PowerDsine® Midspans Power Major Wireless Network Upgrade at The University of Tennessee at Knoxville
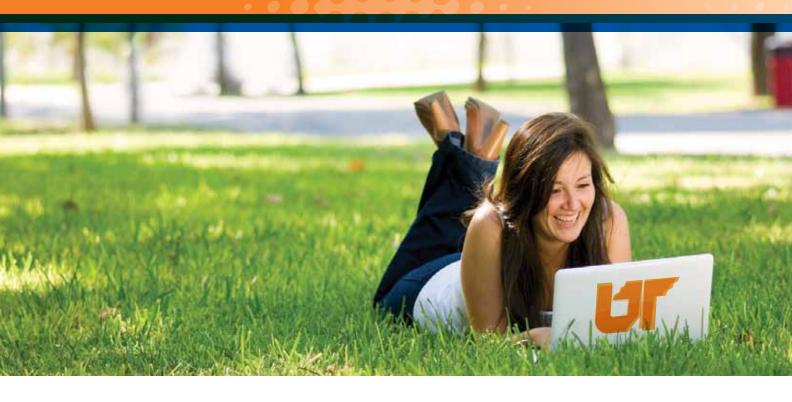
The University's network supports 35,000 students, faculty and staff, using a campuswide infrastructure that spans more than 200 buildings across 560 acres. To implement its upgrade, the University selected Microsemi's PowerDsine PoE midspans. Installing approximately 210 PD7000 units in 1-, 6-, 12-, and 24-port Gigabit Ethernet configurations, the network powers approximately 2,100 PoE access points deployed throughout the campus.

Fast Facts

- PowerDsine® Power-over-Ethernet (PoE) midspans eliminate the cost for additional cabling or expensive AC outlets and wiring

- Power is delivered to 2100 WLAN access points over Ethernet cabling

- With easy-to-access power, major network upgrade takes just 90 days

- Access point can be repositioned with ease for better coverage

- Centralized battery backup and remote management simplify monitoring and maintenance

- Midspan plus a UPS unit maintain services to cameras, APs and phones during power outages and provide additional power wattage

Microsemi

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About the Deployment

The Challenge

When the University of Tennessee at Knoxville began planning a network upgrade to its campus-wide infrastructure, it needed an easy, cost-effective way to improve support to its 35,000 students, faculty and staff which spans more than 200 buildings across 560 acres. Nine years earlier, the University had pioneered the first use of PoE technology on a college campus. Today, the University needed to support a broader range of devices that require more power than the original IEEE802.3af standard was able to deliver. Upgrading to the latest high-power IEEE802.3at specifications would enable delivery of up to 60W of power over a single Ethernet cable.

The Solution

The implementation included approximately 210 PD7000 units in 1-, 6-, 12-, and 24-port Gigabit Ethernet configurations deploying roughly 2,100 PoE access points across the campus. The midspans are placed between the University's non-PoE switches and the devices to be powered, ranging from IP telephones and wireless LAN access points to Pan Tilt Zoom (PTZ) cameras and remote Ethernet switches.

The Implementation

Microsemi's midspans simplified the University's network deployment by eliminating the need to upgrade its existing Cisco network switches. In addition to the cost savings associated with preserving the existing switch infrastructure, Microsemi's midspans give the University important remote-management and energy-saving capabilities. The midspans also improve flexibility by allowing PoE ports to be added incrementally, as needed, in contrast with PoE switch deployments. The University's IT Architect, Philippe Hanset, spent months planning for the new installation, ensuring that users experienced little to no downtime across the campus. The first step was to swap out the new high-power midspans with the existing low-power midspans while minimizing outages for users. Within a week, the campus had deployed its new PoE infrastructure and was ready to replace the earlier 802.11b/g access points with new 802.11n access points improving coverage and data throughput. "Because of the many tricks we learned during the previous installation, the interruption in service lasted 10 minutes at worst for each new cut-over to the new high-power standard, which occurred during the middle of the night," said Hanset. "From the moment we took the midspans out of the box, they worked flawlessly, allowing a near-instantaneous transition to the higher power technology. It was a totally seamless transition for everyone." The University's network upgrade began in the early spring and, thanks to how easy it was to power each new 802.11n access point, was completed by the end of May, in advance of the wave of students that each new fall class brings.

Business Value

According to Hanset, by using midspans to power user devices and the campus's more than 150 VoIP phones and security cameras, the University has saved more than a million dollars in capital expenditures. The bulk of savings has come from eliminating an expensive switch upgrade and/or the costly installation of new electrical outlets to power network devices. In addition, the installation of new high-power midspans, combined with its new wireless APs, has greatly reduced the University's overall number of IT department trouble tickets as users experience faster, more reliable service. Operational expenses are further reduced by the midspans' built-in remote power-management capabilities, enabling simple and efficient monitoring and control of the network's powered devices, and also allowing the University to power down PDs when not in use. The University's new PoE-powered network has also contributed to an improved user experience. "In our last IT survey, the wireless network was rated the top service by the campus community as a whole."

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Microsemi Corporation (NASDAQ: MSCC) is a leading provider of semiconductor solutions differentiated by power, security, reliability and performance. PowerDsine® PoE Systems, a Microsemi brand, is the thought leader in energy efficient, high power PoE technology.

Learn more at www.microsemi.com/powerdsine.