

Award-winning Hospital Steps Up Mobile Innovation

Central DuPage Hospital deploys Cisco Unified Wireless Network to support hospital-wide mobile services for patient care.

EXECUTIVE SUMMARY

CENTRAL DUPAGE HOSPITAL

- Healthcare
- Winfield, IL
- 4400 employees

BUSINESS CHALLENGE

- Improve wireless network management to enable easier, faster deployment and maintenance of mobile applications
- Support the fast-paced growth of mobile healthcare services throughout the hospital to improve patient care
- Maximize wireless network reliability

NETWORK SOLUTION

- Unified wireless network with controller-based architecture to simplify network administration and provide maximum scalability and reliability
- Cisco Advanced Services to evaluate, plan, design, and implement the migration project

BUSINESS RESULTS

- Simplified network management, resulting in significant time savings, streamlined work processes, and improved system performance
- Smooth deployment of a completely integrated, scalable wireless network that supports mobile applications and devices from multiple vendors
- Improved hospital communications, employee productivity, and patient care through hospital-wide Wi-Fi connectivity

Business Challenge

Founded in 1964, Central DuPage Hospital (CDH) provides comprehensive medical and surgical healthcare services to Chicago's western suburbs. Rated as one of America's top 100 hospitals by Thomson Reuters in 2007, this award-winning hospital has been recognized by leading press and healthcare organizations for its clinical excellence, outstanding patient care, and technology leadership. For four of the last five years, *Hospital and Health Networks Magazine* and the American Hospital Association ranked CDH as one of the nation's "Most Wired, Most Wireless" hospitals for using information technology to achieve clinical and operational excellence.

CDH initially deployed Cisco® switches and routers ten years ago. The hospital then adopted Cisco's Unified Communications and wireless networks to develop an advanced end-to-end infrastructure that could support its ambitious technology initiatives. Within the last five years, wireless services became pervasive in every building throughout the hospital's main campus, convenience care centers, and physician facilities. "As we began to deploy more and

more wireless applications, the scalability and manageability of the wireless network became critical," says Glen Malan, director of IT Infrastructure and Web Systems at CDH. "With three IT people in charge of the network, we needed an easier, faster way to deploy new applications, while maintaining maximum network reliability and simplifying maintenance."

"We credit Cisco with helping us deliver on our vision to provide the highest quality patient care through the most innovative technology."

—Dave Printz, CIO

Solution

In 2007, CDH called Cisco to evaluate the architecture of its existing wireless network, given the hospital's numerous wireless applications and future growth plans. "Because of Cisco's dedication to service and support, we didn't even consider any other products. We knew that migrating to the Cisco Unified Wireless Network would give us the scalability we needed, and that the Cisco team would make the deployment run smoothly," says Malan. Cisco Advanced Services and Structured Communications, a Cisco Partner, collaborated closely on planning, designing, and implementing the network upgrade.

The team implemented a controller-based architecture consisting of eight Cisco Catalyst® 6500 Series Wireless Service Modules and 400 Cisco Aironet® 1242AG Series access points that were then upgraded to the Cisco Aironet 1252AG Series. The older Aironet 1242AG access points were moved to the hospital's remote sites. According to Malan, "With the new centralized architecture, policies and upgrades are pushed out to all access points from the wireless controller at one time, and new access points automatically self-configure, simplifying network administration and scalability."

As a result, the Cisco Unified Wireless Network now enables the smooth performance and management of myriad mobile services throughout the hospital. Nurses carry Cisco Wireless IP 7921 phones to communicate with patients, monitor their conditions, and update medical machines remotely. In the cardiac emergency unit, for instance, nurses monitor patients' heartbeats from wherever they are working. "Our Philips telemetry system alerts the Emergin cardiac monitoring engine, which sends a text message with the electrocardiogram information to the nurse's phone," says Malan.

The wireless network enables higher accuracy, convenience, and safety of patient care. Clinicians have instant access to electronic medical records through wireless laptops and computers on wheels, and wireless X-ray machines keep patients in the comfort of their rooms. Handheld scanners also enable easy access to patient data and medication. Because all patients have bar codes, clinicians retrieve and update clinical records instantly by scanning the codes. For highly contagious patients, the scanner is placed inside an infection control bag, protecting clinicians and minimizing the spread of infection. According to Jack King, the hospital's IT infrastructure manager, "The Cisco Wireless Network has increased hospital-wide communication, resulting in greater patient safety and employee satisfaction."

Mobile applications are also in place to maximize hospital productivity. Hospital staff use Lawson handheld scanners to move and track inventory as it is received on the loading docks. And Tug robots deliver food trays from the cafeteria to a hostess on each floor, reducing nurses' general service duties and enabling them to spend more time caring for patients.

CDH relies on the wireless network to improve the experience for patients' families and visitors as well. The hospital provides free wireless guest access services and lends visitors wireless IP phones so they can remain apprised of their patients' conditions from wherever they are in the hospital. "The network enables our patients' families to take much-needed breaks without having to go all the way home or to work. They can go to the cafeteria for a bite or check email and still be in touch," says Malan.

Results

The Cisco Unified Wireless Network simplified network management for CDH, resulting in significant time savings, streamlined work processes, and improved system performance. In the past, the IT team had to position the standalone access points strategically to try to minimize manual labor and network downtime. Malan says, “If we introduced a new mobile application, we had to pull the access points down from the ceiling manually, get an electrician to work on the cabling, and ensure that patients remained secure. Sometimes, roaming between access points would be affected. Now, any changes are rolled out automatically from the controller, and the reliability of the network is consistently high.”

Cisco’s support services and extensive partner network helped ensure the smooth deployment of a completely integrated wireless network that can support mobile applications and devices from multiple vendors. “During the migration project, the Cisco team practically lived on campus with us. No other company stands behind its products like Cisco does,” says Malan. Currently, the network supports McKesson and EPIC clinical applications, as well as numerous types of medical machines and wireless devices. “The fact that Intel is part of Cisco’s Compatible Extensions Program, for instance, reassured us that the IBM ThinkPads that we were using were going to be completely interoperable with the Cisco network,” he says.

The Cisco Unified Wireless Network continues to play a significant role in helping CDH achieve excellence in hospital communications, productivity, and patient care, which are the reasons for CDH’s industry-wide recognition. “Over the past ten years, Cisco has played a crucial role in helping us become innovative healthcare leaders,” says Dave Printz, CIO of CDH. Now, complete Wi-Fi connectivity extends that innovation to all areas of the hospital. “Our nurses respond more quickly and effectively to patient needs, patient records are more accurate, our hospital staff is more productive, and patient and visitor experiences have been enhanced,” says Debra O’Donnell, RN, the hospital’s CNO. Printz adds, “We credit Cisco with helping us deliver on our vision to provide the highest quality patient care through the most innovative technology.”

The Cisco Unified Wireless Network now supports the hospital’s fast-paced growth plans well into the future. Today, CDH has more than 500 wireless IP phones in place and is already working on

deploying 802.11n. “We now have the proper architecture in place to support all of our mobile applications today and to scale easily without worry,” says Malan.

Next Steps

CDH has many future plans for the Cisco Unified Wireless Network. The hospital is in the process of evaluating the Rauland Borg Nurse Call system to further improve communications and location-based services to track equipment remotely. The 802.11n network is already in the design stage. “We’ll need the expanded bandwidth of the 802.11n network to support heavy imaging files, such as CAT Scans.” CDH looks forward to its continued working relationship with Cisco. “The Cisco Unified Wireless Network will grow as far as our imaginations will take us,” says Printz.

PRODUCT LIST

Wireless

- Cisco Catalyst 6500 Series Wireless Service Modules
- Cisco Aironet 1252AG Series Access Points
- Cisco Aironet 1242AG Series Access Points
- Cisco Wireless Control System

Voice over Wi-Fi

- Cisco Wireless IP Phones 7921

Voice and IP Communications

- Cisco IP 7900 Phones
- Cisco Unified Communications Manager
- Unified Contact Center Express
- Unity Voice Mail

Routing and Switching

- Cisco Catalyst 6500 Series Switches
- Cisco MDS 9500 Multilayer SAN Director

Security and VPN

- Cisco ASA Series Adaptive Security Appliances

For More Information

To find out more about the Cisco Unified Wireless Network and 802.11n technology, visit <http://www.cisco.com/go/nextgen-wireless>.

To find out more about Central DuPage Hospital, visit <http://www.cdh.org>.



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