North Raleigh Christian Academy

North Carolina Academy Ramps Up 1:1 Program and Technology Curriculum

Challenges

- Update network technology to 802.11ac and accommodate campus-wide 1:1 program
- Single pane of glass visibility for centralized network management system for busy IT team with responsibilities for digital learning, student instruction and infrastructure support
- Prepare for future expansion and for embracing iBeacon and other new technologies

Results

- Robust and comprehensive mesh network across entire campus to support 1:1 iPad deployment, including Aerohive access points and switches
- Upgraded wireless infrastructure to 802.11ac with built-in Bluetooth for iBeacon
- Outstanding customer support and training to maximize wireless investment

About North Raleigh Christian Academy

North Raleigh Christian Academy (NRCA) provides excellence in academics, fine arts and athletics to more than 1,400 students in grades Pre-K through Grade 12 in Raleigh, North Carolina. The school was founded in 1996 and opened its doors with 400 students, and after six years, expanded to a 45-acre campus with more than 100 faculty and staff. The school offers multiple advance placement and honors courses, has 37 sports teams, and has a strong technology emphasis across its entire curriculum at all grade levels.

NRCA strives to be a place of excellence with a loving and caring environment where students can launch into adulthood equipped with character and successful life skills.

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> **—Doug Penny**
> *Technology Director*
> *North Raleigh Christian Academy*

The Challenge

In 2002, NRCA constructed a new building, moving to its current location and expanding its campus considerably. At the time, the academy designed its facilities to be cutting edge, maintaining a pro-technology stance in every classroom. Obviously, technology changes quickly and in 2010 the school again expanded its facilities and made plans to launch a 1:1 iPad program, which prompted the school to begin to evaluate enterprise Wi-Fi solutions. At the time, NRCA was using off the shelf consumer access points and access was limited, APs were scattered randomly, and connectivity was poor.

A key consideration was centralized network management. "Having a single pane of glass was huge for our school," explains Doug Penny, Technology Director at North Raleigh Christian Academy. "It would be ridiculous to have to update configurations and firmware by logging in to each individual and separate access point for the solution we were architecting for a 1:1 school environment."

With offering more than 1,200 iPads across the campus, the IT team knew it would have to greatly increase the number of access points and the way it was currently managing the consumer-grade APs would not be sustainable. High availability would be a key mandate and implementing network mesh redundancy was imperative. At the time when NRCA evaluated solution providers, Aerohive was the only player in the field offering a network with cooperative control. Although NRCA considered Aruba and Meraki, it was clear Aerohive was headed in a direction that would accommodate the wireless needs

of launching a 1:1 program, as well as meeting future requirements. If the school needed additional access points, it would not incur additional costs for more controllers, and would continue to leverage the robust features of Aerohive's network management system.

The Solution

NRCA launched an Aerohive pilot and after the success of this trial, chose to move forward with Aerohive across the entire school, deploying access points to accommodate the roll out of iPads to teachers, with an AP in every two classrooms to start. With the complete rollout of iPads to students and staff several years ago, now there is an access point in every classroom, along with other locations throughout the campus. In addition, when the school recently needed to replace the network switches it replaced the entire switching infrastructure with Aerohive.

Bonjour Gateway from Aerohive was essential at launch to manage the array of Apple devices, including Apple TVs in every classroom that broadcast from iPads and other Apple devices. Aerohive's Application Visibility and Control (AVC) allows the IT team to view reports on exactly what is happening on the network and to learn what specific applications are being used. The school can set controls for which applications are permitted, prioritized or de-prioritized based on identify, device type, location and time, an immense advantage to a 1:1 environment that relies on robust and highly available Wi-Fi. AVC from Aerohive gives the school tremendous flexibility and control over what is allowed on the network, sometimes to students' chagrin. QoS functionality also allows the IT team to give priority to certain applications over others.

With more than 2,000 devices connected to the network at one time, including more than 1,500 iPads, NRCA initially deployed Aerohive AP330s and AP170s. The school now has Aerohive AP230 and AP350 access points, as well as Aerohive SR2148 and SR2124 switches. For network management, NRCA uses HiveManager Classic On-Premises and will migrate in time to HiveManager NG. The IT team set up staff and student networks, with an open guest network that is only available during after school hours.

NRCA works with Aerohive reseller Benchmark Network Solutions for ongoing maintenance and support, and has begun to look at replacing some initial access points with AP250 or AP550s. "Customer support from Aerohive is outstanding and responsive, and the training provided made it very easy for our team to get in and dive deep," adds Penny.

In addition to these features, NRCA required Bluetooth LTE, with built in iBeacon for any new upgrades and access points. With more operations moving to wireless, and an increase in the use of Canvas, the school's learning management system, teachers will require a beacon for each classroom to enable such activities as automatic pop-ups on iPads for new assignments.

The Results

The use of Wi-Fi is now pervasive across the entire campus of North Raleigh Christian Academy. "As North Raleigh Christian Academy fully embraces our 1:1 environment and continues to expand our use

of 802.11ac technology, we appreciate a partner like Aerohive who continues to innovate and allows us to take advantage of technology advances such as Bluetooth LTE," highlights Penny. "Outstanding performance across our network makes it possible for us to focus on expanding our digital curriculum and empowering teachers instead of troubleshooting support concerns."

With more and more operations moving to wireless devices teachers and students are using the wireless network for a variety of functions. Teachers are more mobile, doing a variety of functions inside and outside the classroom, such as grading and assessing classroom attendance. Across the school, a combination of Office 365 and Google Apps is used for all calendaring and many other productivity applications, that are now all accessible anywhere via Wi-Fi.

Canvas learning management enables blended learning and the integration of technology. Students can download a PDF to complete during class, and submit the assignment electronically at the end of class. Quizzes and tests are given from teachers via Canvas, with 50 percent of testing at the school done over iPads. Lower grades use the wireless network to connect to devices on carts, using iPads to learn typing, and to complement subjects like history and spelling.

Foreign language teachers use iPads to record and offer playback audio for pronunciation and language learning. Teachers now post educational videos to links such as YouTube or Vimeo for students to supplement classroom instruction. AirPlay is used to give student presentations and Code.org challenges are completed on iPads.

Outdoor Wi-Fi at the football stadium allows the athletic department and teams to use iPads for coaching, drawing up plays, recording games, streaming other athletic events and using Hudl to review recordings after a game. The SmartMusic app is used to give assignments to various band classes. Students can use the app to play music and it will notify the musician of missed or incorrect notes. These practices can be submitted over Wi-Fi to the band instructor to verify and record their practice time.

The Fine Arts Center controls its digital sound board through iPads, making adjustments to audio settings while walking around the theater. iPads are also used for ticketing for concerts and performances, scanning tickets to admit patrons for events.

Solutions Out of the Gate

NRCA has come a long way in a short amount of time to bring its network up to speed and to enable blended learning in a variety of classroom settings. The school looks forward to embracing additional Aerohive features and solutions as it continues to expand its array of resources.

Partnering with Aerohive has provided a robust wireless network with more flexibility and control, and greater access and security. The IT team counts on the Aerohive solution to be rock solid so it can focus on the business of education, and enabling students and staff to be more mobile and innovative.