

AI-driven Wi-Fi works smarter and harder for Fairfax County Public Schools



Students come first at Fairfax County Public Schools (FCPS) in Virginia, one of the largest school districts in the U.S. FCPS is known for inspiring student success, with a mission to empower its diverse student community to meet high academic standards and be responsible citizens.

An aging, multivendor network at its 240 schools and administrative sites couldn't keep up with modern digital learning practices. To make the network—and learning—experience better, FCPS studied its options and looked for a smart solution. The Juniper wireless access solution, driven by Mist AI passed the test.

OVERVIEW

Company	Fairfax County Public Schools (Virginia)
Industry	Education
Products Used	AP43, AP63, Wi-Fi Assurance, Marvis VNA
Region	Americas

CUSTOMER SUCCESS AT-A-GLANCE

17,000

Access points being upgraded to Wi-Fi 6

10

Minutes to install a new Juniper access point

240

Locations including schools and administrative centers

185,000

Students

CHALLENGE

Vast disparate network hinders management

With 185,000 students at FCPS, the sheer number of laptops and tablets in the classrooms was taxing the Wi-Fi networks at all the school sites, strained by the increased usage of digital learning and classroom technology.

FCPS operates a multivendor network, and a mix of vendors obscured visibility into the user experience. Aging wireless LAN controllers further complicated network management and troubleshooting, and upgrading the controller software was risky.

IT wanted to simplify and modernize network operations. A unified approach would improve Wi-Fi coverage and capacity while allowing IT to solve problems faster, reducing onsite troubleshooting in a district that covers 400 miles. But a Wi-Fi upgrade in a district the size of Fairfax County is daunting.

“We have 17,000 access points, so we’re in a constant refresh cycle,” says Matt Fry, network engineering manager of FCPS. “Refreshing the wireless networks at our schools is like painting a battleship. We paint down one side, then immediately start on the other side.”




SOLUTION

Juniper aces a go-big or go-home challenge

FCPS standardized on the Juniper AI-driven wireless network solution and is refreshing their schools and center across the county.

Juniper access points work with the Juniper Mist Cloud architecture, driven by Mist AI, to continuously optimize the Wi-Fi connectivity. With the Juniper Mist Wi-Fi Assurance service, the IT team can set up and track key metrics to ensure that expected service levels are maintained. When an anomaly is detected, packets are automatically captured for event correlation.

IT relies on the Juniper Marvis Virtual Network Assistant to speed root-cause identification and get recommended fixes. As a conversational assistant, Marvis understands user intent and uses natural language to provide specific answers.

When facing the Sisyphean task of replacing 17,000 APs, every minute counts. The FCPS network engineering team used templates in the Juniper Mist portal to set up network configuration for each school. Once onsite, the IT staff installs the Juniper APs, and they power up. “The AP then connects online with the Juniper Mist cloud and we are live,” says Fry. “The entire process takes less than 10 minutes for each access point to be fully functional.”



OUTCOME

Network refresh adds flexibility, expands coverage, and speeds resolution

Wi-Fi is like a utility, Fry says, and with Juniper, the Wi-Fi simply works. The Juniper network supports hundreds of thousands of student and teacher devices and e-learning needs of the district.

With the increased capacity and security of the Juniper wireless network, FCPS is considering allowing students to connect their personal mobile devices to the school network. It is also exploring non-academic use cases, including Wi-Fi for its eSports teams and expanded coverage at stadiums and sports fields.

Mist AI-driven management tools, including Wi-Fi Assurance and Marvis, give the network team better visibility into the user experience and expedite problem resolution so learning is not disrupted by network glitches. Fry also notes that Marvis identified and resolved a few stubborn Wi-Fi client connectivity issues that had plagued the district’s network for years.



“We converted our largest school site first. If a Juniper network and Mist AI can work at our most complex site, it can work at any school in our county.”

Matt Fry
Network Engineering Manager, Fairfax County Public Schools

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