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CASE STUDY

Clinic deploys pharmacy robots, 3D dental modeling and other patient care innovations using Aruba ESP network

Modernize and digitalize healthcare delivery to improve patient outcomes and enhance caregiver experiences using cloud, IoT, robotic, and other technologies by deploying future-ready, high-performance, high-availability, highly-secure wired and wireless networking infrastructure that can be continuously evolved as new clinical needs develop.

Disruptions to patient care and heavy operating burdens led the Northeastern Tribal Health System to modernize its network infrastructure and set the stage for healthcare innovation.

"Network connections with our electronic health record (EHR) dropped multiple times a day, which significantly inhibited our ability to deliver quality care," explains Christopher Galati, Director of Information Technology at Miami, Oklahoma-ased NTHS. "From an operating perspective, a third of our lean staff was dedicated solely to troubleshooting our legacy network, adding significant burdens that further dominished clinical care. We needed a wired and wireless infrastructure refresh."

SELECTING ARUBA ELIMINATES LEGACY BURDENS

A comprehensive ambulatory care clinic, NTHS delivers essential medical, dental, laboratory, optometry, pharmacy, physical therapy, radiology, and behavioral health services. It receives over 140,000 visits annually from members of tribal nations who reside in northeastern Oklahoma and neighboring regions of Arkansas, Kansas, and Missouri.

"Even before COVID-19 added new challenges, we wanted to improve patient outcomes by adopting a variety of digital healthcare technologies," Galati says. "We also needed to reduce the cost of network infrastructure licensing, which drained thousands from our IT budget annually."

NTHS evaluated multiple networking options, including offerings by its incumbent vendor Cisco, before choosing a scalable, end-to-end solution by Aruba, a Hewlett Packard Enterprise company. "Aruba's solution was more flexible, easier to manage and provided considerable IT automation capabilities," says Galati. "It also eliminated licensing burdens, enabling us to reinvest the funds in a more robust network that permits delivering new services."

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REQUIREMENTS

- Adopt flexible, reliable, and secure wired and wireless infrastructure
- Simplify, streamline, and automate network administration
- Reduce infrastructure and IT overhead burdens

SOLUTION

- Aruba Wi-Fi CERTIFIED 6 Access Points
- Aruba CX 6400 Switch Series
- Aruba 5400R Switch Series
- Aruba 3810 Switch Series

OUTCOMES

- Enables adopting digital patient care innovations, such as prescription dispensing robots and 3D dental imaging
- Reclaims one third of IT staffing resources by slashing troubleshooting and administration
- Saves thousands annually by eliminating burdensome licensing costs
- Permits deploying a modern EHR and other cloud-based, IoT-enabled clinical applications
- Obtains a future-ready network for supporting ongoing innovation

SOLID NETWORK FOUNDATION BRINGS IMMEDIATE BENEFITS

To create a solid foundation for layering on modern healthcare solutions, NTHS deployed various Aruba ESP solutions. Starting with the wired network, the clinic implemented Aruba 3810 Switch Series for edge access and 5400R Switch Series for aggregation. The clinic also selected CX 6400 Switch Series for its networking core.

For wireless, the clinic's Wi-Fi 6 network is comprised of Aruba's 530 Series indoor access points (APs) managed in Aruba Instant Mode (PDF).

Achieving improvements across the board

Upon rolling out its new infrastructure, NTHS enjoyed immediate improvements across the board, starting with reliable EHR access.

"Dropped connections with our latency-sensitive EHR instantly became a thing of the past, substantially reducing patient and staff frustrations," Galati says. "This enables our providers to focus on providing quality care rather than struggling to reconnect with the EHR."

Management overhead also disappeared. "The network is rock-solid and requires almost no effort on IT's part," says Galati.

MULTIPLE DIGITALIZATION PROJECTS ENHANCE PATIENT CARE

With its robust network to build on, NTHS has pursued multiple digitalization projects that leverage leading connected and IoT healthcare solutions for improving the diagnosis and treatment of medical conditions.

Some notable initiatives include two Parata pharmacy robots that automate the fulfillment and dispensing of prescription medications. The robots improve safety, accuracy, and efficiency, freeing pharmacists to spend time with their patients.

"The Parata robots fill thousands of prescriptions every day," says Galati. "The robots also automate inventory tracking and provide data for compliance reporting."

In addition, the NTHS pharmacy utilized network-delivered IoT for refrigeration monitoring of heat-sensitive medications. "For example, vaccines require cold or ultra-cold refrigeration, making it imperative for temperatures to be properly maintained," Galati says.

Another advance is digitalizing oral healthcare with DEXIS high-definition imaging, for early detection and accurate representation of dental conditions, and deploying a Dentrix practice, clinical and business management solution, for creating accurate and accessible records to ensure patients receive the care they need.

"Now we can offer state-of-the-art oral care, such as 3D modeling for dental crowns," Galati says.

Increasing physical safety and comfort while reducing energy costs

The network also supports connected and IoT physical safety and comfort solutions, including security cameras, door controllers, and door readers.

Additionally, the clinic's IT team has retrofit multiple spaces with temperature sensors, to enable more granular HVAC adjustments.

"In some cases, we have a thermostat one office controlling multiple other spaces," says Galati. "With the IoT temperature sensors we can remotely monitor each space and adjust them as needed."

Galati's team is also generating energy efficiencies and reducing depletion by using smart plugs for remotely power cycling devices.

The flexibility to expand the network rapidly and cost-effectively has been a considerable benefit to getting the new wing online quickly. "The modularity of our new wired and wireless infrastructure enabled us to smoothly meet the added capacity and data traffic demands in the new facilities," Galati says.

RAPIDLY EVOLVING TO ADDRESS COVID-19

When COVID-19 struck, the new NTHS network helped the organization pivot quickly by supporting a building expansion that added nearly 10% more space to its physical footprint.

"The new wing includes an enlarged laboratory, to accommodate additional equipment for running COVID tests," says Galati. "It also contains administrative offices, largely dedicated to pandemic response, and negative pressure rooms with separate ventilation systems, which enables the clinic to more safely treat people who are contagious."

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FURTHER ADVANCES ON THE HORIZON

Moving forward, NTHS is excited about the further innovation opportunities its Aruba network provides. This includes evaluating and adopting a modern, cloud-enabled EHR, and other cloud-based clinical applications, along with expanding wireless to introduce secure guest Wi-Fi.

Plans for the latter would include enhancing the NTHS network by adding Aruba Dynamic Segmentation in conjunction with implementing ClearPass for network access control (NAC) and policy management. This will further automate and streamline infrastructure administration, while boosting security, regardless how many devices connect during any given day.

"Adopting Dynamic Segmentation would enable us to eliminate VLANs, which are time-intensive to manage, because the network would automate assigning devices to the appropriate connection," says Galati.

As NTHS builds out its digital capabilities, the clinic also expects to evaluate Aruba Central for cloud-based AIOps network management, User Experience Insight (UXI) for real-time AI-powered detection and remediation of Wi-Fi incidents, and NetEdit to automate and coordinate the configuration, monitoring, and troubleshooting of wired networking switches.

Future-ready network supports innovation and keeps IT overhead low

No matter how the clinic evolves, the NTHS appreciates its Aruba network for supplying a high-performance foundation that significantly reduces management overhead. "Recovering a third of our IT staffing resources with Aruba's automation capabilities, intuitive management tools, and reliable operation has enabled us to embark on multiple transformation initiatives," Galati says.

"Our future-ready Aruba network has significantly improved connectivity, performance, and reliability," he adds "This substantially enhances patience care and staff experiences while enabling us to innovate confidently as we address whatever needs come next."

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