A Meru Case Study in Education

Greene County Public Schools (Stanardsville, VA)

Situation

- Difficulty connecting laptop carts, disruptive to classroom
- Legacy wireless could not predictably run the schools' critical applications
- Legacy wireless lacked efficient system management and security
- Needed a wireless system that could easily scale to accommodate the schools' growing network needs

Solution

- GPCS deployed a Meru MC3100 controller and AP311 dual radio (abgn) access points

Benefits

- Resolved device compatibility issues
- Meru's access points accommodate all 802.11 devices with reliability and maximum throughput
- Centralized control has significantly reduced maintenance support
- Segregated access for students and public from the private portion of the network

Meru's 802.11n System Gets an "A+" from Greene County Public Schools

"The new wireless system has been immensely important to our schools. On top of the convenience and flexibility we now have, we also have an underlying system which will carry us forward into the future. Having this kind of an asset will be invaluable as we endeavor to add more technology to our classrooms and buildings." — David Jeck, Superintendant of Schools

The Situation

Prior to the Meru implementation, Greene County Public Schools (GCPS) had a wireless network system consisting of mobile carts within each of the schools, which were each equipped with low-end Linksys® wireless routers. Because of this system configuration, wireless access was only active within the rooms where the carts were connected.

Difficulty of Use and Technology Adoption. Teachers found connecting mobile carts to the legacy wireless network difficult and disruptive, dampening enthusiasm for the system. This adversely affected GCPS' efforts to use the technology for instructional purposes.

System Management. As GCPS' legacy wireless network grew, it became increasingly disparate and lacked centralized system management. With no single point of management, the IT staff was spending increasing amounts of time performing hands-on maintenance and troubleshooting, thus creating an unacceptable level of cost for the school.

Performance. The legacy wireless network lacked the throughput and predictability needed for running critical applications. The network would often exhibit "shaky" performance when used for state required Standards of Learning (SOL) testing. As a result, ensuring Quality of Service (QoS) during SOL testing and other on-line assessments became a high-priority.

Scalability. With a plan for growth in the number of wireless devices in classrooms, GCPS needed a scalable system that would provide all the required capacity without compromise in performance.

The Meru Solution

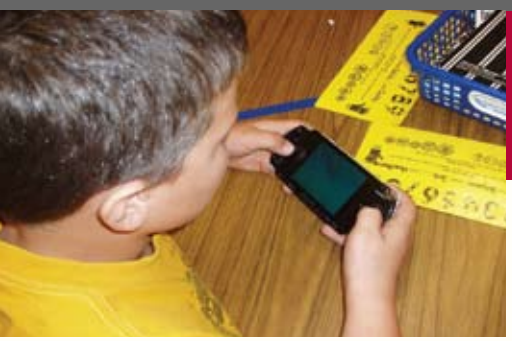
With its list of technology priorities in hand, a short window of opportunity to deploy a new solution, and a fixed budget, GCPS turned to their technology service partner, Advanced Network Systems, to find a wireless system that met all of their requirements. During the summer of 2008, GCPS replaced its legacy system with a Meru solution consisting of an MC3100 controller and AP311 dual radio access points, to support 802.11abg and n clients. The solution was deployed at the County's high school, middle school and two elementary schools.

Device Compatibility, Increased Performance and Reduced Management

According to Dale Herring, Director of Technology, the benefits realized as a result of the Meru solution deployment were numerous. "We've been extremely pleased with Meru. We now have a really powerful system that has all the capabilities we need," said Herring. He added, "From an IT perspective, the Meru system's centralized configuration and management features have cut down on a lot of time we used to spend maintaining all the different systems we had." Herring noted that another benefit of the Meru system is its high level of flexibility. "Because we now have a consistent wireless solution, device compatibility issues have been eliminated; allowing our IT team to easily share laptops and other devices between schools when demands shift. Since there are no configuration changes to perform, devices move seamlessly from school to school. Having this kind of flexibility means we spend less of our time on management, and a smaller budget is needed because we don't have to have as many devices at every school." Herring noted, "One of the big reasons we chose a Meru solution is its compatibility and technology investment protection. No matter what type of device is connected to the network, a/b/g or n, Meru's access points can accommodate all of them with reliability and with maximum throughput. Meru's Air Traffic Control and Air Time Fairness are a huge benefit for us, ensuring that we don't have to settle for the least common denominator in terms of client performance as we go forward."

Supporting the School's Mission-Critical Applications

Expanding on the idea of better system performance Herring added, "Because Standards of Learning testing is considered a mission-critical application for the school district, we need to have guaranteed quality of service when it comes to its implementation. 'Hiccups' in the system are incredibly disruptive, and are not an option. With Meru's built in QoS, the on-line SOL testing process has gone very smoothly; the system has reliably supported the testing and all the other bandwidth-intensive applications we use. "



"Meru's Air Traffic Control and Air Time Fairness are a huge benefit for us because it ensures that we don't have to settle for the least common denominator in terms of client performance as we go forward." – Dale Herring, Director of Technology

According to Dale Herring, "We've had a lot of positive feedback and increased use of the wireless system because connectivity is now a more seamless, transparent process. Disruptions to the teaching process in our classrooms are minimal; plus we were able to easily segregate access for students and the public from the private portion of the network. Everyone in the IT department loves the flexibility and we don't worry the way we used to about adding more devices or new applications. We are all definitely benefiting from having a pervasive system that provides access wherever and whenever it's needed; both inside and outside of the school buildings."

Reaping the Benefits and Enabling New Applications with Meru

The 2008/2009 school year has brought forth new opportunities for GCPS to improve the learning environment using their state-of-the-art Meru wireless network. Students and school personnel alike are reaping the benefits of being able to successfully run applications over the air, including web-based assessments, instructional videos and presentations, along with Internet-based learning and staff training.

The technology and cost/benefit analysis of implementing an e-reader program is now under consideration. The GCPS IT department is currently piloting e-reader technology to support the County's reading program in the Middle School. If successful, the program will be expanded to all schools. According to Dale Herring, "We considered the option of e-readers before the Meru installation. But now, since we have the technology to effectively support this kind of program, the concept has gained a lot of traction and taken on a new meaning. Students are now able to access the most up to date material throughout the facility, not just in certain designated locations." The use of hand-held devices containing e-books has grown significantly within the educational market. Herring added, "The concept of e-readers appeals to students and school administrators alike. Students already lug around enough laptops and heavy books. Moreover, books are expensive and quickly fall out of date which makes it challenging for schools to stay current."

As part of the teacher development and evaluation process, GCPS administrators are using iPods to wirelessly connect to a web portal to run their classroom observation software. So far this year, over 1000 informal classroom observations have been conducted and recorded. The data collected is used to insure that best instructional practices are being followed, to provide specific feedback to teachers, and to help administrators stay in touch with what is going on in the classrooms. According to Herring, "Using a secure wireless/web-based system, we've made big strides in recording evaluation info in real-time and keeping it secure. We essentially eliminated the need to keep data locally on a device which could get lost or stolen and the need for any further data transfer."

Plans for the Future

GCPS has plans to expand the implementation of Meru products in its primary school and school board office in the near future. Further out on the horizon are plans for a VoIP telephony solution which could ultimately also be run over their Meru wireless network.

About Greene County Public School System

Located just north of Charlottesville, Virginia, at the foot of the Blue Ridge Mountains, the Greene County Public School System has an enrollment of approximately 2,800 students. It is comprised of seven schools including one primary, two elementary, one middle, one high school, an alternative education center, and a technical educational center. The school system's popular tag phrase, "Every child, every chance, every day," echoes its formal commitment to build a positive, responsible and effective learning community where students, teachers and staff are encouraged to believe, achieve and succeed.

About Advanced Network Systems, Inc.

Founded in 1996, Advanced Network Systems specializes in designing and implementing information technology solutions. The Company provides a wide spectrum of IT solutions including wireless LANs, point-to-point wireless bridging, network security as well as IP-based telephony and video applications. Headquartered in Charlottesville, Virginia, Advanced Network Systems supports a diverse base of local, regional and national clients including small and medium-sized businesses, government agencies and educational institutions. The Company is recognized for its superior technical expertise, customer service and providing tangible returns on technology investments. To learn more about Advanced Network Systems, visit the web at www.getadvanced.net.

About Meru

Meru Networks develops and markets 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 local, state and federal government agencies. Meru's award-winning Air Traffic Control technology brings the benefits of the cellular world to the wireless LAN environment, and its WLAN 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 to deliver converged voice and data services over a single WLAN infrastructure.

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