



CUSTOMER SUCCESS STORY

AT CAROLINAS HEALTHCARE SYSTEM, WIRELESS CONNECTIVITY IS JUST WHAT THE DOCTOR ORDERED

EXECUTIVE SUMMARY

CUSTOMER NAME

- Carolinas HealthCare System

INDUSTRY

- Health Care

BUSINESS CHALLENGE

- Increase clinician mobility and enhance voice and data communications
- Enhance clinician access to real-time information at the point of care
- Ensure that all mobility solutions are extremely secure and highly manageable

NETWORK SOLUTION

- Deploy campus wide Cisco wireless network and other technologies to create a state-of-the-art mobile environment

BUSINESS VALUE

- Allows caregivers to access timely patient information wherever they need it
- Improves communication and responsiveness
- Provides a secure, manageable solution that can be easily replicated at other sites
- Provides a flexible foundation for expanding capabilities and supporting new mobile applications in the future

Carolinas HealthCare System uses Cisco wireless solutions to help clinicians stay better connected, work more efficiently, and increase access to information.

BUSINESS CHALLENGE

Carolinas HealthCare System (CHS) is the largest healthcare system in the Carolinas, and one of the largest publicly owned systems in the United States. CHS owns, leases, and manages hospitals, nursing homes, physician practices, home health agencies, radiation therapy hospitals, managed care companies, and other healthcare-related operations, including more than 4300 licensed beds and approximately 25,300 employees.

As a national healthcare leader, CHS has long been at the forefront of using advanced clinical care technologies. The organization's IT staff stays informed on the latest healthcare technologies, and is always looking for new ways to improve care, enhance clinician efficiency, and reduce costs.

CHS recently began plans to deploy a new suite of electronic clinical applications to automate many previously manual clinical processes, reduce paperwork, and bring more clinical tools and information to the point of care. The CHS IT team believed that the best way to make the most of the new applications was to make them available anywhere on hospital campuses over a secure wireless network. CHS had previously deployed a Cisco® wireless network at one hospital, and used several small wireless applications at some of its facilities. But IT leaders believed it was time to expand those capabilities throughout the healthcare system.

“Our patient caregivers and support staff are, by nature, extremely mobile,” says Craig Richardville, Vice-President of Information Services, CHS. “We wanted to be able to follow their workflow and give them access to up-to-the-minute information in our frequently changing environment. So, as we began plans for more digital applications, expanding our wireless deployment was the logical next step.”

Richardville believed that the new wireless infrastructure would have a dramatic impact on the way physicians practiced medicine. Doctors already used handheld personal digital assistants (PDAs) to review patient data and lab results when making their rounds. But they relied on “synching” the PDAs—downloading and uploading information—at docking stations. A secure wireless network could unleash the full potential of the hospital's clinical applications and give physicians access to a more comprehensive view of patients at all times.

Richardville recognized that to make this vision a reality, the wireless solution would need to be built upon a flexible, highly manageable, and extremely secure network infrastructure.

NETWORK SOLUTION

Richardville and the IT team decided to begin the wireless expansion at CHS's flagship hospital, the 777-bed Carolinas Medical Center, also known as CMC-Main. Richardville wanted to use CMC-Main as the initial test case for the new campus wide wireless solution, and then expand the deployment to other facilities once it proved successful.

CHS deployed a new network infrastructure to support the wireless network and integrate with CMC-Main's existing wired LAN, which was built entirely with network routers, switches, and security solutions from Cisco Systems®. Based on the success of the previous Cisco wireless installation and CHS's longstanding positive relationship with Cisco, the CHS executive team chose to build the new solution around Cisco wireless technology.

"We felt that Cisco was not only a current leader, but would continue to provide leadership in wireless and security technologies long into the future," says Richardville.

"As we find new solutions to enhance workflow and improve care, it becomes more advantageous to have these wireless capabilities. I'm confident that with the infrastructure we've put in place and our relationship with Cisco, we'll be able to go as far as our creativity and innovation can take us."

—Craig Richardville, Vice-President of Information Services, Carolinas HealthCare System

Building the Solution

To support the CMC-Main wireless network, CHS deployed redundant core Cisco Catalyst® 6500 Series switches with Supervisor Engine 720 modules. Outfitted with the high-performance supervisor engines, the switches deliver accelerated routing and forwarding services and a 720-Gbps backplane switching performance. Cisco Catalyst 4500 Series switches with redundant Supervisor Engine IV modules and Cisco Catalyst 3550 Series switches with inline power connect 276 Cisco Aironet® 1200 Series wireless access points across the hospital campus.

CHS also deployed the CiscoWorks Wireless LAN Solution Engine (WLSE) to provide the enhanced manageability and ease of deployment that such a large wireless network demanded. It allows IT staff to perform global configuration changes to Cisco Aironet access points, create user groups, and customize any segment of the wireless LAN for the unique needs of that area—essential for a dynamic hospital environment. The CiscoWorks WLSE integrates easily into CHS's other network management tools, providing a single, centralized interface for managing the entire network.

"The CiscoWorks WLSE allows us a great deal of customization in how we approach our enterprise," says Jerry Strout, network systems supervisor for CHS. "It's a very powerful tool."

To further enhance manageability, CHS is also planning to deploy dual Cisco Catalyst 6500 Series wireless LAN services modules (WLSMs).

"With a WLSM, you can have more than 300 access points in a single wireless domain," says Russell Browning, network systems supervisor, CHS. "It eliminates the need to do a lot of manual tunneling and routing, and more importantly, it will allow us to have smooth Layer 3 roaming, which allows us to support wireless voice services as well as data."

The CHS IT team also decided to pilot a wireless Cisco IP Communications solution in CMC-Main's respiratory therapy department, initially providing caregivers with 24 Cisco Wireless IP Phone 7920 devices. Once the pilot proved successful, CHS expanded the deployment, and now has 80 wireless IP phones deployed throughout CMC-Main.

Working closely with Cisco, the CHS IT team began conducting site surveys in April 2004, and began the deployment in May 2004. The entire project—from conception, to budget approvals, to implementation, to live production—was completed in less than six months.

“Cisco supported us through the entire planning and implementation process very well,” says John Gilbert, project manager for Information Services. “We had their attention throughout the process, and we were able to work through issues much more quickly having the power of the Cisco engineering teams behind us.”

BUSINESS VALUE

Working with Cisco, the CHS IT team was able to realize its vision of a state-of-the-art, fully wireless campus. Today, the CMC-Main wireless network covers all 11 floors of the main hospital building and roughly 1.5 million square feet. Physicians can now receive lab results, transcriptions, historical clinical data, and real-time patient information wherever they are on campus, directly on their PDAs or through other wireless devices. By connecting with the CHS portal from their handheld devices, physicians can access appointment scheduling and rounding lists, and even send and receive e-mail.

The wireless IP Communications pilot has also been extremely successful, and plans are now underway to expand the deployment to other parts of the CHS care network.

“We are successfully piloting the wireless phones in different areas,” says Nancy Hoover, network systems senior. “The initial response has been very favorable. Caregivers appreciate being able to directly access someone who is mobile, and not have to send a page and wait for a return call. It is a time saver, and it has made these areas more efficient.”

“The Cisco wireless IP phones themselves are feature-rich, state-of-the-art, and much easier to use than some other systems we evaluated,” adds Hoover. “They also integrated easily with our existing voicemail and five-digit dialing systems.”

A Secure, Scalable Solution

The wireless data and voice solution has proven to be extremely manageable, thanks to the Cisco wireless management solutions, and the ease of integration with CHS’s Cisco management infrastructure.

“As you become more mobile and your resources become more dispersed, you need to be able to manage those resources from a central location,” says Richardville. “The tools from Cisco really assist us in managing this environment cost-effectively, and in providing the level of service our staff and patients expect.”

Most importantly, Richardville believes that even though patient information is much more accessible, it is just as secure as it always was—or even more secure.

“We have a level of trust among our patients that their information will be protected,” says Richardville. “With Cisco, we’re confident that we have a solid, safe, and secure technology foundation.”

NEXT STEPS

Based on the success of the CMC-Main deployment, CHS has begun expanding wireless services throughout the enterprise. Today, the organization has more than 25 wireless networks in place, with the remaining facilities slated to be outfitted with wireless in the coming months.

CHS has also begun exploring a variety of new initiatives that will take full advantage of the new wireless capabilities. Currently, the organization is piloting a mobile clinical registration solution. Eventually, new patients will not have to wait at a registration desk to check in, but will be registered directly at the bedside by hospital employees using wireless laptops on mobile carts.

CHS is also exploring radio frequency identification (RFID) systems that will use wireless tags to track tens of thousands of mobile clinical devices or any other items throughout the hospital campus. With the robust Cisco wireless infrastructure in place, CHS IT leaders are confident that they can support all of these solutions.

“We continue to optimize this investment and take advantage of its potential,” says Richardville. “As we find new solutions to enhance workflow and improve care, it becomes more advantageous to have these wireless capabilities. I’m confident that with the infrastructure we’ve put in place and our relationship with Cisco, we’ll be able to go as far as our creativity and innovation can take us.”

FOR MORE INFORMATION

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