

College Expands Educational Horizons Wirelessly

Emory and Henry College deploys a Cisco Unified Wireless Network to recruit new students.

EXECUTIVE SUMMARY
<p>EMORY AND HENRY COLLEGE</p> <ul style="list-style-type: none"> • Higher Education • Emory, Virginia • 1000 students • 250 employees <p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Attract new students to the campus through technological leadership • Use technology to help facilitate “active learning” on campus, including outdoor classes • Easily manage the wireless network • Mitigate network security risks
<p>NETWORK SOLUTION</p> <ul style="list-style-type: none"> • A Cisco Unified Wireless Network provides centralized management, troubleshooting, and rogue AP detection • A mix of mesh and indoor access points provides Wi-Fi access in key indoor and outdoor locations throughout the main campus • Separate Service Set Identifiers for students and guests help ensure secure network access
<p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • The promise of wireless access is expected to attract new students • Professors can teach classes outdoors while maintaining network access • Achieving 100 percent wireless coverage distinguishes Emory and Henry from other area colleges

Business Challenge

Founded in 1836, Emory and Henry is the oldest college in southwest Virginia. The school is known for its innovative academic programs, which stress hands-on education in and outside of the classroom.

The college offers many incentives to prospective students, including high-speed Internet and cable connections in all of its residence halls. But recently, Emory and Henry has faced a technological marketing challenge common among colleges these days. The lack of ubiquitous Wi-Fi access on campus was starting to have a negative effect on student recruitment.

“It seemed like prospective students were choosing other colleges with better connectivity,” says Lorraine Abraham, director of library and information technology services at Emory and Henry. “Students were coming out of high schools with the expectation that they would have wireless access in college. It was important that we stay competitive technologically because there are scores of liberal arts colleges in Virginia. And many of our matriculated students said that they wished

they had Wi-Fi.”

In fact, Abraham says, several students had taken matters into their own hands and installed their own access points in dormitory rooms, which posed security problems for the campus network.

Furthering the cause for Wi-Fi, a survey of the school’s students showed that 82 percent of them arrived on campus with their own personal computers, and, of those, 75 percent used mobile notebook computers.

In June 2006, Emory and Henry named a new president, Rosalind Reichard, a doctor of mathematics who understood the important role that Wi-Fi plays in the lives of young students.

“Our new president is extremely technology savvy, and she told us to run with plans for a new wireless network,” Abraham says.

Network Solution

The IT team at Emory and Henry wanted a few key features in a wireless network: centralized management, reliable security, and ubiquitous coverage for the entire campus—both indoors and outdoors. The goal was to achieve status as the first college in Virginia with truly ubiquitous wireless access. With those needs in mind, the team evaluated several equipment vendors and technology partners. After viewing several presentations, the team decided to employ ABS Technology Architects to deploy a Unified Wireless Network from Cisco Systems®. ABS is a trusted Cisco Gold Certified Partner that specializes in network security, IP telephony, and wireless LAN solutions.

“They did their homework,” says Cristie Lester, a senior account manager at ABS Technology Architects. “They knew the end result that they wished to accomplish and left it to ABS and Cisco to design the solution that would incorporate all their needs.”

The expert Cisco account team supporting ABS included Cisco account manager Andi Herman, systems engineer Scott Clayton, and product sales specialist Michael Hawk.

Abraham appreciated the way that Cisco and ABS worked as a team from the very first meeting. “We thought it was terrific that Cisco engineers came in to support ABS and answer questions, but we were also impressed that ABS delivered the presentation, rather than leaving that up to the vendor. It showed that ABS was an educated partner.”

For the controller, the team decided to deploy the Cisco Catalyst® 6500 Series Wireless Services Module (WiSM). The WiSM is a blade that fits into the Cisco Catalyst 6500 Series Switch; Emory and Henry had already deployed this switch for its core network, and choosing the WiSM took advantage of this existing investment.

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—Lorraine Abraham, director of library and information technology services at Emory and Henry College

After an initial site survey of the college’s historic buildings and hilly campus, the team decided to deploy a combination of 173 Cisco Aironet® 1200 Series indoor wireless access points and 13 Cisco Aironet 1500 Series mesh access points. In a mesh network, packets are routed dynamically from node to node, so not every access point needs to be connected directly to the wired network. “We have a very active elevated railroad track that runs through the campus,” Abraham says. “We cannot run cables under or over the track, and mesh gave us a wonderful solution to get across.”

Some of the buildings on campus were used as hospital buildings during the American Civil War. Because their walls were made of thick concrete and steel, they required more access points than buildings with plaster or brick walls. The site survey took these special requirements into account.

Abraham wanted to make sure the new wireless network would be as secure as those Civil War-era buildings. “We wanted to be able to offer some wireless access to both students and guests, but we did not want the wrong people to gain access to our proprietary resources and institutional documents.”

Fortunately, the Cisco Unified Wireless Network is able to support separate virtual LANs and separate Service Set Identifiers (SSIDs) for different user groups, helping ensure that guest traffic

stays separate from faculty and student traffic. The RF management capabilities of the Wireless Control System (WCS) software allow for automatic detection of rogue APs and malicious activity on the network.

Now the IT team is also looking to bolster the security features of the network by taking advantage of the core network. To that end the college plans to install a Cisco Network Admission Control (NAC) Appliance, which lets network administrators authenticate, authorize, and evaluate users for both wired and wireless access.

Business Results

The wireless network at Emory and Henry is due for completion by late summer 2007—in time for the start of the fall semester. Although the WLAN is in its nascent stages, Abraham says it is already generating positive publicity for the school. She expects this to be a boon for student recruitment; prospective students now know that they can access the network anywhere on campus.

“Our plans have been reported on TV and on the radio all over the state, because we are the first school in Virginia to offer 100 percent wireless coverage.”

As for the current student body, “Our students are really thrilled, just knowing that it is coming,” she says. “You would think that it was Christmas! We expect the network to make the college experience more collegial. Not only will kids go outside to study, but they will gather in groups and work on projects together—outside or in a coffee shop.”

PRODUCT LIST	
Security	<ul style="list-style-type: none"> • Cisco Monitoring, Analysis and Response System • Cisco NAC Appliance
Switches	<ul style="list-style-type: none"> • Cisco Catalyst 6500 Series Switches
Wireless	<ul style="list-style-type: none"> • Cisco Catalyst 6500 Series Wireless Services Module • Cisco Aironet 1500 Series Access Points • Cisco Aironet 1200 Series Access Points

In addition to improving the quality of life for students, Abraham expects the wireless network to change the way that professors teach their classes. Many faculty members depend on network access during their lectures, and ubiquitous Wi-Fi means that they can teach outside of the classroom.

“We really want to be able to positively affect the pedagogy with the wireless network,” she says. “With outdoor connectivity, any place can be a classroom. For instance, a pond can be a setting for a botany class. We are pushing different learning

styles in higher education today. Some kids are visual, and some are auditory, and so on. We look for every opportunity to utilize technology in a way that facilitates active learning. Today’s teaching techniques tend toward active participation with the students.” The ability to move around while maintaining network access will encourage original teaching styles and collaboration among students and professors, she says.

At the same time, “The instructional technologist at the college is looking at ways to maximize wireless in the classroom,” she says. “We are starting to teach professors how to do podcasts and Really Simple Syndication (RSS) feeds—things that most of our students already know how to do.”

Next Steps

To increase security further, the college also plans to deploy a Cisco Monitoring Analysis and Response System (MARS), which keeps track of suspicious behavior in both wired and wireless networks.

