Major University Meets Students' Wireless Needs

The University of New Mexico deploys a Unified Wireless Network on its main campus.

EXECUTIVE SUMMARY

UNIVERSITY OF NEW MEXICO

- Higher Education
- Albuquerque, New Mexico
- 33,264 students
- 20,210 employees

BUSINESS CHALLENGE

- Draw new students to the campus with the promise of better Wi-Fi access
- Build a new wireless network with a limited budget
- Easily manage that network
- Encourage students to congregate near the Student Union Building, in order to boost student enrollment in the campus credit union

NETWORK SOLUTION

- A Cisco Unified Wireless Network provides centralized management and troubleshooting
- Strategically placed access points provide 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
- A Web portal provides advertising for the New Mexico Educators Federal Credit Union

BUSINESS RESULTS

- The promise of wireless access is expected to attract new students
- Realizing the benefits of Wi-Fi is expected to encourage further network funding from additional sources
- Students now spend more time near the Student Union Building, where the credit union conducts business

Business Challenge

Founded in 1889, The University of New Mexico is a major public university in Albuquerque. UNM offers bachelors, masters, doctoral, and professional degrees in a multitude of areas, including world-renowned programs in engineering and rural medicine. A bastion of modernity in the Old West, the university's main campus spans more than 600 acres in the heart of the city, along historical Route 66.

Lately, UNM has faced an issue that has become commonplace among universities trying to woo new students—the fact that, for most college-bound young Americans, Wi-Fi access is not just a convenience or a privilege; it is an entitlement and expectation. Although individual academic departments at UNM have hosted small wireless LANs in their respective departments for several years, the school's IT department recognized a need for ubiquitous Wi-Fi service for the student body. For the IT staff, a lack of centralized management made it almost impossible to keep track of all the wireless network activity on campus, which posed potential security threats.

"Historically we had not had funding to enhance the network or deploy wireless services centrally," says Paula Loendorf, director of information technology services at the University. "I would say that we had been behind other universities when it came to wireless."

Funding arrived from an unexpected source. Each year, the New Mexico Educators Federal Credit Union hosts an account enrollment for students at UNM. The event generally takes place in the fall, right outside of the campus Student Union Building (known as "the SUB"). Reasoning that more students would congregate outside the SUB if there were Wi-Fi access there, the credit union donated US$750,000 toward a wireless network that would provide network access near the SUB—and in other popular campus areas.

Network Solution

UNM decided to deploy a Unified Wireless Network from Cisco®. Loendorf liked that Cisco offered the ability to manage and control Wi-Fi access from a central location, keeping constant track of all network activity via its Wireless Control System management software. The Cisco network can also integrate with the university's wired Ethernet infrastructure. "The infrastructure backbone is made up of Cisco equipment, and we wanted to maintain a Cisco solution," says Judy Beckes Talcott, a systems integrator at Aquila Technologies, the Cisco partner that is helping UNM with the network deployment.

The university already had an installed base of Cisco Ethernet switches, and, for that reason, the UNM team chose to deploy Cisco Catalyst® 6500 Series Wireless Services Modules (WiSM). Designed to integrate into networks that already utilize Cisco Catalyst 6500 Series Ethernet switches, WiSM controllers provide real-time communication among controller-based access points. The Unified Wireless Network also allowed UNM to take advantage of the school's previous wireless investment—the installed base of standalone 1200 Series Aironet® wireless access points (APs) in several academic buildings. Via a free firmware upgrade, these APs were converted to support controller mode so they could work with the WiSMs. Protecting the existing investment was especially important because the university had such a limited IT budget.

To cover the outdoor areas on campus, the team decided on a solution that would not force them to drill holes into outside of their historic buildings. "The vast majority of the outdoor areas that we wanted to cover were adjacent to a building that had a network backbone," says Shameel Talcott, a systems integrator at Aquila. "After an extensive walkthrough and survey, we determined that we could use Cisco Aironet 1200 Series access points with Aironet dBi patch antennas, which we mounted directly onto the buildings' window panes."

> **Having a robust wireless network will bring new students to the university."**
>
> **—Paula Loendorf, director of information technology services at The University of New Mexico**

Throughout the rest of the campus, the team supplemented the existing base of access points with a mix of Aironet 1100 and 1200 Series APs. Loendorf expects that the funding from the credit union will allow for an eventual deployment of 500 access points, spread 2700 feet apart; the deployment is due for completion by early 2009.

The team decided to create separate virtual networks for different user groups, a key security feature of the Unified Wireless Network. For example, the UNM Wireless Guest connection is an open network that allows basic Web browsing. The UNM Wireless Web-Auth connection allows the use of e-mail clients such as Microsoft Outlook; it requires authentication through a Web browser, and the authentication page features information about the New Mexico Educators Federal Credit Union. Wireless Web-Secure provides an additional layer of encryption and offers access to restricted data such as student records. By providing separate means for secure access for each user group, the university helps ensure that student and faculty data access remains separate from guest access.

Business Results

Although the network is still in its nascent stages, students have already shown a great deal of enthusiasm about the promise of reliable, campus-wide Wi-Fi. To involve them in the planning

process, Loendorf and her team asked students to vote on which areas of campus should receive Wi-Fi first, and in which order. The ballot boxes overflowed with requests. Details of the network rollout are now posted on the UNM Website. “Having a robust wireless network will bring new students to the university,” Loendorf says.

The credit union that sponsored the network has fulfilled its hope of Wi-Fi bringing more student traffic to the Student Union Building, according to Loendorf. The window-mounted antennas work well, and hundreds of students gather outside the SUB now with their laptop computers in spite of the summer heat, she says.

The credit union also receives visibility every time that a student logs in to the Wi-Fi network. “When people go into the login sheet, there’s a statement acknowledging the credit union’s contribution to enhance the wireless access on campus,” Loendorf says.

PRODUCT LIST

Switches

- Cisco Catalyst 6500 Series Switches

Wireless

- Cisco Catalyst 6500 Series Wireless Services Module
- Cisco Aironet 1100 Series Access Points
- Cisco Aironet 1200 Series Access Points
- Cisco Wireless Control System

The university can provide wireless access to a great deal of the campus with the initial US$750,000 round of funding, but the IT team knows that it may need additional funding to make Wi-Fi truly ubiquitous. “Given the way that we have to spread the access points out to stay within the funding allotted, we know that it is not going to cover every nook and cranny of campus,” says Mark Reynolds, associate director of information technology at the university. Fortunately, however, the Unified Wireless Network—even in its early stage—has caught the attention of individual university departments. Because technology funding for the university often goes to individual academic departments rather than directly to the IT department, the department must pay some of the cost for network improvements. Those departments are realizing the benefits of reliable access and reliable, centralized support, and the IT staff expects that they will eventually provide additional funding necessary to offer truly ubiquitous Wi-Fi.

“The first stage of the network was kind of the bait,” says Reynolds.

“If the funding that we have does not provide the coverage we want, I think the individual schools will come up to the funding to enhance it to meet everyone’s needs,” Loendorf says.

Next Steps

When funds become available, the university will probably deploy another WiSM for failover purposes; in the event that there is a problem with one WiSM, the Unified Wireless Network can immediately switch all network traffic to the next WiSM. “We have enough funds to build the infrastructure, but with additional funding we will be able to have redundancy,” Reynolds says.

For More Information

To find out more about the Cisco Unified Wireless Network solution, visit: http://www.cisco.com/go/unifiedwireless.

To find out more about Education solutions, visit: www.cisco.com/go/education.

For find out more information on the University of New Mexico, visit: http://www.unm.edu/.

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