Case Study:
Purdue University

BACKGROUND

Purdue University is considered one of the leading engineering colleges in the United States. In fact it was recently ranked ninth overall for its engineering school by U.S. News and World Report. In keeping with this tradition of excellence in science and technology, Purdue has worked diligently to deploy state-of-the-art information technology systems that will attract potential students and faculty alike. The university already boasts an onsite network operations center that monitors its converged voice, video and data network around the clock and a high-speed research computing network for data-intensive engineering applications.

The next step for Purdue in their network evolution was to employ a technology that could make it easier for students and faculty to gain ubiquitous access to the Internet regardless of location on campus. The university chose to deploy a wireless LAN solution. The network engineering department at Purdue knew that Wireless LANs would offer complete flexibility and freedom for both students and teachers, allowing them to access the Internet anywhere on campus for a more efficient and productive learning environment.

THE CHALLENGE

Brad McCoy, network engineer for Information Technology at Purdue University, led the university's project to create a campus-wide wireless network that covers 140 buildings and is available to all 40,000 faculty members and students.

Deploying 1,100 wireless access points is no easy task, because traditionally, wireless LAN installations have required operating power to be delivered separately to each remote access point. Given the massive quantity of access points that the team wanted to deploy, wiring each one with electrical service, along with Ethernet cabling, would be a timely and costly task.

Furthermore, wireless access points have to be installed in specific locations for proper operation. For instance, to achieve effective area coverage and radio reception, wireless access points are mounted in unique places, such as above the ceiling plates, where it is rare to find an available AC outlet.

THE SOLUTION

Mr. McCoy investigated alternatives to traditional power supply for his Cisco 1200 wireless access points. What he discovered was a solution that would use the existing Ethernet cabling to power the access points, saving both time and money in the deployment of the wireless network.

The technology is Power over Ethernet (PoE) and the solution is supplied by PowerDsine, an Israel-based pioneer in the PoE market. Purdue purchased 130 PowerDsine Power over Ethernet 6000 Midspans to power the campus' entire wireless network.

1,100 Cisco 1200 WLAN Access Points and PowerDsine PoE Midspans

"...utilization of PoE saved between $350 to $1,000 per access point installation..."

PowerDsine 6000 Family
Power over Ethernet Midspans

Cisco 1200
WLAN Access Points

BUSINESS BENEFITS

Through PowerDsine's Power over Ethernet solution, Mr. McCoy discovered that his utilization of PoE saved between $350 to $1000 per access point installation by eliminating labor costs incurred from contracting an electrician to run wiring for new AC outlets.

In addition to cost savings, the productivity benefits for both students and faculty have been immeasurable. There is much more freedom on the campus to work in different areas and not be confined to a library or a computer lab. Plus, the new network affords students and professors the opportunity to use their own laptops for giving lectures, note taking and researching on the Internet during classes.

CONCLUSION

Purdue University continues to live up to its reputation as a technologically savvy institution with all the trappings of a modern-day college. However, without the innovative products from PowerDsine, the wireless network may not have come to fruition.

"The benefits of the new wireless network would not have been possible if PowerDsine's solution weren't available to make deployment easier and more cost effective," said Brad McCoy. "Our goal at the university is to create an environment that leaves the challenges to the classroom coursework and not to interaction with the technology."

In the future, Mr. McCoy plans to take advantage of the SNMP functionality to remotely monitor the PowerDsine 6000 series of midspans and control the supplied power to wireless LAN access points. The SNMP functionality, for example, provides alerts of changes in status, such as a fall in power consumption, and enhances network security by enabling the shutdown of access points.

IMPLEMENTATION

It took roughly one year for the wireless engineering team to deploy the network, which comprises 1,100 wireless access points.

In order to create the most widespread coverage for the wireless network, the team had to mount wireless access points in areas like the hallway ceilings. With PowerDsine's Power over Ethernet midspans, the team was able to provide electricity to the access points without having to install all new power points and electrical circuits since none existed in those spots.

"Without PowerDsine's Power over Ethernet technology, we would have run significantly higher costs trying to power this wireless network," said Brad McCoy. "PowerDsine's solution was a life saver. It helped our installation of the wireless network come in on budget and on time."

In addition to using PowerDsine's midspans to power the wireless access points, they also used the midspans to provide continuous service during power outages by utilizing the same centralized UPS that provides back-up power to the network.