Leading University Meets Growing Demand for Student Mobility

Bryant University deploys Cisco 802.11n to match throughput and reliability of wired networks and gains a competitive edge.

EXECUTIVE SUMMARY

Bryant University

- Higher Education
- Smithfield, Rhode Island, United States
- 3765 students
- 750 employees

Challenge:

- Provide more reliable connectivity in the classroom to create a laptop-friendly educational environment
- Support a growing number of bandwidth-intensive applications and multiple wireless devices with varying standards, enabling seamless mobility throughout campus
- Deploy a wireless network providing enough throughput and reliability to replace wired connectivity

Solution:

- Cisco Unified Wireless Network with controller-based architecture and Wireless Control System to facilitate migration, simplify management, and improve security and troubleshooting
- 802.11n access points support student body's wide range of a, b, g and n client devices, as well as dual-mode phones for administrative staff

Results:

- Supports bandwidth-rich and real-time applications that improve the quality of learning and student life, enabling the university to gain a competitive edge in the market
- Meets growing student demand for wireless access to the Internet via multiple devices
- Improved throughput and coverage in the residence halls, improving student satisfaction

Challenge

Founded in 1863, Bryant University provides rigorous academic programs that integrate business and liberal arts, ensuring students develop the skills and critical thinking essential to every profession. In its survey of "America's Best Colleges for 2009," US News and World Report ranked Bryant University as one of the "Top 20 Master's Universities" in the Northeast. "As a student-centered university, we are constantly striving to provide students with the best tools to facilitate learning, ultimately helping them succeed in the professional world," says Richard Siedzik, director of Computer and Telecommunications Services at Bryant University.

To provide campus-wide Internet and network connectivity, Bryant University deployed a Cisco® wireless network in 2004. But student demand for seamless mobility throughout campus and use of new bandwidth-intensive applications grew rapidly, challenging the capabilities of the existing network. "While our dormitories provided wired access, students preferred to connect wirelessly so they could move about freely," says Phil Lombardi, director of Academic Computing and Media Services. In the classroom, providing reliable connectivity was also becoming a challenge. "Classrooms are too difficult and expensive to wire completely, and our existing access points were having trouble supporting a growing number of clients. With up to 45 students in a lecture hall, it was likely that some wouldn't be able to connect. Our classroom environment became laptop-unfriendly," he says. To accommodate its students' need for continuous connectivity, Bryant realized that it needed a wireless network that provided as much throughput and reliability as its wired infrastructure.

Solution

Bryant decided that the only technology capable of replacing wired connectivity was an 802.11n wireless network. In preparation to adopt the new technology, the university migrated to Cisco's Unified Wireless Network last year, moving from standalone access points to a controller-based architecture. "Cisco helped us design a strategy that would simplify the adoption of 802.11n access points when we were ready to deploy," says Siedzik. In early 2008, the university was ready to move forward, and it chose Cisco as its preferred vendor. "Our relationship with Cisco and the success we've experienced with all of its products made it an easy decision," he says.

Currently, Bryant is in the process of migrating to 802.11n, replacing each of its 400 access points with a new Cisco Aironet® 1250 access point. "Thanks to the centralized architecture of the Cisco Unified Wireless Network, we simply take down the old access points and put up the new ones. The access points self-configure, saving us an enormous amount of time," says Siedzik. The Cisco Wireless Control System further simplifies management, enabling the university to identify rogue access points, analyze coverage maps, and troubleshoot to prevent connectivity problems.

New 802.11n access points have been deployed throughout the 13 residence halls in the dormitory village. Approximately half of Bryant's 3000 students have laptops with 802.11n. "We rely on the backwards compatibility of the 802.11n network to support the requirements of all of the different client devices that we have on campus. iPhones and game devices, for instance, run on 802.11g," says Siedzik. While b, g, and n clients run on the 2.4 GHz frequency, and n devices use the 5 GHz band.

During the migration to 802.11n, the Cisco Unified Wireless Network continues to provide campus-wide connectivity for students, staff, and visitors. The network supports 52 Sprint dual-mode phones, enabling athletic coaches and IT, facilities, and security personnel to stay connected as they move inside buildings. "The coverage of the Cisco Unified Wireless Network makes it possible for us to keep our most mobile staff connected, even in areas that traditionally have had difficulty retaining cellular reception, such as hallways and basements," says Siedzik. The university's IP Interoperability and Collaboration System (IPICS) also transmits to the dual-mode phones via the wireless network, enabling emergency broadcasts to reach key personnel in real time. In addition, the Cisco Unified Wireless Network provides guest access services that make on-campus events and conferences convenient and productive for parents, prospective students, and other visitors.

> **"With 802.11n, we are much closer to considering wireless as the standard, rather than the preferred, method of network access at Bryant."**
>
> **— Richard Siedzik, director of Computer and Telecommunications Services**

Results

By reinforcing the university's commitment to innovation and excellence, the adoption of Cisco's 802.11n technology enabled Bryant to gain a competitive edge among higher learning institutions. "Offering support for 802.11n assures students that we are able to meet all of their needs, recreationally as well as academically. The 802.11n network enables us to support bandwidth-intensive and real-time applications, such as video streaming and IPTV, that improve the quality of learning and student life," says Lombardi.

The 802.11n network also keeps the university at the forefront of new technology developments. During freshman enrollment this year, students asked to register a number of devices, including cell phones, iPhones, PDAs, game devices, and smart phones, on the university's wireless network. "As new wireless devices enter the market, student demand for wireless access to the Internet will increase. Cisco's 802.11n future-proofs our network to support that growing demand," says Joe Soffey, director of the Student Laptop Program.

The new 802.11n access points are already showing improved throughput and coverage. "In the past, we always had one access point on each floor of a residence hall, but there were small spots in far-reaching corners where coverage was problematic. When we switched the access points to 802.11n, those problem areas disappeared," says Penny Pietraszka, assistant director for Network Operations. The increased throughput of the 802.11n network also boosted the performance of each client. "With the same number of access points, we've improved link reliability and predictability, which we hope will make our students much happier," she says.

Cisco's 802.11n network enables Bryant to deliver on its vision to create a wire-free university that supports a more interactive learning environment. "In the classroom, wireless is the only way to administer exams online and to provide access to courseware programs like Blackboard. With 802.11n, we are in a much better position to assess when we can stop running wire altogether," says Lombardi. Bryant envisions an academic program in which professors can send out polls to student's laptops or iPhones in real time via the wireless network. "Communicating with faculty anonymously while in the classroom will give quiet students the ability to participate, and professors will find out what areas in their curriculum need review," he says.

PRODUCT LIST

Wireless

- Cisco Catalyst 6500 Series Wireless Service Modules
- Cisco Aironet 1250 Series Access Points
- Cisco Aironet 1230 Series Access Points
- Cisco Aironet 1240 Series Access Points
- Cisco Wireless LAN Controllers
- Cisco Wireless Control System

Voice and IP Communications

- Cisco Unified Communications Manager
- Cisco IP Interoperability and Collaboration System

Routing and Switching

- Cisco Catalyst 6500 Series Switches
- Cisco Catalyst 3750 Series Switches
- Cisco 2800 Integrated Services Routers

Security and VPN

- Cisco ASA Series Adaptive Security Appliances
- Cisco Security Agent
- Cisco VPN

Next Steps

The deployment of 802.11n access points throughout the university's 40 buildings will be completed by the end of 2008. "Once the network is deployed, we would like to go back and install more access points to further improve performance, helping ensure we can support all of the applications that faculty and students need," says Siedzik. As its football team moves to Division 1, Bryant also intends to deploy wireless in the athletic fields and stadiums to provide more services to attendees. To improve mobility as well as safety on campus, the university is in the process of implementing Cisco's mobile intelligent roaming capabilities, giving students continuous access as they move between buildings as well as between cellular and Wi-Fi networks. Siedzik says, "Cisco 802.11n is a crucial component in our plans to grow and improve our programs."

For More Information

To find out more about the Cisco Unified Wireless Network and 802.11n technology, visit: http://www/cisco.com/go/nextgen-wireless

To find out more about Bryant University, visit: http://www.bryant.edu

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