than 30 percent.

“We have seen a number of students using laptops in groups,” says Phil Lombardi, director of Academic Computing and Media Services. “You’ll see them everywhere on campus, both indoors and outdoors. The wireless network gives them the ability to collaborate with laptops, which is something we had never seen before.”

The Cisco network is also helping enable the university to collaborate with other institutions in the United States and around the world, extending its reach and reputation. For example, a new undergraduate degree program in international business will use e-learning technologies to connect and establish new partnerships with European, Latin American, and Asian universities.

Bryant's enthusiastic adoption of technology also allows the university to retain a competitive edge in recruiting students. Because of Bryant's extensive use of technology, many corporations rent the Bello Center, dorms, and classrooms over the summer for corporate events, which helps to boost the university's profile. With coverage in the national media and an emerging reputation as a leader in innovative technology, Bryant has already seen an increase in applicants.

"It's to our advantage to use technology, because students are aware that technology is the future," says Gloster. "We were just voted the second most wired campus in the United States, and students are ecstatic because it will help to better position them as they seek to secure a good job."

"Bryant University is a visionary school taking the steps to prepare their students for the future, which is what every parent and student desires when selecting a school," says Dr. Tracey Wilen-Daugenti, lead of the Higher Education Practice at Cisco. "The focus is on the student and how to enhance his or her university experience with the use of technology in a variety of ways, such as personal education, library services, student life, faculty development, and community safety. This is innovation that other colleges will be compelled to follow."

The university's 30 network administrators have also benefited from the new network because a single converged network infrastructure requires substantially less management support than multiple networks. By converging the two networks onto the IP backbone, the university can save more than US\$126,000 in personnel costs each year. Administrators also anticipate a four-year cost recovery period for the Cisco IP Communications solution, followed by US\$265,000 savings annually.

"Rather than have three or four networks, it's better to maintain one network technology and manage one network infrastructure," says Gloster. "Our Cisco IP Communications solution reduces the cost of the network, staffing requirements, and expenditures to contractors. We believe it will pay for itself, in terms of its operation and skill sets that we need to support it."

Next Steps

The Bryant University network was built to be both flexible and scalable, and the university is actively planning a variety of new applications. More than 2,700 students already have access to IP phones, and in 2005 the university will extend the system to faculty and administrative offices.

"Our administrative private branch exchange (PBX) system will be approaching the end of its lifespan, so we're looking to implement an IP telephony system for faculty and staff," explains Gloster. "The idea is to enable them to bring their extension to the broadband network into their homes. Traditionally, faculty maintain specific office hours, then leave for the day. This solution would enable them to have remote office extensions in their homes and improve productivity and accessibility."

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Gloster and his team are also exploring Cisco Unity™ for unified messaging for administrators, helping to enable staff to manage voice-mail and e-mail messages from a single, integrated mailbox for improved responsiveness and productivity. Seeking to improve network administration, staff are also considering using CiscoWorks IP Telephony Environment Monitor, a suite of applications that continuously evaluates and reports the operational health of IP telephony implementations.

Because the network provides both the bandwidth and intelligence needed for multimedia applications, Bryant plans to further develop its use of video in the classroom.

"We're looking at taking the videotape that the library holds and putting it on a storage area networking (SAN) unit to be distributed by the network," says Gloster. "Every classroom has been wired with a high-quality overhead projector."

Bryant is working to further develop its networking applications for facilities management as well. Heating, ventilation, and air conditioning are already fully integrated into the network, and the university is in the process of adding card-swipe locks, together with tracking and reporting systems, for added campus security. With its flexible Cisco solution, Bryant University can continue to adapt its network to meet new challenges for years to come.

For More Information

For more information about Cisco voice and IP Communications solutions, please visit: www.cisco.com/go/ipc.

This customer story is based on information provided by Bryant University and describes how that particular organization benefits from the deployment of Cisco products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

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