

CASE STUDY: WHEATON ACADEMY

Manageable, Reliable, and Economical Wireless Networking for Educational Institution Using Cooperative Control Wireless LAN from Aerohive



WHEATON ACADEMY, FOUNDED IN 1853 AND LOCATED IN WEST CHICAGO, IS A COLLEGE PREPARATORY, INTER-DENOMINATIONAL CHRISTIAN HIGH SCHOOL (grades 9-12) with an enrollment of 640. The teacher/student ratio is 1:15, with an average class size of 20. The

school is increasingly looking to technology to help it deliver the highest quality of educational excellence.

For some time, Wheaton Academy's 45 teachers used desktop computers to access applications such as on-line attendance, grading, homework assignments, and Moodle, a virtual blackboard application. Desktops lacked mobility, however. Because classrooms were in continuous use, teachers needed a way to move from classroom to classroom and still access applications from wherever they were. The solution was to issue laptop computers to teachers connected over a campus-wide wireless local area network. A wireless LAN could also benefit students with laptops, giving them Internet access as part of the school's curriculum.

Wireless LAN Requirements

Bob Vishanoff, Director of Information Services for Wheaton Academy, began researching wireless LAN solutions in fall 2007. Vishanoff identified five key requirements. First, the chosen solution should provide 802.11n, the latest wireless technology, as a way to future-proof the system and ensure long-term investment protection.

Second, because security is so important, the chosen system should also allow separate virtual LANs with separate Service Set Identifiers (SSIDs) for staff and students. "I wanted separate VLANs on one set of radios, not two disparate wireless networks," says Vishanoff.

Third was the requirement for roaming capability to allow teachers to move around the campus freely without losing their connection. The fourth key requirement was centralized management that was easy to set up and easy to use. And finally, fifth, Vishanoff wanted a solution that was cost effective to deploy and to scale as coverage was expanded over time across the five-building campus.

Evaluating the Alternatives

Vishanoff was assured by wireless LAN suppliers that his desire for roaming and central management demanded a controller-based solution. He initially evaluated wireless LAN products from

Cisco and Hewlett Packard. Vishanoff found Cisco very expensive and very complicated to implement and manage. HP was less costly, but would not provide 802.11n within the timeframe he needed.

Then Vishanoff learned of Aerohive from the parent of a Wheaton Academy student. He found that Aerohive's cooperative control access points (HiveAPs) running 802.11n technology require no network controllers or overlay networks. Instead, software in the HiveAPs enables them to self organize into groups called Hives. The result is enterprise-class network management and security without the cost, performance, and availability issues associated with controller deployments.

"Aerohive didn't need a controller, which was a huge plus," says Vishanoff. Controllers can create capacity issues. Adding just one more access point could necessitate the costly addition of another controller.

Controllers could also impact availability. "Why would I pay Cisco thousands of dollars extra for a device that could deep-six my wireless network? Even if the products were priced identically, the fact that there was no single point of failure with Aerohive



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Implementation was also an issue with Cisco. "I would have to pay thousands of dollars to a consultant to come out and set it up and thousands more to come back and install additional access points because they assured me it's very complicated," recalls Vishanoff. "In contrast, someone like me with just a basic understanding of wireless networking can set up the Aerohive system and make it work."

Centralized Network Management

Setting up and managing the wireless LAN at Wheaton Academy has been effortless. During the summer 2008 break, the Aerohive sales engineer walked Vishanoff through the process of setting up the network, installing one access point, and pushing out wireless

LAN policies. Vishanoff took advantage of the services of a friend of the school who had professional wireless LAN implementation experience to wire and install APs. "He'd come over once a week and wire and mount several access points. I'd plug them in, the HiveManager would discover them, and I'd push out the policies and, poof, instant network."

Vishanoff has deployed 17 HiveAPs to date. This first phase supports just the faculty and approximately 20 administrative staff members. "The access points are a dream to update. I can add a MAC address and push it out to all 17 access points within 60 seconds. It's a complete no-brainer."

Mesh Networking for Resiliency and Connectivity

HiveAPs can connect with one another wirelessly using mesh networking, which increases the resiliency of the Aerohive network. "On one occasion the HiveManager indicated that two HiveAPs were meshing," says Vishanoff. "It turned out to be an unplugged cable. Users were never affected by the problem and I was able to quickly reconnect the cable."

Meshing can also provide connectivity to remote access points without the need for cabling. Vishanoff plans to install a HiveAP high up in the cupola of a building far from any Cat-5.

What's in Store for Wheaton Academy

Vishanoff is in the process of implementing Phase Two, a separate VLAN and SSID for students, which Aerohive easily supports. "We can't claim to be a tech-savvy school without a wireless network," says Vishanoff. He intends to use 802.1X authentication for security and controlling access to the Internet.

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