



Palm Beach County School District

One of Largest School Districts in Nation Selects Aerohive for Comprehensive Wi-Fi Solution

Challenges

- Provide comprehensive and reliable Wi-Fi coverage across entire School District, comprising 185 schools and nearly 200,000 students and staff
- Obtain solution with centralized management for simplified monitoring and control
- Help ensure infrastructure is ready to meet state mandates for digital textbooks and e-learning, with goal of moving toward a one to one student to device ratio in all schools
- Establish secure network access for variety of users including staff, students and guests

Results

- Robust and powerful wireless network in all schools and facilities with ability to handle influx of devices in the near future
- Greater efficiency for classroom, testing and administrative operations in all levels of education
- Greater network throughput to handle high definition audio and video, as well as bandwidth to support a large number of learning tools and applications
- Ability to handle performance and scalability needs as the number of wireless devices expands, including a guest network tailored to specific user priorities and security mandates

About Palm Beach County School District

Established in 1909, the School District of Palm Beach County is the eleventh largest in the nation and the fifth largest in the state of Florida with 185 schools and 13 ancillary facilities, serving more than 177,000 students. As the largest employer in Palm Beach County, the School District has nearly 21,000 employees, including over 12,000 teachers, as well as 39,000 volunteers. The District has an IT team of over 160 employees, with a small team dedicated to network architecture.

The School District is a \$2.5 billion organization and is committed to giving its students and teachers the most advanced learning experience possible and access to the latest technology tools available. As a top-performing urban school district, the Palm Beach County School District has received numerous awards and recognitions including accreditation by AdvancED, earning Newsweek's Best High Schools in America 2013 for ten district schools, and being recognized by Education Week for the eighth-highest graduation rate in the nation.

"Aerohive has provided outstanding customer support and resources to enable us to architect a network that is secure, resilient and can scale to meet our needs for today and into the future."

**—Director of IT Technical Operations,
Palm Beach County School District**

Challenges

The state of Florida has mandated schools change from paper textbooks to digital formats in all schools for grades K-12 by the year 2015. This aggressive mandate has required Palm Beach County to develop plans for a robust wireless network to support the increased demands for classroom digital learning. The District's infrastructure consists of over 125,000 devices, and it recently began a pilot of a one to one student to device ratio to help students prepare to embrace digital textbooks throughout all schools.

The District's existing Wi-Fi network was limited in scope and coverage, and had limitations in throughput. The network was a controller-based environment and the growing expenses were no longer feasible as the District looked to provide comprehensive wireless coverage. In addition, the District wanted to allow teacher evaluation systems to be a completely wireless function, as well as provide large areas designed for students to conduct online testing. Palm Beach County School District also targeted opening up the network to BYOD for students and employees. Wireless access was only available in a portion of the administrative areas at each school, and in instructional education areas such as media centers and resource rooms. Wireless access in large conference rooms and auditoriums was very limited and not available at most schools.

In the very near future, the District anticipates an even greater increase in wireless devices requiring network access. Accordingly, the District sought a solution provider that could deliver a network robust enough to support a large number of devices, with frequent access to high definition audio and video, with

seamless scalability as the District expands its Wi-Fi activities. The District also runs its own television station and streams the content from its Web site and internal network.

The District's existing 3Com Wi-Fi network had been state of the art at the time of acquisition, but the District needed to replace it with a distributed network architecture solution. The new solution needed to cover all schools and allow centralized management with a robust feature set customized for education. The existing network did not support 802.11n and a faster solution was urgently needed, especially to support high definition video viewing for employees and students.

The District also needed to have a better wireless network solution at its headquarters facilities, which was not at 100% coverage. The District conducted a bid evaluation process and considered many vendors before choosing Aerohive for its cost-effective network solution that provided all required features and could easily expand as the District grows, without "over-building" of the network infrastructure.

Solution

Aerohive's wireless network solution currently supports 125,000 devices on the network, with that number growing as the District continues its roll out of 1:1 learning programs. These devices are used for classroom e-learning and to access digital textbooks. The District has implemented over 13,000 Aerohive access points, both in schools and administrative and headquarters locations.

The District uses Aerohive AP121 access points in classrooms, supporting many types of clients. Aerohive AP330 access points are deployed in media centers, gyms, cafeterias and auditoriums to address high capacity requirements. Rugged and high-performing Aerohive AP170 access points are used for outdoor locations like patios, courtyards, outdoor meeting areas and football field press boxes.

In addition, the District set up multiple networks on the same infrastructure, including one for employees, another for students and an additional network for guests. Customized captive web portal pages welcome each type of user. While some users require the District to apply additional limitations to meet regulatory requirements, such as blocking certain email providers or social media sites, the guest network can now start to be more open.

Some of the Aerohive features the District has found especially valuable include Dynamic Airtime Scheduling and band steering. These features are critical to performance optimization for students using Wi-Fi by managing wireless interference and providing load balancing for devices on the network. Without these features the network would be a hindrance to learning as students could easily spend more time trying to access the network instead of using the network to do their work.

Aerohive's HiveManager NMS (private cloud version) allows centralized management of the entire network for the District. This combined with a fully distributed system has provided ease of use, robust remote management and zero touch installation, critical for a network with over 13,000 access points. Local control and network survivability were key for the IT team, and a plug and play solution eliminated many issues previously encountered.

The District had numerous security considerations for the new network, including meeting conditions of the Child Internet Protection Act, a federal technology protection measure that requires K-12 schools to filter harmful content. Using Aerohive's built-in application control and firewalling enabled the District to block and limit certain applications to help meet these requirements for students. The District also uses proxy servers, as well as firewalls to ensure a complete security solution to protect students from offensive content.

Results

Since deploying Aerohive with 100% campus coverage, the District has been able to make numerous improvements and overall changes to improve learning and instruction for students, as well as create greater efficiency for administration and staff. The Director of IT Technical Operations for Palm Beach County School District has been very pleased with the results saying, "Aerohive has provided a

near flawless network that has opened up a lot of doors for us, from being able to host large events requiring enterprise-class Wi-Fi, to centralized network management to enable District-wide customization for users, and enterprise features to better monitor and control our network. Campus-wide Wi-Fi has enabled our schools to provide larger online testing facilities for all our students, as well as provide access to learning tools such as classroom e-learning, digital textbooks and other educational applications."

Before Aerohive, the District used laptop carts but had to install individual access points on each cart to ensure wireless coverage, while now the District's mobile carts no longer need a separate AP and connect directly to the Aerohive network. After Aerohive's robust Wi-Fi solution was in place, the District purchased an additional 25,000 laptops. Each cart has up to 30 laptops and teachers can now roll carts into any classroom to set up a mobile lab or classroom wherever is needed to work on assignments or conduct testing.

The District has implemented hundreds of carts and began conducting online testing using the Aerohive network at the start of this past school year. With the Wi-Fi network, schools can set up testing in individual classrooms, or in scaled large testing centers in locations such as gymnasiums and cafeterias. Schools no longer have to displace students from computer labs or take away from instruction during testing times, but can use other available rooms and facilities to create a mobile classroom quickly and easily. With more and more frequency of testing requirements, this capability was key to ensure smoother academic operations.

The large number of carts and devices also empower the District to host large-scale conferences, seminars and meetings, as well as conduct training sessions to a large number of participants, which could not be achieved previously without enterprise Wi-Fi in place.

The District has also enabled users to consistently and reliably access the hundreds of Internet-based applications and learning tools used for a wide variety of digital activities such as instructional learning, research, blogging, homework, testing and more. Two integral applications include social learning network Edmodo, and community management system Edline, which enable the District to extend teaching and learning online and facilitate collaboration among teachers, students and parents. Many of these applications are accessed via wireless devices by thousands of users on a daily basis.

The student to device ratio is moving steadily to a one to one ratio, with certain schools already achieving this standard. A strong wireless architecture has provided a foundation for the District to meet state requirements for digital textbooks by 2015, with all high schools already using digital textbooks for 60 percent of curriculum. Principals now conduct teacher observation and evaluations using tablet devices. Administrators can walk anywhere on campus without losing network connection and are able to upload assessments and observations directly through the wireless network.

Equipping Students and Educators for e-Learning

At the onset of deploying Aerohive, Palm Beach County School District conducted a computer-based District Diagnostic Test in the areas of reading, mathematics and science to over 100,000 students, with minimal issues occurring with the network. In the words of Palm Beach's Director of IT Technical Operations, "With over 13,000 access points, the failure rate is next to nothing, which is the kind of reliability we demand for an education environment in a District of this size. Aerohive has provided outstanding customer support and resources to enable us to architect a network that is secure, resilient and can scale to meet our needs for today and into the future."

The District's IT team anticipates an influx of wireless devices, estimated to double and triple in the near future. This will also encourage the District to finalize a formal BYOD plan. Aerohive has provided a network architecture to meet performance and security demands, with enterprise features that give customization and control to meet the needs of students and administration for today as well as meet the goals for complete digital learning.



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

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