Major University Finds Tools to Attract New Students

Texas State University stays competitive with the Cisco Outdoor Wireless Network and Cisco Unified Wireless Network.

EXECUTIVE SUMMARY

Texas State University—San Marcos

- Higher Education
- San Marcos, Texas
- 28,132

Business Challenge

- Meet and exceed student and faculty expectations for ubiquitous Wi-Fi access
- Stay technologically competitive with other leading universities
- Help ensure the security of all campus network communication
- Draw new students to the campus

Network Solution

- The Cisco Unified Wireless network provides ubiquitous outdoor wireless network access throughout 456 acres of green space, and indoor access for 170 campus buildings
- Centralized controllers allow for uninterrupted user roaming among both indoor and outdoor access points
- Separate Service Set Identifiers for students and guests help ensure secure network access

Business Results

- The promise of ubiquitous Wi-Fi is an effective marketing tool for the school's admissions office
- Maintaining an advanced network keeps Texas State technologically competitive with other schools
- Wireless access both indoors and outside makes the learning experience more enjoyable for students
- Faculty have access to administration tools, the Internet, and curriculum materials from anywhere on campus
- Faculty are more accessible and responsive to students and staff
- The scalability of the network allows the university to plan for future services.

Business Challenge

With nearly 170 buildings spread across 456 hilly acres, Texas State University—San Marcos is one of the largest public universities in the state. Fueled by fierce competition with other state schools, Texas State makes a point of offering advanced technological tools to its students, faculty and staff. The brand-new McCoy Hall uses flat screen monitors rather than bulletin boards, for instance, and the Mitte Complex contains a high-tech clean room and microchip fabrication lab for teaching and research purposes. The school is also expanding its engineering department in order to draw technically-savvy students and staff to the campus.

Recently, Texas State has faced an issue that is increasingly common among universities trying to attract college-bound students—the expectation that Wi-Fi access will be available everywhere on campus. New students no longer see ubiquitous Wi-Fi as just a convenience or a privilege; they see it as a necessity.

"Three years ago, students would come to campus and ask when wireless would be coming to Texas State," says Rick Bishop, director of network operations at the university. "Two years ago the question became, 'where are your hot spots?' Last year, the students did not ask; they just assumed the university would have hot spot wireless access."

An informal survey of the student body showed a definite trend toward mobility; many owned a notebook computer, and numerous others used Wi-Fi-enabled devices such as high-end phones and personal digital assistants (PDAs).

Texas State's IT department stepped up and exceeded the expectations of its students by expanding their existing wireless network to include ubiquitous outdoor coverage across all 456 acres of the campus. This allowed Texas State to maintain its competitive advantage, and to stay one step ahead of student expectations.

"The Admissions and Residential Life offices make a point to let prospective students know that wireless is now available all over campus. Ubiquitous wireless access indoors and outdoors is a great marketing tool that we use to attract new students."
– Mark Hughes, assistant vice president for technology resources at Texas State University

Network Solution

After considering a variety of outdoor wireless options, the Texas State IT team decided that the school would benefit most from an outdoor wireless mesh network. With wireless mesh, the network dynamically routes packets from access point to access point, using a wireless radio. A few access points are connected directly to the wired network, via a wired backhaul, but the rest of the access points share connections with one another over the air. This simplifies wiring and reduces costs.

"The driving factor for outdoor wireless mesh was the need for less Ethernet wiring, especially in outdoor areas that are difficult to cable," says Mark Hughes, assistant vice president for technology resources at Texas State.

After evaluating several solutions, the team chose an Outdoor Wireless Network from Cisco Systems that includes weatherproof Cisco 1500 Series Outdoor Access Points (APs) and Cisco Catalyst® 6500 Series Wireless Service Modules (WiSMs). These products provide robust coverage and enhanced security, while also integrating with the school's installed base of Cisco wired and wireless networking equipment.

"The WiSM controllers slid right into our core switches, which had open slots to accommodate them," Bishop says. The Catalyst 6500 WiSM also supports smooth device roaming between indoor and outdoor access points.

"The self-healing aspects of the Cisco outdoor wireless mesh network, and its integration with our existing Cisco indoor wireless solution, made it very appealing," Hughes says. "We were looking for a transparent solution that would allow mobile users to move from building to building on campus and never lose their IP connection, and the Cisco Outdoor Wireless Network was the best fit."

Hughes was also impressed by Cisco's previous experience with large outdoor wireless networks. The Cisco account team working with Texas State had already installed a municipal outdoor wireless mesh in the nearby state capital, Austin.

"The greatest challenge that we faced in this implementation was the hilly terrain of our campus," Hughes says. "Lessons learned in the Austin effort were applied directly to our campus."

Some university officials voiced concern that the 50 outdoor access points would look strange—a common challenge for university IT teams. But a comprehensive site survey helped the team maintain the artistic integrity of the campus. "We exercised discretion and always chose the space that would be least disturbing to the aesthetics of the older buildings," says Patrick Brennan, senior network technician at Texas State.

"We have not heard one complaint about the access points since the mesh network was deployed," Hughes says. "It simply became part of the landscape."

To help ensure network security, the team created separate service set identifiers (SSIDs)—one for the student body and faculty, who have full access to the encrypted network through an authentication process, and another for guests, who are given only basic Web access.

The Texas State IT staff watches network activity from a central location, using the Cisco Wireless Control System (WCS) management platform. They monitor the network for unauthorized access points deployed by students or malicious intruders, network attacks and other potential security problems. The Cisco WCS issues warnings if anything unusual is detected on the network.

“We have more than 28,000 students, and some of them can get pretty creative,” Brennan says.

Business Results

The Outdoor Wireless Network was completed shortly before the beginning of the Fall 2007 semester. Already, it has helped the school maintain a competitive advantage, by increasing its reputation for embracing advanced technology.

“The Admissions and Residential Life offices make a point to let prospective students know that wireless is now available all over campus,” Hughes says. “Ubiquitous wireless access indoors and outdoors is a great marketing tool that we use to attract new students.”

Wireless access is also a selling point for organizations that utilize the campus during the summer—“We host a tremendous amount of summer camps, band camps, and cheerleading camps,” Hughes says. “We’re able to accommodate their wireless expectations, providing enhanced internet access in support of summer activities on campus.”

Even though the mesh network is relatively new, word of the ubiquitous access that it provides has spread fast among students, who can now connect to online resources from virtually anywhere on campus. Faculty members are able to integrate activities that require Internet access into their lessons now—even if they are teaching classes outside.

“It is exciting to see students sitting in quiet nooks across campus, connected to the network, working on their projects while enjoying the sunshine and the beautiful Texas hill country,” Hughes says.

“Too often we think solely about the technology, when in reality, the network is all about the people.”

Now that the university has ubiquitous wireless access both indoors and outdoors, The IT team expects to support several new applications in the next few years.

One of the most important benefits of the Cisco network is its ability to support new applications as needed, such as guest access and location services, without disturbing the core infrastructure.

“We now have the capability to transition from cell phones to portable IP devices and dual-mode phones on campus, both for cost savings and for ease of management,” Hughes says, explaining that this technology will allow faculty and staff members to receive phone calls on their office extensions, even when they are nowhere near their offices.

Faculty and staff members with Wi-Fi-enabled PDA’s can now use the Outdoor Wireless Network to send/receive email and update their calendars, reducing the university’s cellular service costs.

“Our wireless network will grow more and more valuable as we continue to incorporate mobile computing via laptop, PDA and IP telephony,” Hughes says.

Next Steps

Texas State is considering various public safety applications that could utilize the Outdoor Wireless Network. For instance, campus police officers could use the network for downloading data into mobile computers in their police cars. The university also is investigating the use of handheld scanners to check student IDs at campus athletic events, as well as the use of RFID to enable the university to track valuable assets all over campus.

PRODUCT LIST

Switches

- Cisco Catalyst 6500 Series Switches

Wireless

- Cisco Catalyst 6500 Series Wireless Service Modules (WiSM)
- Cisco 1500 Series Outdoor Access Points
- Cisco 1000 Series Access Points
- Cisco Wireless Control System (WCS)

"The mesh network opens up a world of possibilities for us—with new applications and services that we could not previously provide," Hughes says.

For More Information

To find out more about the Cisco Outdoor Wireless Network solution, visit: http://www.cisco.com/en/US/netsol/ns621/networking_solutions_package.html.

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

To find out more information on Texas State University, visit: http://www.txstate.edu.

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

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