The Madeira School

Aerohive Delivers Manageable, Reliable, Flexible WLAN for Boarding School

Challenges

- Required cost-effective upgrade from existing wireless LAN architecture

- Required a solution that could provide network bandwidth control, both in dormitory environments and in classroom settings

- Needed to eliminate single point of failure, a problem it was experiencing with its existing controller-based WLAN system

- Required a Wi-Fi network to handle demands of teenage girls, such as accessing social media and email, downloading movies, music and TV programs in ever-expanding BYOD environment

Results

- Delivered robust and enterprise-class Wi-Fi without network controllers or overlay networks

- Deployment was simple, with technology configured, up and running within an hour

- With Aerohive HiveManager and Application Visibility and Control features, the school is provided a deep level of understanding and control over the WLAN

- HiveManager provided the ability to control bandwidth, limit network usage by time of day, and manage access by dorm or school house

The Madeira School, founded in 1906 is an all girls' boarding and day school for grades 9-12, located 12 miles outside Washington, D.C. on a 376-acre campus in McLean, Virginia. Madeira is committed to providing an exemplary preparatory school education with a global emphasis and a unique Co-Curriculum program offering off-campus Washington, D.C. and Capitol Hill internship opportunities for every student. More than half of Madeira's 321 students board at the school.

Madeira students, like most teenage girls, live on the Internet, exchanging emails, downloading movies, music, and TV programs – their most popular web destinations are sites like YouTube, Netflix, Tumblr and Skype. To provide access to these, as well as academic applications like Haiku, the school installed a wireless LAN some years ago.

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> **—Jeff Dayton**
> Director of Technology, The Madeira School

Making it Easy to Upgrade the WLAN

From time to time, Jeff Dayton, Madeira's Director of Technology, had contemplated upgrading the wireless LAN. At the top of his wish list, a solution that could provide a high level of centralized control and management over access and bandwidth – something the legacy system lacked.

For example, Dayton had created policies in each of his access points that prevented network access in the dorms during the day when students' focus is on school work. If he wanted to allow access from dorms during the day when classes were not being held, such as holidays, he would need to individually reconfigure 15 different access points. "I just didn't do it," says Dayton.

At one point he had invested some time into evaluating Cisco and Aruba. "It was expensive to purchase, and too expensive to support," says Dayton. "It was just too much money for what we needed." Some time after that, a casual conversation with a representative from Computerware, a trusted, long-time supplier, led him to Aerohive. "I wasn't even looking for a new wireless network at the time," says Dayton.

He was, however, evaluating a Packeteer packet shaper, deployed at the edge of the network to provide bandwidth control. "When I learned that Aerohive could control bandwidth right at the dorms, there were no other wireless vendors to consider. I began looking into the Aerohive solution and found it offered even more than I ever knew I wanted."

What Dayton wanted, in addition to control, was reliability, manageability, and flexibility to meet changing needs. Based on his evaluation, Dayton selected Aerohive to replace the legacy wireless network.

A Single Point of Failure is Not an Option

One of the key features that helped Dayton decide on Aerohive was the solution required no network controllers or overlay networks. Instead, software in Aerohive Access Points 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. "There's no single point of failure, which at the time wasn't true of other systems," says Dayton.

Up and Running Within an Hour

Deployment of the Aerohive network took place in two stages. In early December 2008, Dayton and his team installed the first Aerohive Access Points, reusing cabling and even the mounting holes from the old access points. Once the APs were plugged in, the HiveManager automatically discovered them. "Within an hour we had the APs configured and up and running," says Dayton.

Dayton's team installed and configured the remaining APs during a school break. The difference between installing Aerohive and the old access points was dramatic. "Before, I would have to drag out my laptop, plug it into an access point, change the IP address and configure each access point individually. It was a very laborious process. With Aerohive you just hang the access point and go."

Madeira recently upgraded and deployed Aerohive AP320 and AP330s, designed for high bandwidth demand wireless enterprise environments. While the school had plans to deploy an outdoor network, the APs have provided enough signal strength that students can access the network from anywhere, including outdoor areas.

Dayton also acquired an Aerohive SR2024 switch, and has been impressed by the robust switching functionality that works cooperatively with the Wi-Fi infrastructure, enabling unified policy, management and reporting.

The HiveManager provides a deep level of control over who is using the wireless network and what they are using it for. For example, the school's firewall notifies Dayton whenever it detects the use of illegal peer-to-peer software. "I don't have to pour through log files any more. The HiveManager allows me to grab an IP address and trace it back to the access point and pull up the name of the offending computer and be there within minutes to confront someone."

Dayton and his team recently upgraded the HiveManager and HiveOS to version 6.0, which includes Application Visibility and Control features, enabling the school to see what applications are in use and prioritize application and network access based on user context, such as user identity, device type, location and time of day. "When I learned about the new features from Aerohive, it was exactly what I needed to give me functionality right at the edge, allowing me to control which applications are permitted, prioritized or blocked for specific users," explains Dayton. The ability to effortlessly monitor and control the network is a critical requirement for Madeira, not only as the school controls what students are downloading, but also as it plans for future expansion on the network.

HiveManager also provides Dayton with a great deal of flexibility to control bandwidth usage, limit what users can do on the wireless network by time of day, and group by dorm or by school house. "With HiveManager from Aerohive, I can change the schedule, push it out to all the access points – and I'm done," explains Dayton.

A BYOD Explosion

From the beginning, Madeira's wireless network was designed to accommodate a BYOD environment, which has proved to be an excellent strategy for the school. When Dayton first deployed the network several years ago, there were no smartphones or tablets and he estimates there were up to 150 devices connecting to the network at one time. Today, there are over 500 devices connected, an enormous increase in just a few short years.

Many 1:1 learning environments are finding difficulty in handling the influx of devices to their networks, and need to adjust wireless infrastructure in order to accommodate an increase in BYOD, often at a high cost. The flexibility of the Aerohive solution enables Madeira to scale easily to fit its needs in a cost-effective way without compromising reliability or performance.

The school uses a wide array of technology in its classrooms. Apple TVs are in every classroom, and teachers use Smart Boards and VoIP phones, as well as iPads for every teacher and for every student in the science labs, running a variety of specialized applications. In addition, Madeira is host to numerous camps during the summer with a large number of visitors who take full advantage of the flawless wireless network.

The Wireless Future at Madeira

With living and academic areas covered by the Aerohive network, the school will deploy a guest network in the year ahead, and open up the wireless network 24/7 for the first time to its students. "With the robust features available in HiveManager like user-based Application Visibility and Control, I am able to set parameters to easily manage and maintain the network, which gives me greater flexibility in all decisions for the students," says Dayton. The vision of the Madeira School is to lead in innovation in girls' education, and technology certainly plays a role in its student and academic life. With a resilient wireless networking architecture from Aerohive, Madeira is well positioned to meet the wireless requirements of future students and teachers alike.