



Churchtown Primary School

European Primary School Chooses Aerohive's Reliable, Manageable, Scalable and Economical Controller-less Wireless LAN Architecture

Challenges

- Eliminate strain and bandwidth limitations of autonomous Access Points
- Increase reliability and manageability of wireless LAN
- Increase WLAN security
- Find economical campus Wi-Fi solution

Results

- Controller-less architecture eliminated issues with bottlenecks and single point of failure
- Using HiveManager for centralized Wi-Fi network management
- Improved efficiency and reliability has had a positive effect on teaching and learning
- Improved coverage and triple the number of clients on a single Access Point

Churchtown School, located in Southport just north of Liverpool, is one of the largest primary schools in the UK with nearly 900 students, ages 3 to 11, and 100 faculty and staff. The campus consists of two buildings separated by a 100-metre playground. The larger building houses classrooms for grades 1 through 6, while the other houses 4 reception classes and a nursery.

Although the school can trace its beginnings back to 1684, the curriculum is very current. Teachers use laptops to control smartboards in the classroom, and to access web-based academic applications such as knowledgebox. Students utilize 45 apple mac laptops stored on three laptop trolleys, which are wheeled around to classrooms. Each class spends a half day per week practicing writing and other skills using the laptops.

Feeling the Strain of Autonomous Access Points

The application suites used by teachers and pupils reside on a server. To provide access to applications, the School installed a wireless network with autonomous access points. All the trolley laptops log

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Network and Infrastructure Manager, Churchtown School

in with complete network accounts. Because the home directory information was being run directly off the server, data traffic was straining the legacy consumer-grade access points. "A classroom with 15 trolley laptops and a teacher laptop was pushing the practical limit of the access points we had," says Alistair West, network and infrastructure manager at the school. "They would often collapse trying to support more than 15 network accounts."

In addition to bandwidth limitations, the wireless LAN with its autonomous access points was difficult to manage. "We'd get a report that a laptop was not working," says West. "It would take half an hour to track down the access point that had been turned off accidentally."

West was also concerned about security. "With a variety of access points installed, we had to fall back to the lowest common denominator, which was the older, less secure WEP protocol."

Evaluating the Alternatives

In late 2008, West began his search for a new wireless LAN, looking at the whole range of solutions that offered centralized management. Reliability was at the top of his list, followed by manageability, performance, and cost. He also wanted to take advantage of the latest technology, which included 802.11n. Among the vendors West considered were Netgear, Ruckus Wireless, Cisco, and 3Com. "It was clear early on that Netgear wouldn't be adequate for us because all the throughput went through a single controller, creating a bottleneck," recalls West.

West evaluated Ruckus in some detail. "Management was acceptable but we weren't overly impressed with its reliability," says West. Cisco too had acceptable manageability but was beyond West's budget.

Late in the evaluation process 3Com was in the lead when West happened to find Aerohive. "Aerohive did everything that we wanted—the performance, the security, and the management," says West. "And we would get a dual radio 802.11n solution within our budget." With all of his requirements met, Churchtown School selected Aerohive."

Cooperative Control Architecture for Reliability

Aerohive's cooperative control access points (HiveAPs) 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. Cooperative control eliminates the single point of failure, making the system more reliable. It also eliminates the bottleneck with a controller-based system, providing increased performance—so important to West.

Centralized Network Management

Deploying the Aerohive network took just one day. Beginning at 8 a.m. on the first day of the Christmas holidays, Invisible Link, an Aerohive partner, mounted the HiveAPs using existing cabling for all but two access points. A technician then helped West configure the access points using the HiveManager. Once plugged into the network, the HiveManager automatically discovered the access points and transparently pushed configuration settings and policies to them for a seamless plug-and-play installation. "One of the nice things about HiveAPs is they adjust themselves almost automatically," says West.

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ICT Subject Leaders, Churchtown School

West has been pleased with the HiveManager for ongoing network management. "Having a single place to go for managing everything has been great. And being able to receive email notifications when something goes down has been so helpful." Because it's web based, West can even check on the wireless network from home. "Everything I wanted to do so far has been very easy, very reliable, and a huge time-saver. It's made the network more reliable to the staff and pupils and also my life easier."

Staff has noticed the difference. "Since implementing the Aerohive system we've noticed the improvement in efficiency and reliability has had a positive effect on teaching and learning in lessons using Information Communication Technology," say Jenni Rowland and Clare Garside, ICT subject leaders.

Performance Plus

The old wireless system struggled to support 15 laptops simultaneously on a single access point. Today, a single HiveAP is often called on to handle over 40 trolley and teacher laptops from two adjacent classrooms—without loss of performance. "And the coverage is better, even with about the same number of access points," says West.

Into the Future

While there are currently no plans to increase the number of access points, the way the network is used will change. Pupils are beginning to set up their own photo collections, create podcasts, and work with video, increasing network traffic over time. To accommodate higher traffic levels, the percentage of laptops on 802.11n will increase from 40 percent to 60 percent over the next two years. And in five years, West hopes to have all laptops on 802.11n.

To make this transition as smooth as possible and ensure the best performance from a combination of newer and older laptops, West divided the network into three SSIDs. One SSID runs on the 2.4G channel and supports g and n clients. A second SSID only supports n devices on the 5G channel. Finally, the legacy SSID runs on the 2.4G channel. Over time, the goal is to move all the g devices to the g SSID and all the n devices to the n SSID. Eventually, all devices will be running n, allowing West to take full advantage of the latest technology.



Contact us today to learn how your organization can benefit from an Aerohive wireless LAN architecture.

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