

## Leading Regional University Expands Mobility Solutions

Delta State University improves network experience and security and quality of learning with Cisco Unified Wireless Network.

EXECUTIVE SUMMARY
<p><b>DELTA STATE UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Higher Education</li> <li>• Cleveland, Mississippi, United States</li> <li>• 4119 students</li> <li>• 400 faculty members</li> </ul>
<p><b>BUSINESS CHALLENGE</b></p> <ul style="list-style-type: none"> <li>• Expand wireless network coverage to meet student expectations for uninterrupted high-bandwidth connectivity, and support faculty use of multimedia teaching tools</li> <li>• Improve wired and wireless network security by increasing student use of antivirus software</li> <li>• Replace dial-up modem bank, providing Internet access and building-to-building connectivity without running cable</li> </ul>
<p><b>NETWORK SOLUTION</b></p> <ul style="list-style-type: none"> <li>• Creative wireless outdoor mesh solution provides indoor and outdoor connectivity for family housing</li> <li>• Indoor access points deliver enhanced wireless coverage on campus</li> <li>• Network Admission Control Appliance enables user access control, security policy enforcement, and a common experience across wired and wireless networks</li> </ul>
<p><b>BUSINESS RESULTS</b></p> <ul style="list-style-type: none"> <li>• Creative application of unified wireless network resolved Internet connectivity issues six times faster and at less than half the cost of running wire</li> <li>• Expanded wireless coverage increased student-faculty collaboration and support for high-bandwidth teaching applications, helping improve the quality of learning</li> <li>• Significantly reduced the number of virus outbreaks, decreasing IT support calls and costs</li> </ul>

### Challenge

Established in 1924, Delta State University is a regional, public higher-education institution providing comprehensive undergraduate and graduate-level programs. Unique to Delta State is its Center for Community and Economic Development, which encourages faculty, staff, and students to work with the community on the development of the Mississippi Delta region. In combining its heritage of academic strength with this commitment to serve people and communities, Delta State strives to be the leading regional university in the United States. “For a university such as ours, the right technology is especially important in delivering educational excellence and providing the best student experience,” says Beverly Fratesi, CIO of Delta State University.

In 2006, Delta State began working with BCI, a Cisco® Gold Partner, to improve network connectivity on campus. The university decided to upgrade its existing wired infrastructure to a Cisco Gigabit Ethernet backbone and created various wireless hot spots by deploying Cisco access points in specific areas throughout campus. A year later, the university faced a critical connectivity problem in its family housing. “The dial-up modem bank that we were using to connect these students to the Internet crashed. We had no fiber running to the apartment complex, no CAT5 cabling in the buildings, and no

physical space to create a wiring closet. More importantly, we didn’t have the time or budget to create a wired network,” says Fratesi.

The family housing connectivity issue also presented an opportunity for the university to evaluate its network requirements. “We knew that we wanted to expand our wireless network coverage to meet student expectations for uninterrupted high-bandwidth connectivity and to support our faculty’s increasing use of multimedia teaching tools in the classroom,” says Fratesi. Improving network security was also high on the agenda. At the time, students accessing Delta State’s wireless network did not have consistent antivirus protection, and the university was not able to

enforce security policies. “Many students let their antivirus software lapse, putting our network at risk whenever they downloaded virus-laden content and then used our file and mail servers,” says Matt Logan, network and telecommunications manager at Delta State. The university required a cost-effective, creative solution that would not only provide Internet connectivity to its housing, but would also improve wireless coverage and network security.

“Thanks to BCI and Cisco, we had the Cisco Unified Wireless Network deployed within four weeks, at less than half the cost of running wire.”

—Beverly Fratesi, CIO

### Solution

BCI worked with Delta State to evaluate, design, and integrate the right solution. “Cisco’s wireless solution for education was cost-effective and comprehensive, making it an easy decision. The Cisco Unified Wireless Network would give us the expanded wireless coverage that we needed, while the Cisco Network Admission Control (NAC) Appliance would improve network security,” says Logan.

Because Delta State did not want to deploy access points inside the student housing buildings, BCI developed a creative alternative. “Deploying traditional access points in the family housing area would have required the installation of wiring closets, switches, and electrical infrastructure. The university did not have the financial resources for this type of traditional installation, which would have caused a significant delay in providing a solution for our students,” says Logan. BCI recommended using outdoor mesh access points to provide both indoor and outdoor connectivity. Five Cisco Aironet® 1500 Series mesh access points were mounted outside the apartment complex, connecting approximately 60 housing units to the Internet and campus services. The mesh access points, arranged in a point-to-point configuration, wirelessly connect to the wired network located on campus. A Cisco 2106 wireless LAN controller provides centralized management, saving IT administration time while providing enhanced security.

Wireless connectivity was also extended to various areas on campus with the Cisco Aironet 1130AG Series access point and 4400 Series wireless LAN controllers, providing students and faculty with enhanced mobility. “The solution far exceeded our expectations. We anticipated that we would have some coverage in open areas, but found that we were able to provide connectivity to a large portion of common areas via a single wireless solution. This resulted in a significant return on investment for the university,” says Fratesi. Now, the university provides wireless access in outdoor areas, including the Quad, as well as in its science buildings. Faculty members have the freedom to work online outside of their offices and can even take their classes outdoors. By walking their laptops over to professors wherever they are, students can now receive help without having to depend on an open computer lab.

The Cisco NAC Appliance secured both wired and wireless networks, enabling the university to control user access and enforce security policies. Because the campus is located in the center of the town of Cleveland, Mississippi, the ability to block unauthorized users from the network was particularly important to Delta State. “Providing wireless Internet access to the entire town would have turned us into an Internet Service Provider and required that the university meet extensive reporting and other CALEA [Communications Assistance for Law Enforcement Act] Compliance

regulations,” says Logan. “By limiting network access to our own authorized users, the Cisco NAC Appliance eliminated this concern.”

In addition, the NAC enables the university to have visibility into who is using the network at all times, as well as each user’s security posture. When users log into the network, the NAC automatically verifies whether they have an updated anti-virus solution installed. “If a user doesn’t have a current anti-virus solution or critical updates installed, the NAC blocks network access and provides instructions on where to find and download the software,” says Logan.

The NAC also provides one common user experience across both wired and wireless networks, including wired and wireless guest access services. One password provides access to both networks, while the same web authentication page is made available to university students, faculty, and staff as well as guests. “The NAC facilitates network access for all users and simplifies network management and administration for our IT staff, while keeping the network secure. It’s easy to assign SSIDs [Service Set Identifiers] with different user policies for guests and to direct guest traffic through a separate VLAN,” says Logan.

## Results

With Cisco and BCI, Delta State University was able to deploy an advanced unified wireless network easily, while saving time and money. “When our modem bank failed in our family housing, it would have cost approximately US\$140,000 and taken six months to install a wired network. Thanks to BCI and Cisco, we had the Cisco Unified Wireless Network up and running within four weeks at less than half the cost,” says Fratesi. For a regional university, stretching dollars and maximizing IT resources are both of critical importance. The new network enhancement not only provided connectivity for family housing, but also expanded wireless coverage throughout campus without increasing administration time. “BCI provided us with a creative way to use the Cisco Unified Wireless Network to meet our indoor and outdoor connectivity needs, while simplifying network management,” says Fratesi.

As a result of the expanded wireless coverage, collaboration between Delta State students and faculty has increased, helping to improve the quality of learning. “The Cisco Unified Wireless Network exceeded our coverage expectations. Students report that they are more engaged and collaborate more frequently with each other and professors. Our faculty is also pleased that they can easily use high-bandwidth applications, such as video, inside and outside of the classroom to help them teach,” says Fratesi.

The Cisco NAC Appliance made it easy to create a secure and transparent network experience for students, while reducing IT costs. “Now that we can see the users who are on the network and their security postures, we determined that more than 60 percent of students either had an antivirus that was out of date or didn’t have one at all. Because we can enforce security policies, we’ve been able to reduce the number of virus outbreaks significantly, decreasing the amount of help desk requests that we receive,” says Logan. Providing one unified wired-wireless network experience also overcomes barriers to user adoption more easily, reducing training and support costs. “BCI spent one day educating our students and staff on the benefits of the NAC, which reduced the number of IT calls that we received when we deployed the system,” says Logan.

## Next Steps

Delta State looks forward to continuing to grow the Cisco Unified Wireless Network. The university is currently considering expanding the outdoor mesh network to the main athletic building to enable ticket scanning during events, as well as providing wireless Internet and network access to other residential and academic environments. In addition, Delta State is exploring the possibility of using Cisco's location-based services to track university assets campus-wide. "Cisco really understands the needs of higher learning institutions. It helped us improve the experience of our students, maximize our resources, and improve network security: that's a lot of value for a small investment," says Fratesi.

### PRODUCT LIST

#### Wireless

- Cisco Aironet 1130AG Series Access Points
- Cisco Aironet 1510 Lightweight Outdoor Mesh Access Points
- Cisco 4400 Series Wireless LAN Controllers
- Cisco 2106 Wireless LAN Controller
- Cisco Wireless Control System

#### Routing and Switching

- Cisco Catalyst 6500 Series Switches
- Cisco Catalyst 3750 Series Switches
- Cisco Catalyst 3560 Series Switches

#### Security and VPN

- Cisco Network Admission Control (NAC) Appliance 335-2500 K-9
- Cisco Network Admission Control (NAC) Appliance MGR-20FB-K9
- Cisco Secure Access Control Server

## 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 Delta State University, visit: <http://www.deltastate.edu>
- To find out more about BCI, visit: <http://www.bcianswers.com>



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