



Mobilizing Hospitals for Superior Patient Healthcare

Executive Summary

Customer Name

Intermountain Healthcare

- Salt Lake City, Utah, United States
- 26,000 employees

Industry

Healthcare

Business Challenge

- Support pervasive wireless connectivity for multiple healthcare devices and applications.
- Deliver robust wireless security to conform with regulatory requirements.
- Ease network management to help improve IT staff efficiency.

Network Solution

- Cisco Aironet 1200 Series access points deliver secure wireless connectivity to medical devices.
- Cisco 4400 Wireless LAN Controllers provide systemwide wireless LAN functions, such as security policies, quality of service (QoS), and mobility and Radio Resource Management.
- Cisco Wireless Control System (WCS) which includes tools for wireless LAN planning and design, RF management, location tracking, Intrusion Prevention System (IPS), and wireless LAN systems configuration, monitoring, and management.

Business Results

- Intelligent, centralized management of wireless applications and devices reduces administrative workload.
- Enterprisewide security policies enhance protection throughout the network.
- Layer 3 roaming improves mobility and performance for real-time applications such as voice.

Intermountain Healthcare depends on the Cisco Clinical Connection Suite to deliver the mobility and manageability needed for critical healthcare applications.

Business Challenge

Intermountain Healthcare is a nonprofit healthcare system serving the needs of Utah and southeastern Idaho residents, providing high-quality clinical care at affordable rates. Established in 1975, Intermountain Healthcare has grown to 150 healthcare facilities, including 26 hospitals in Utah and one hospital in Idaho. The organization has been named the nation's top integrated healthcare system for the fifth time in the last six years by *Modern Healthcare* magazine and Verispan, a health information company.

The Cisco® Clinical Connection Suite plays a vital role in enabling Intermountain Healthcare to deliver superior care to its patients by allowing mobile patient monitoring and patient information. Many of Intermountain Healthcare's most important medical and business processes rely on its wireless network, including voice applications, patient records, and materials and inventory systems.

In 2005, Intermountain Healthcare decided to add medical infusion pumps to its array of wireless devices. To help ensure accurate delivery of medication to patients, these pumps require constant monitoring. Traditionally, Intermountain Healthcare would simply plug the pumps into a wall or use infrared technology to monitor activity and drug dosages. However, if patients disconnected to visit the restroom or walk around the hospital, they would lose connectivity to the network-monitoring system. The Intermountain Healthcare clinical technology team contacted the IT department and requested support for wireless mobility for infusion pumps.

"The number of infusion pumps would be large – up to 50 pumps in a 50-foot radius," says Ty Bindrup, enterprise network planner at Intermountain Healthcare. "In order to support that many pumps in that area, we needed our wireless network to provide greater visibility and better manageability."

The new wireless solution would have to support not just the pumps but Intermountain Healthcare's other wireless applications as well. The solution would have to provide a unique combination of manageability, security, and intelligence required by critical healthcare applications. And it would need to integrate smoothly into the organization's existing network.

Network Solution

After evaluating several options, Intermountain Healthcare chose the Cisco Unified Wireless Network that is based on Cisco wireless LAN controllers and delivers centralized control, operations and management. Lightweight Access Point Protocol (LWAPP) technology, along with LAN (WLAN) controllers, create and enforce policies across a large number of access points. By centralizing intelligence within the WLAN controllers, security, mobility, QoS, and RF functions can be efficiently managed across an entire organization.

Intermountain Healthcare chose the Cisco Unified Wireless Solution because of the company's support for a centralized wireless LAN solution and because of its own long-term relationship with Cisco.

"Historically, we have had a strong partnership with Cisco; they provide us with great service and support, as well as excellent products," says Bindrup. "We have had a good track record with Cisco, and our trust has grown over the years."

Intermountain Healthcare had previously deployed autonomous Cisco Aironet® access points (access points that operate without a controller). To achieve all of the benefits of a centralized, unified wireless network, Intermountain Healthcare field-upgraded these access points to operate with LWAPP, and deployed two Cisco wireless LAN controllers. The improved visibility provided by the Cisco Unified Wireless Network lets Intermountain Healthcare closely track its infusion pumps and other wireless medical devices.

"The wireless pump solution lets us monitor patients and determine how much dosage they are receiving in real time," states Bindrup.

To ease network management, the Cisco solution also provides dynamic, systemwide radio frequency control, including a variety of features for smooth wireless operations.

"We have 26,000 employees, and that is a lot to keep track of when you are thinking about doing an 802.11 wireless deployment," says Bindrup. "Our Cisco wireless solution lets us centralize management, which is a tremendous advantage."

Intermountain Healthcare is also using the Cisco Wireless Control System (WCS) to visually track its mobile devices and their activity at its facilities. To conform to the Health Insurance Portability and Accountability Act (HIPAA), the organization needs the ability to track where and when patient records are accessed or revised.

Robust security is another key regulatory requirement for all healthcare providers. With Cisco Unified Wireless Network, Intermountain Healthcare can support WPA2 and 802.11i, the highest standard for wireless security, which is more secure than the static Wired Equivalent Privacy and MAC authentication methods utilized in the past.

The Cisco Unified Wireless Network also improves the performance of Intermountain Healthcare's wireless applications by providing support for Layer 3 roaming for real-time, mobile applications like voice over IP (VoIP). Intermountain Healthcare uses VoIP for its wireless Vocera Communications System, which enables instant two-way voice conversations within hospitals.

"We utilize Vocera badges in highly concentrated emergency areas where information needs to pass from doctor to nurse to the lab very quickly, to provide better care to the patient," says Bindrup. "A nurse monitoring a patient can contact the doctor on the Vocera badge, and instantly alert him or her about any change in status."

The improved visibility provided by the Cisco Unified Wireless Network also enables the IT staff to accurately track changes in the wireless environment, to help maximize the coverage and reliability of the Vocera system.

Business Results

Intermountain Healthcare has begun to take advantage of its new management tools to streamline network administration. In the past, if administrators wanted to make a network change or support a new application, they would have to take time to reconfigure each wireless access point. Some Intermountain Healthcare facilities have more than 100 access points, so global network changes could be time-consuming and cumbersome.

“With Cisco Wireless Control System, which offers centralized management, we can make changes at the administrative console, and then propagate them out to all the access points within a matter of minutes,” says Bindrup. “It saves us a lot of time on command and control of our network. That time can then be spent on other valuable projects.”

Cisco WCS provided Intermountain Healthcare a powerful foundation that allowed their IT managers to design, control, and monitor enterprise wireless networks from a centralized location, simplifying operations, reducing the total cost of ownership, and helping ensure that sensitive healthcare data is not compromised by unauthorized, unsecured access points.

“The system will alert us if a rogue access point is detected in an area,” says Bindrup. “With our Cisco WCS, I can find out where the rogue is located, then go out and investigate it

By improving the reliability and performance of its wireless applications, Intermountain Healthcare also expects to deliver better patient care. For example, using the Vocera badges, a doctor can contact a lab regarding a patient’s medical test, and receive an immediate response from a technician as soon as results are available.

“Vocera saves caregivers minutes, maybe even hours of time, which can make all the difference in a medical emergency,” says Bindrup.

Intermountain Healthcare is even using its Cisco Unified Wireless Network to make its materials management tracking operations more efficient.

“Each of our hospitals goes through a massive amount of medical supplies, from bandages to medication, needles, and everything in between,” says Bindrup. “We use a modified personal digital assistant (PDA) to scan barcodes on each of the materials that we use, and transmit the information to our supply database. It gives us a detailed view of how much we are consuming at a facility, and which supplies we need to order or have ready.”

“We have 26,000 employees, and that is a lot to keep track of when you are thinking about doing an 802.11 wireless deployment. Our Cisco wireless solution lets us centralize management, which is a tremendous advantage.”

– Ty Bindrup, enterprise network planner, Intermountain Healthcare Organization

Product List

Wireless Technology

- Cisco Aironet 1200 Series Access Points
- Cisco 4400 Wireless LAN Controllers
- Cisco Wireless Control System
- Cisco 2700 Location Tracking Appliance

Next Steps

Intermountain Healthcare is rapidly deploying the Cisco Unified Wireless Network to extend the benefits of the technology to all of its wireless applications. A new hospital is under construction that will feature ubiquitous wireless access delivered by more than 500 Cisco Aironet wireless access points. Staff will soon be able to take advantage of new mobile applications such as PDAs and tablet PCs to view and update patient records while on the move. Automated wireless signature devices are also on the horizon to enable physicians to obtain consent from patients, transmit their status into Intermountain Healthcare records system, and treat them more rapidly. With a secure, manageable wireless solution, Intermountain Healthcare IT staff can spend less time worrying about network management and more time focusing on improving patient care.



For More Information

To find out more about the Cisco Unified WirelessNetwork, visit: www.cisco.com/go/unifiedwireless.

To learn more about Cisco healthcare solutions, visit: www.cisco.com/go/healthcare.

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