Enterprise Networks SOLUTIONS

Best-in-Class Network Infrastructure Solutions

Arizona Students, Teachers Benefit From Modernized Network

Key infrastructure upgrades prepare district for demands of 1:1 virtual learning



The Overview

The Cartwright Elementary School District, located in Phoenix, Arizona, serves more than 15,000 students in 21 schools, and employs more than 2,000 teachers and staff. A lower-income district with an aging technology infrastructure, Cartwright had a limited budget and had put off making infrastructure investments for several years.

The Problem

Beginning in 2017, Cartwright's technology director, Kevin Molina, became increasingly concerned that the district's legacy network wouldn't be robust enough to expand or meet future demands. At the time, the district was already having difficulty managing the number of student devices that needed to connect to its network.

Because the goal was to supply each student a laptop or similar device to facilitate more digitally interactive learning experiences, Molina knew it was important to act quickly. "*As our device count grew, our access points couldn't handle the number of devices we needed to connect to our network,*" he said. "*The top factor for modernizing was to ensure we'd have a reliable network over the next five to seven years.*"

Prior to starting its upgrade, the district was supporting both wired and wireless networks across its schools and administration building. These resources did not require a lot of manual work and time, but staff and students experienced frequent problems with wireless connectivity, which disrupted classwork and stifled productivity.

The Solution

To help plan and implement its network upgrade, Cartwright partnered with **Enterprise Networks Solutions (ENS)**, a Mesa-based network infrastructure value-added reseller (VAR) and integrator with proven experience upgrading networks for other districts and companies in the state.

Molina engaged with ENS to first conduct a switch upgrade that allowed every student to use their device at the same time. Together, they worked on a project to upgrade the district's legacy solution and move the rest of their wired and wireless infrastructure over to solutions provided by **Aruba, a Hewlett Packard Enterprise company.**

ENS initially worked with Cartwright to replace the district's switches, to better connect its PCs, wireless access points, printers, and servers. By upgrading to higher-end Aruba 6300M switches, the district increased throughput.



> *"In 2018, we were at the point where we were 1:1 with student devices. The switch upgrade greatly diminished our student testing windows, allowing more students to take their summative tests and state assessments at the same time,"* **Molina said.**



In partnership with ENS, Cartwright also applied for and was awarded a $1.8 million federal technology E-Rate grant to modernize its network. The Schools and Libraries (E-Rate) Program provides grants that aid eligible schools and libraries in upgrading technology products and services. The grant allowed the district to fund $3.7 million worth of hardware and technology services provided by ENS.

As a result, over a two-year period the district was able to modernize its legacy wireless network, as well as move its wired network over to an Aruba platform. With the help of ENS, Cartwright was able to design a more reliable infrastructure that could serve more students and accommodate more devices.

The final part of the modernization effort took place in spring 2020, as the pandemic shuttered schools and moved students to remote learning. These upgrades helped the district successfully meet the bandwidth demands of new online tools such as Zoom and Google Meet.

Students began returning to campus in August 2020, which meant classrooms now included a mix of in-person and remote learners. "*This really slowed down our older legacy network, which validated that we'd have to future-proof our wireless network,*" Molina said. "*That's when we started looking at E-rate funds to do a full upgrade of our switches and access points.*"

Aruba Supplies the Right Combination of Networking Solutions

By adding Aruba AirWave, Aruba switches, and Aruba ClearPass access control, the district's boosted its infrastructure security and gained more insight into its network traffic — managing both from one central dashboard.

"*ClearPass helped secure the physical and wired networks to keep those devices that shouldn't be in the network from coming in or attempting to steal data,*" Molina said. "*AirWave allowed us to see the VisualRF maps related to connectivity issues. Once we did upgrade to newer access points, the number of tickets related to the wireless network disappeared.*"

Now, the district benefits from a modern network that can handle today's technology and expand to meet future IT challenges. The Aruba network features enough availability, capacity, and performance to keep students, teachers, and staff connected, as well as management tools that give Molina and others visibility and control over the entire IT landscape.

The ENS/Cartwright partnership proved to be successful because both parties worked together to achieve common goals, said Larry Potthoff, president and CEO of ENS. As a local company, ENS is invested in the Arizona community and felt that it was important to build a strong relationship with Molina and the district.

"*Working with Larry and his team has been amazing in regard to their knowledge and how they've been able to support us,*" Molina said.

The ENS/Aruba Difference

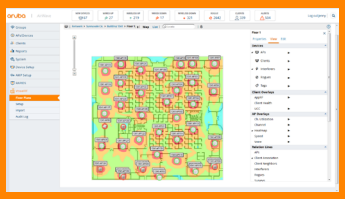
ENS, an Aruba, Partner Ready for Networking, Platinum Level Partner with specializations in networking, switching, and wireless LAN, provided the Cartwright school district with a full complement of wired and wireless networking infrastructure from Aruba.

At the core of Cartwright's infrastructure, **Aruba 6300M** switches allowed the district to increase operational efficiency with built-in security and resiliency. The 6300 switches build a foundation for high-performance networks that need to support IoT, mobile, and cloud applications. Built from the ground up with a combination of hardware, software, and analytics and automation tools, 6300 switches were designed to support campus, branch, and data center networks.



Aruba 550 Series indoor access points facilitate high-performance connectivity for school districts (or any organization) experiencing growing IoT and mobility requirements. These Wi-Fi 6 access points delivered the speed and reliability the district needed to get students and staff online, no matter what part of the campus they were logging in from.





Aruba AirWave is a versatile network management system that manages enterprise campus wired, wireless, and remote connectivity. AirWave includes a wide range of features, such as zero-touch provisioning, enhanced client visibility, traffic analysis, reporting, and multivendor integration, giving Cartwright critical insight into traffic coming into its network. Each AirWave server can support up to 4,000 network devices (access points, switches, and controllers), which makes it ideal for large organizations like school districts.



Aruba ClearPass provides role-based, unified network access enforcement across multi-vendor wireless, wired, and VPN networks. At Cartwright, ClearPass helped IT troubleshoot faster by providing a view of all wired and wireless devices connecting to the district. Cartwright also benefited from increased control through automated authentication and better incident analysis and response, thanks to ClearPass's compatibility with other third-party security solutions.

Partnering With ENS

Enterprise Networks Solutions is an Arizona-based VAR and integrator. We offer a deep bench of engineering talent specializing in the design, installation, configuration, and support of enterprise-class network infrastructure solutions. With specializations in networking, switching, and wireless LAN, ENS is one of the few Aruba partners in Arizona that employs Aruba-certified engineers. For our clients, this means they can be confident our team will select the technology that meets their needs right from the start. We aim to consistently deliver high-quality solutions with an emphasis on customer service.

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