

Case Study: Cypress-Fairbanks ISD

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Aruba Gigabit Wi-Fi scales to enable a half-million simultaneous connections for school & community

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= Community

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CASE STUDY:

Cypress Fairbanks

Discover how Aruba Wi-Fi enabled a half-million simultaneous bring your own device (BYOT) connections for one of the largest school districts in Texas.

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As the third largest district in Texas, and 22nd-largest nationally, Cypress-Fairbanks required a Wi-Fi system capable of securely supporting a BYOT environment and scaling to a half-million simultaneous connections daily.

Working with its local partner, Layer 3, Cypress-Fairbanks selected Aruba, a Hewlett Packard Enterprise company, to replace its existing WLAN.

"To effectively prepare students to be 21st Century global leaders, we needed wireless infrastructure that delivered the same experiences as a wired network," Jackson says. "Aruba met all of our requirements."

Aruba's 802.11ac WLAN Answers the Needs

<https://www.arubanetworks.com/resources/cypress-fairbanks/>

- Supports personalized education models including traditional, virtual and blended instruction.

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Aruba Gigabit Wi-Fi scales to enable a half-million simultaneous connections for school & community



Providing mobility connectivity throughout 15 million square feet of facilities makes enterprise Wi-Fi a top priority for Frankie Jackson.

“With nearly 114,000 students and over 14,000 employees, we’re moving toward several million device connections,” explains Jackson, the CTO of Houston’s Cypress-Fairbanks Independent School District. “We also need effective tools for managing mobile devices, connections and infrastructure throughout our 87 campuses, plus seven more in the next five years, spread across approximately 238 square miles.”

Enabling Half-Million Simultaneous Bring Your Own Technology (BYOT) Connections



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REQUIREMENTS

- High-density, indoor and outdoor Wi-Fi
- Secure, policy-managed access
- Scalable, reliable connectivity

SOLUTION

- [802.11ac Indoor & Outdoor APs](#)
- [7200 Series Mobility Controllers](#)
- [Aruba ClearPass Policy Manager](#) for access control
- [Aruba AirWave](#) for network management

BENEFITS

- 802.11ac-enabled Wi-Fi blankets 15 million square feet spread across 238 square miles.
- Enables a BYOT mobility strategy for a population of about 114,000 students and 14,000 employees.
- Enterprise tools streamline management, boost security and optimize network of 8200 APs.
- Supports personalized education models including traditional, virtual and blended instruction.

The benefits of Aruba's technology are vital to our BYOT initiative's success. I believe the Aruba solution will meet the demands of our students, teachers and administrators not only today but in the years to come.

FRANKIE JACKSON, CTO OF THE CYPRESS-FAIRBANKS INDEPENDENT SCHOOL DISTRICT

For its educational needs, and to gain the TCO benefits critical to public schools, Cypress-Fairbanks elected to deploy an IEEE 802.11ac-enabled wireless infrastructure, known as Gigabit Wi-Fi.

The implementation includes approximately 7800 Aruba indoor access points (APs) and nearly 400 outdoor APs, managed by 7200 Series Mobility Controllers.

To administer its expansive network, the institution adopted Aruba's robust management tools Aruba AirWave, for proactively monitoring WLAN health and performance, along with Aruba ClearPass, for strong security and smart policy management.

The deployment is eligible for E-rate funding for expanding school Wi-Fi networks.

Very high-density deployment handles device proliferation

To accommodate expected device proliferation, Cypress-Fairbanks is pursuing a high-density Wi-Fi strategy. Level 3 is carefully mapping and deploying infrastructure to ensure seamless transitions throughout each school's campus and smoothly handle peak demands, such as during online testing.

The institution's WLAN will also cover an events complex called the Richard E. Berry Educational Support Center. This facility, which includes a 15,000 sq. ft. conference center, not only serves numerous educational functions but is also an important district revenue source that generates over \$2 million annually.

To remain attractive as a large public venue, facilities like the Berry Center require the very high-density (VHD) Wi-Fi design and deployment strategy Aruba technologies provide. This ensures thousands of event attendees can connect simultaneously at the desired level of Wi-Fi performance.

Aruba ClearPass Supports Mobility and IoT Security Demands

By adopting ClearPass Policy Management, organizations like Cypress-Fairbanks receive the robust security features necessary for today's BYOT environments. This includes ultra-scalable AAA (Authentication, Authorization, and Accounting) with RADIUS (Remote Authentication Dial-In User Service), allowing IT to assert and enforce trust on every user and device on the wireless, wired and VPN network.

To do this, ClearPass leverages real-time, trusted, contextual data – a user's role inside an organization, device and app attributes, plus location and insight from third party security solutions – to create policies that satisfy mobility and IoT (Internet of Things)

security needs.

“Because we’re moving to a BYOT model, centralizing the security for hundreds of thousands of device connections was critical,” says Jackson. “The benefits of Aruba’s ClearPass technology are extremely attractive and vital to our device initiative’s success.”

Smart policy management assures hassle-free access

The district highly values ClearPass for its smart policy management, which automates the separation of external guest connectivity from internal educational traffic.

“We currently have an initiative underway to install outdoor and indoor APs to provide Wi-Fi access for parents and community members as well as students and teachers,” says Jackson. “With ClearPass, this guest traffic is segregated from instructional access, ensuring a secure learning environment and enabling us to prioritize bandwidth for educational purposes.”

Further, ClearPass can automatically and continuously shift known devices from the guest network to the internal network. “Moving student devices onto the internal network during the school day ensures their equipment is properly secured and protected by our content filtering applications,” Jackson says.

Aruba AirWave Enables Proactive Optimization

Organizations with massive Wi-Fi systems like Cypress-Fairbanks need granular visibility into the access layer — at the user, device, and app level — to keep things running smoothly and without disruptions to teaching, learning and community events.

That’s why the district deployed [AirWave](#). This tool enables lean IT staffs to minimize overhead by visualizing every AP from a centralized dashboard to monitor device behavior, troubleshoot application issues proactively and plan for capacity to meet new needs.

What’s more, AirWave can be used as a predictive tool, to simulate situations such as a flurry of device connections at the start of the school day, enabling IT staff to head off problems before they occur.

Schools & Community Enjoy Multiple Benefits

Today, Cypress-Fairbanks and the surrounding community are enjoying the multiple benefits of a resilient, reliable Aruba WLAN.

Wi-Fi boosts school spirit

Jackson cites school spirit as just one example of how the district is leveraging its new Wi-Fi. “Using ClearPass, the portal for each one of our high schools is branded with their school colors and logo,” Jackson says. “This gives 3,500 to 4,000 students a sense of pride every time they log on.”

Infrastructure supplies secure access for all

After school hours and on weekends, any community member can use the district’s visitor access in a secured environment says Jackson.

“ClearPass manages wireless traffic to distinguish between different types of users — whether they’re visitors, student and administrators — and directs them into the appropriate levels of access,” she says.

District Experiences 10X Connectivity Increase

Overall, teaching and learning are significantly enhanced at Cypress-Fairbanks, with education-related mobile connections having skyrocketed by approximately 10-fold since the deployment began.

Enabling traditional, virtual and blended instruction

As Cypress-Fairbanks continues building out its Wi-Fi to enable traditional, virtual and blended instruction models, teachers like Alexandra Gonzales say mobility improves their efficiency and effectiveness.

“Mobility is a tremendous benefit,” explains the high school Algebra teacher and volleyball coach, whose work sites are at opposite corners of a 460,000 sq. ft. high school building. “The ability to work on classroom-related activities anywhere ensures I can maximize the time I spend teaching students.”

Mobility helps personalize learning for creativity and empowerment

According to Jackson, next-generation mobility is ensuring Cypress-Fairbanks can adopt leading educational practices to prepare students for success. “Our Aruba Wi-Fi is helping us reach our goal to personalize learning with rich multimedia experiences that enables empowerment and creativity,” she says.

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