Embracing 802.11n in Higher Education

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There's a technology revolution going on in the world of higher education. Users, campuses and institutions require higher-speed connectivity for a slew of network devices and gadgets. As a result, IT leaders are discovering that 802.11n may be the most important development in wireless LAN technologies. Michael Hong tells us why:

Why is the transition from thin AP architecture to 802.11n considered to be relatively significant in higher education?

There's a fundamental and irreversible change in end user behavior in higher education, in that it requires higher-speed connectivity for all of its network devices. So whether we're talking about cool tablet computers or sexy new smartphones downloading YouTube videos or tweets, they all demand constant, reliable and high-performance connectivity. Delivering all of this in an 802.11n network is a challenge for higher education institutions requiring instant, reliable communication and access to information.

What are some of the specific challenges of deploying 802.11n in higher education institutions?

There's the challenge of delivering the highest-possible performance and high availability to give people constant access to their networks. The latest security threats and vulnerabilities can compromise networks. There's also the issue of lowering your total cost of ownership, which, in these challenging times, is on everybody's radar. And there's the challenge 802.11n brings to the rest of the network—particularly the edge of the network that directly connects to it.

How do higher education institutions overcome these challenges?

Because 802.11n introduces so many challenges, we've developed some best practices for using it in higher education institutions:

1. Keep up performance and scalability.

Invest in a wireless LAN infrastructure that can uncork the bottleneck at the controller and free up your access points to run at their full 802.11n capacity. Look for an 802.11n wireless LAN controller solution that can create a cluster of controllers that can actively use the full capacity of every controller in the cluster, including controllers that have typically sat idle for redundancy. This can help deliver higher peak performance and greater overall scalability.

2. Enable nonstop operation.

The expectation in a higher education environment is that end users will always have network connectivity. Look for a wireless networking solution that can offer remote site survivability—the ability of access points to keep calm and carry on even if a wireless controller disappears from the network for any reason. In addition, higher education users today have zero tolerance for spotty wireless coverage and weak signal strength, so you need to look for access points that can automatically detect and compensate for coverage gaps in your wireless network.

3. Implement robust, flexible security.

Higher education network security administrators have an obligation to protect their critical network resources, sensitive data and legitimate users from vulnerability or attacks. Build as many layers of security as possible, and implement a wireless intrusion protection system.

4. Optimize the total cost of ownership.

Achieving the lowest TCO is always key. Stay away from solutions that treat in-demand features such as wireless security and wireless firewalls as added-cost upgrades. Instead, look for wireless LAN infrastructure offerings that have integrated high-value features directly into their standard configurations.

5. Ensure wired-edge performance.

The 802.11n standard is causing a new paradigm shift in which the intelligence of the wireless network needs to be distributed toward the edge of the network where the access points and the radios are, and where the impact on performance will be the greatest. Look at edge switches that have not only 1 Gigabit Ethernet out to the edge but also at least a 10 Gigabit Ethernet uplink to the aggregation layer. This is the only way to provide a bottleneck-free edge infrastructure that ensures that you receive maximum value from your 802.11n access points. Also make sure your edge switches support Power over Ethernet (PoE) for easy, low-cost deployment. ■

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