

A MERU CASE STUDY IN K-12 EDUCATION

Cohoes City Schools (Cohoes, NY)



Cohoes City Schools Deploys Innovative Wireless Security and Mobile Education System

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– Mark DiPofi, network administrator

Although the Cohoes City School District is relatively small, size hasn't stopped it from deploying one of the nation's most advanced wireless educational networks. Located in upstate New York just north of Albany, Cohoes is a former manufacturing center that prides itself on the quality of life it provides its 15,000 residents and the education the city's 2,150 students receive. The district strives to provide the best learning environment for its students and has been working toward state-of-the-art mechanisms to enhance safety.

Expanding Security and Student Access

In 2006, the Cohoes City School District made several improvements in line with its goal of advancing education and security through technology. To boost security, the district installed video surveillance cameras on a wired Ethernet network. The cameras, located in school corridors and outdoor areas, could be monitored in the security and principal's offices on each campus as well as at the district office via a VPN connection. With real-time surveillance, principals and security officers felt far more confident in their efforts to enforce discipline and keep students and staff safe.

The Cohoes schools wanted to offer the latest in computer-aided learning tools to all students at its six schools—three elementary schools, a middle school, a high school, and an alternative school. To start, five of the six schools were provided with laptop carts in 2006. Each cart contains 15 or 30 computers along with a wireless access point (AP) that links to the school's academic server for teaching applications. Carts can be moved from one classroom to another as needed, giving every classroom the opportunity to experience digital learning without the expense of equipping each child with his or her own laptop.

Even though both systems were a big step forward, teachers and administrators wanted to take the technology further. For even better security, administrators wanted to enable wireless access to school video feeds from laptops in police cars as well as at police headquarters with the understanding that such access would significantly improve police responsiveness to emergencies.

Meanwhile, in the classrooms, the laptop carts were found to be somewhat cumbersome. The wireless LAN (WLAN) initially deployed to support the carts lacked the throughput to allow 30 students in a class to log onto the network simultaneously. Typically, teachers had to ask students to log in a few at a time, and it could take 10 minutes to log all students in so the lesson could begin. In addition, since coverage was restricted to the range of the AP on the cart itself, teachers had to take the cart with them if they wanted to move their class to another part of the school or outdoors for a special assignment.

To work out these kinks, the district decided it should improve the performance of its WLAN. In addition to delivering higher throughput to support video as well as simultaneous log-ins from a whole classroom, the network had to be easily scalable with minimal maintenance requirements for the district's IT staff of two.

"It was just not going to be cost-effective to continue deploying APs from the original vendor," says Mark DiPofi, network administrator at Cohoes City School District. "If we had to manage channel interference, balance AP power levels, and constantly juggle the coverage-capacity tradeoff, we couldn't have completed the project with our limited staff resources. We really liked the single-channel approach that Meru Networks offered, because it made deploying and managing the network so much easier, while the network throughput was more than enough to handle the video and other educational requirements."

Meru's unique Air Traffic Control™ technology manages all APs via the Meru controller, coordinating individual user access and load-balancing the network. This allowed DiPofi to use one channel for all of the APs on a campus, eliminating worries about channel interference, AP power levels, or site surveys. "We could put APs wherever we needed them with minimal configuration," he says. "That was really important since we had only two people managing all of the IT for six campuses at the time."

During the summer of 2007, DiPofi and his staff installed the first 25 Meru AP200 802.11 b/g Access

Situation

- ❑ Cohoes City School District wanted to provide wireless access to enhance educational flexibility and to provide the local police with real-time access to video surveillance feeds at its six school campuses.

Solution

- ❑ The district deployed Meru AP200 access points and a Meru MC 3100 Controller in corridors and outdoor areas at its schools.

Benefits

- ❑ Easy deployment without site surveys and AP power configuration enable rapid rollout and cost-effective administration by small IT staff.
- ❑ Over-the-air quality of service – both upstream and downstream supports high-performance real-time video.

High-capacity network supports simultaneous log-ins by a classroom full of students.



"Meru's ease of deployment and performance are making it much easier to reach our goals quickly and cost-effectively."

– Mark DiPofi, Network Administrator

Points in two elementary school campuses, placing a Meru MC3100 LAN Controller in the district office's data center. "We were able to cover a lot of territory in a very short time," he says, "because you could just plug the AP200 into a POE device wherever you needed it and then just walk away. Everything's pre-configured remotely, so it took 30 minutes or less to mount and configure each AP."

Once the network was up and running, DiPofi separated security video traffic from educational traffic by creating separate VLANs on the network, and then installed software from Intervide to enable remote access to video feeds for police and administrators, as well as the ability to take control of any camera and pan, tilt, or zoom for a better look at a particular area.

Benefits

With the Meru-powered network in place for the start of school in the fall of 2007, the students and teachers returned to campuses offering more teaching flexibility with far better security.

"Now," says DiPofi, "teachers can take their classes outside if they want without having to take the laptop cart along or worry about how far they are from it,

because we have APs supplying wireless connections outside the school." In addition, teachers can begin lessons more quickly because the Meru network delivers higher throughput than the previous solution, allowing all of the students in a class to log onto the school server at the same time.

On the security front, the new network has significantly expanded the information available to police arriving for a school emergency. From laptops in their cars, police officers can now access real-time video of a school's common areas to assess a situation before they enter the facility.

Expanding Networks to Enhance Flexibility

In the future, DiPofi will continue to deploy more APs, with a goal of having two more campuses covered by the end of the school year. In addition, he has ordered a second Meru MC3100 Controller for deployment at a second location to provide fault tolerance on the network. "We're eager to get the rest of the schools up on the same type of system," he says. "Meru's ease of deployment and performance are making it much easier to reach our goals quickly and cost-effectively."

About Meru

Meru Networks is the global leader in wireless infrastructure solutions that enable the All-Wireless Enterprise. Its industry leading innovations deliver pervasive, wireless service fidelity for business-critical applications to major Fortune 500 enterprises, universities, healthcare organizations and state, local and federal government agencies. Meru's award winning Air Traffic Control™ technology brings the benefits of the cellular world to the wireless LAN environment. The Meru Wireless LAN System is the only solution on the market that delivers predictable bandwidth and over-the-air Quality of Service with the reliability, scalability and security necessary for converged voice and data services over a single WLAN infrastructure.

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