Arizona Hospital System Migrates to Unified Wireless without a Glitch

Cisco Services upgrades Banner Health's networks to Cisco Unified Wireless Solutions with zero downtime.

EXECUTIVE SUMMARY

BANNER HEALTH

- Healthcare
- Phoenix, Arizona, USA
- Over 35,000 employees

CHALLENGE

- Simplify wireless administration by converting autonomous access points to a centrally managed system
- Provide physicians, patients, and guests with wireless Internet access while safeguarding sensitive patient data
- Provide performance, security, and reliability for streaming video services
- Convert to a unified wireless network without disrupting patient care

SOLUTION

- A Cisco Unified Wireless Network
- Cisco Services

RESULTS

- A transparent deployment within the maintenance window
- Greatly simplified management of multiple, large wireless networks
- Reliable delivery of critical wireless applications and patient data
- Secure Internet access for physicians, patients, and guests
- Knowledge transfer empowering IT to perform future conversions

Challenge

By relentlessly pursuing its mission to improve "people's lives through excellent patient care," Banner Health is one of the nation's largest non-profit hospital systems. The healthcare provider operates 23 hospitals and facilities in nine western states from Arizona to Alaska. Among Banner's growing accolades, Thomson Reuters ranks it one of the country's "Top 10 Health Systems."

To achieve this excellence, Banner relies on advanced clinical and communication technologies using Cisco networking solutions, particularly wireless. Cisco wireless systems support many of Banner's most vital medical systems, including its electronic medical records (EMRs).

"Wireless communications dramatically enhance the delivery and efficiencies of medical services," says James D. Pflugfelder, Director, Network Planning and Integration, Banner Health. "They give our staff immediate access to patient data and records throughout our facilities. We continue to deploy more and more wireless infrastructure to keep pace with the exponentially increasing demands of wireless users and applications."

Initially, Banner's hospitals used autonomous wireless networks, but managing thousands of independent access points (APs) at these distributed facilities was costly and time-consuming. "Whenever an issue arose with an AP, we had to dispatch IT staff for on-site troubleshooting," says Pflugfelder. "We needed to centrally control our wireless networks to ensure the availability demanded by around-the-clock healthcare."

Additionally, autonomous wireless networks lack the security capabilities that Banner required. In the absence of a unified wireless grid, mobile devices had to be authenticated every time they moved from the coverage of one access point to another, putting pressure on authentication servers. Moreover, IT was unable to provide patients and guests with Internet access without letting them into hospitals' networks with their sensitive patient data. Similarly, physicians were not allowed to access their remote offices with personal handheld devices for fear they might infect a hospital's network with malware.

Solution

Banner decided to deploy a Cisco Unified Wireless infrastructure starting at one of its newest facilities, the 80-bed Gateway hospital in Gilbert, Arizona. "We knew Cisco's Unified Wireless Networking would address our management and security needs," says Pflugfelder. "Our objective was to use Gateway as a proof-of-concept for deploying unified wireless at all of our Arizona hospitals."

Yet migrating the hospital's autonomous APs to a Cisco Unified Wireless network had to be done flawlessly and quickly to prevent any disruptions to patient care. "Avoiding network downtime is an absolute necessity in a healthcare facility," explains Pflugfelder. "To ensure a successful deployment with minimal impact to our patients, as well as to maximize our access to Cisco's expertise, knowledgebase, and support, Banner's network team turned to Cisco Services. Cisco's engineers provided an exceptional set of processes and technology tools along with a comprehensive plan for cutting over Gateway's autonomous APs to a unified wireless system. Thanks to the expertise of Cisco Services, we gained confidence in our ability to transparently convert all our facilities."

Cisco Services engineers demonstrated that preparation is key to a trouble-free migration. They spent weeks scrutinizing Gateway's environment and inventorying every wireless product, entering all data like locations, configurations, and IP addresses into a master spreadsheet. They checked security parameters and preconfigured the Cisco Wireless LAN Controllers so each access point had proper authentication and encryption settings. They double-checked everything, anticipating every contingency that could impact the rollout.

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"Cisco's spreadsheet was extraordinary," adds Robert Pettit, IT Systems Engineer, Senior Consultant, Banner Health. "It contained all the information needed for a cut-over down to the last detail. Nothing was taken for granted. The Cisco Services engineers knew exactly what would happen and when, even how long each AP conversion would take. After they walked us through a simulation of the migration, our assurances of Cisco's capabilities were no longer anecdotal."

Cisco Services performed the migration late at night to eliminate any disruptions to hospital staff. Over the course of six hours, the team performed a rolling upgrade using custom scripts to cut over the APs floor by floor. Services engineers verified the devices were operating properly on each floor before proceeding to the next.

"Having performed countless migrations in healthcare facilities like Gateway, Cisco knew exactly how to keep patient services available," says John Arthur, IT Systems Engineer Senior Consultant, Banner Corporate Center Mesa. "As a result, the migration had no impact whatsoever on our medical care. Moreover, Cisco took care of everything, allowing our team to stay focused on daily operations."

When the sun rose on Gateway the next morning, the hospital had a reliable, fully-functioning Cisco Unified Wireless Infrastructure. Elevating obsession to a virtue, Cisco engineers walked through the entire facility to ensure strong coverage, proper system performance, and that users were happy. They were. "Our staff may have been unaware of the migration," adds Pflugfelder, "but they certainly were pleased with the results."

Results

The impacts of Cisco's Services engagement rippled throughout the hospital, starting with IT. "The roll-out went exactly as Cisco said it would, all within our tight maintenance windows," says Pflugfelder. "For projects in mission-critical environments like hospitals, it makes sense to turn to the experts at Cisco, especially when downtime is intolerable."

The Cisco Unified Wireless Network tremendously simplifies management. From a remote data center, Banner's IT staff now administers Gateway's entire wireless network and performs granular diagnostics, eliminating the time and expenses of recurring site visits.

The Cisco migration also met Banner's security needs. Users are authenticated only once, even if they move about the hospital. Administrators rolled out guest services by creating tunnels through which guests, patients, and physicians access the Internet, safely bypassing Gateway's internal network.

Moreover, greater control yields greater dependability. The wireless network improves patient services and staff productivity by supporting applications like EMR, mobile computing carts, remote patient monitoring, and Positive Patient Identification, which allows caregivers to scan patients' arm bracelets to administer medications and treatments with real-time notification of changes to patient care. The facility even deployed computerized translation services so caregivers can communicate with non-English speaking patients.

"A much appreciated benefit of working with Cisco Services is the knowledge transfer to our staff," says Pflugfelder. "It started on day one and continues to this very day. It's an education we're leveraging for other migrations and projects."

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With the support of Cisco Services, Banner is migrating the networks of seven major hospitals in Arizona to the Cisco Unified Wireless Network. "We need to rely less on Cisco Services with each migration, but we're always glad they're available," says Pflugfelder. "When our IT staff began the conversion at one site, we failed to account for the different antennas of our legacy APs, which jeopardized the entire process. It would have taken us hours to address the issue, but Cisco engineers resolved it in 30 minutes. That's invaluable."

As Banner's facilities migrate to the Cisco Unified Wireless Network infrastructure, the benefits at Gateway are amplified throughout the healthcare system. "The number of wireless devices on our networks is skyrocketing," says Pflugfelder, "but by monitoring and managing our thousands of APs scattered througout the state from a single central console, we're able to efficiently manage our growing wireless infrastructure without having to bring additional staff online."

SOLUTION LIST

Wireless

- Cisco Wireless Control System
- Cisco 5508 Wireless LAN Controllers
- Cisco Aironet series access points
- Cisco Catalyst 6500 Series Wireless Services Modules (WiSMs)

Services

- WLAN Architecture Design
- WLAN RF Design
- WLAN Detailed Design
- WLAN Deployment Services

Next Steps

Empowered by Cisco Services and Cisco Unified Wireless Networking, Banner has the confidence to deploy new wireless technologies like the 802.11n standard for even greater performance and functionality. It also will pilot Cisco's innovative CleanAir technology to render its Cisco Unified Wireless Networks self-healing and self-optimizing.

"As wireless plays an ever increasing role in healthcare delivery, Cisco Services has enabled our network staff to reliably harness Banner's powerful Cisco infrastructure," concludes Pflugfelder. "Moreover, for the well being of our patients, caregivers, and Banner's bottom line, we're using Cisco Services for networking projects beyond just wireless. By partnering with the best in the business, and gaining deep access to the support and mindshare of Cisco's finest, we can accelerate our time to service, optimize our existing infrastructure, and mitigate many of the risks of doing so. The Cisco Services advantage enables our group to deliver powerful, 'patient-grade communications' to an industry leading healthcare organization."

For More Information

To find out more about the Cisco Unified Wireless Network, go to: www.cisco.com/go/wireless.

To find out more about Cisco Services go to: www.cisco.com/go/services.

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