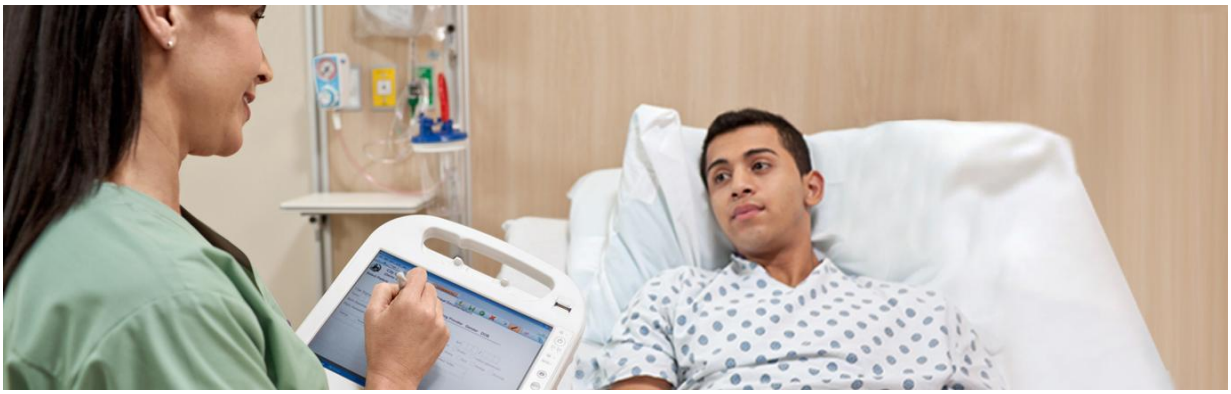
Hospital Delivers Nonstop Network Availability



Children's Mercy Hospital uses Cisco CleanAir technology to rapidly isolate radio interference in "noisy" environment.

EXECUTIVE SUMMARY

- **Customer Name:** Children's Mercy Hospitals and Clinics
- **Industry:** Healthcare
- **Location:** Kansas City, Missouri, United States
- **Organization Size:** More than 5000 employees and medical staff

BUSINESS IMPACT

- Isolates interference anywhere on campus, helping improve overall patient care
- Enables faster response to patients

Business Challenge

Children's Mercy Hospitals and Clinics - One of the leading children's hospitals in the United States - provides comprehensive medical care for infants and children throughout the Midwest. As part of its commitment to deliver the most advanced and highest-quality care, Children's Mercy relies heavily on a Cisco® Unified Wireless Network. Physicians place orders and prescriptions wirelessly at the bedside, speeding treatment and reducing errors. Clinicians also use wireless IP phones throughout the campus and a nurse call system based on wireless hands-free communications badges.

Children's Mercy Hospital needs its wireless network to provide high availability and extensive coverage. Delivering that level of service, however, can be challenging. As in any large hospital, the Children's Mercy campus has many potential sources of interference, especially in the 2.4- GHz frequency band where the nurse call system operates.

To address this challenge, the Children's Mercy network team needs powerful tools to manage and monitor the Cisco wireless environment. They need a clear sense of where and when problems occur, and the ability to remotely isolate interference as it occurs.

Solution and Results

Children's Mercy Hospital uses a Cisco wireless network encompassing more than 500 Cisco Aironet® access points, Cisco wireless controllers, and the Cisco Wireless Control System (WCS) management platform.

> "Cisco CleanAir allowed us to isolate wireless interference in ways that were not possible with our previous troubleshooting toolset."
> **— Rick Tyrell, Network Systems Engineer, Children's Mercy Hospitals and Clinics**

"When you are supporting an emergency department and other critical areas, you need that network to be available 24/7," says Rick Tyrell, network systems engineer with Children's Mercy Hospital. "We are very confident relying on Cisco for our entire network backbone. The performance and availability, and the level of support we get whenever we have a problem or need new solutions, are excellent."

Children's Mercy Hospital uses Cisco Aironet 1250 Series 802.11n access points in both the 2.4- GHz and 5-GHz frequency bands throughout the campus to enable high-performance wireless services. To provide the in-depth visibility that the complex hospital environment demands, Children's Mercy Hospital also uses Cisco CleanAir technology, powered by Cisco Aironet 3500 Series Access Points and the Cisco 3300 Series Mobility Services Engine.

Cisco CleanAir provides a powerful suite of tools to improve air quality in "noisy" wireless environments, allowing Children's Mercy Hospital network specialists to detect radio interference that other systems cannot see, and locate interference sources on a site-specific floor plan.

"I've relied heavily on the network monitoring and forensic capabilities of Cisco CleanAir in our critical areas, especially the intensive care units," says Tyrell. "I've been able to identify specific microwave ovens and Bluetooth radios causing interference. I could pinpoint exactly where they were located and how they were affecting the air quality, and then make recommendations to address these problems."

Cisco CleanAir also helped solve a particularly vexing interference mystery in one area of the hospital that suffered from periodic, unexplained wireless outages. Tyrell spoke with the IT team from a hospital located across the street and found they were experiencing the same problem, and had all but given up on finding a solution. He suspected interference, but could not readily identify the source.

"I had tried to analyze the spectrum previously but couldn't tell what was going on," says Tyrell. "I knew this would be a perfect opportunity to use Cisco CleanAir."

Combining Cisco Aironet 3500 Series Access Points in monitor mode with the forensic tools in the Cisco Mobility Services Engine and Cisco WCS, Tyrell isolated the issue: strange, brief bursts of interference that occurred at all hours of the day and night.

"I could see a transmission affecting basically all channels, with a 100 percent duty cycle," says Tyrell. "I had never seen anything like it before."

He noticed a bus stop on the street outside the department, and suspected that could be the source. By comparing the timestamp and characteristics of the interference from the CleanAir analysis with the bus schedule, Tyrell found he was right: Buses were using wireless radio transmissions to communicate with traffic signals when they were running late, and overwhelming both hospitals' wireless networks.

“Cisco CleanAir allowed us to isolate wireless interference in ways that were not possible with our previous troubleshooting toolset,” he says. “The monitoring, timestamp, and forensic analysis capabilities helped me focus my efforts to quickly get to the root of this problem.”

Based on the success with Cisco CleanAir, Children’s Mercy plans to continue expanding the use of Cisco 3500 Series access points throughout the campus. Eventually, the solution will enable a “self-healing” wireless network that can automatically optimize coverage around interference.

Children’s Mercy uses other Cisco tools to enhance wireless services, including standalone Cisco wireless controllers in the unsecured network area, segregated from the hospital network, to provide secure guest Internet access to visitors. Children’s uses Cisco Mobility Services Engine location services to wirelessly track computers and medical equipment across the campus. The hospital also uses Cisco ClientLink technology in the Aironet access points to optimize the performance of older 802.11a and 802.11g wireless clients.

“The Cisco wireless network gives us the coverage and performance we need, and allows us to spend less time troubleshooting problems,” says Tyrell. “We can enable communications everywhere on campus and faster response to patients.”

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