

## Health System Increases Clinical Mobility to Improve Patient Care

MemorialCare Health System uses the Cisco Unified Wireless Network Solution to connect mobile clinicians to essential clinical systems.

EXECUTIVE SUMMARY
<p><b>MEMORIALCARE HEALTH SYSTEM</b></p> <ul style="list-style-type: none"> <li>• Healthcare</li> <li>• California, United States</li> <li>• 10,000 employees</li> </ul> <p><b>BUSINESS CHALLENGE</b></p> <ul style="list-style-type: none"> <li>• Extend clinical applications and information to mobile clinicians</li> <li>• Support new clinical information system with the utmost quality and reliability</li> <li>• Improve efficiency and productivity of administrative staff</li> </ul>
<p><b>NETWORK SOLUTION</b></p> <ul style="list-style-type: none"> <li>• Deployed secure, flexible wireless network to support clinical and administrative applications</li> </ul>
<p><b>BUSINESS RESULTS</b></p> <ul style="list-style-type: none"> <li>• Improved overall quality of care</li> <li>• Increased productivity of administrative staff</li> <li>• Built a highly flexible foundation for continually supporting new applications and services</li> </ul>

### Business Challenge

MemorialCare Health System, a nationally recognized nonprofit healthcare provider, operates five major medical centers in Los Angeles and Orange County, California. MemorialCare leaders have long recognized the important role that technology can play in a healthcare environment, and the health system has consistently been named among the “most wired hospitals in the United States” by *Hospitals & Health Networks* magazine.

As part of MemorialCare’s ongoing efforts to improve efficiency and quality in the health system, the organization was planning to deploy Epic, a state-of-the-art clinical information system.

“We wanted to provide our clinicians with digital tools to diagnose, prescribe, and document patient information throughout the clinical lifecycle,” says

Kevin Torres, vice president of information systems, MemorialCare. “We believed that these capabilities would reduce medication errors, streamline processes, and connect the entire continuum of care, allowing us to provide the highest quality and service to our patients.”

Although the planned Epic deployment held the potential to empower caregivers in many new ways, the new clinical tools would also place greater demands than ever before on hospital information systems. In particular, clinicians would need unprecedented mobility to be able to access patient records and clinical applications from anywhere in the hospitals, including at the bedside. That would require an extremely robust, highly secure, and pervasive wireless network.

MemorialCare leaders were planning to deploy an IP communications system at one of the hospitals, and Torres also wanted to extend the voice capabilities to the wireless network. Health system leaders envisioned a day when physicians could use wireless IP phones throughout any MemorialCare facility and nurses could be instantly connected to patients and other caregivers over a wireless nurse call system. Past wireless implementations in the health system, however, had been plagued by problems. MemorialCare’s previous wireless networks had been designed to support a small set of clinical applications, and as the health system’s needs had evolved, the network could not provide the coverage and reliability clinicians required.

"Wireless infrastructure was going to play a huge role in the Epic deployment, so we needed an infrastructure that was highly reliable," says Torres. "Quality of service was our number one priority. If we were going to tell our physicians to use the system, it needed to be dependable.

### Network Solution

Torres recognized early on in the planning process that the wireless network would hold the key to the success of the entire Epic rollout. For the new information system to deliver all of the expected benefits to patients and providers, MemorialCare would need a secure, reliable, and pervasive wireless network. After considering several wireless technology options, he chose the Cisco® Unified Wireless Network Solution. MemorialCare had long relied on a Cisco wired network and Cisco IP communications solutions, and his experience working with Cisco made the choice an easy one.

**"In my mind, Cisco is the standard when it comes to wireless.... They really understand the importance of the network in a healthcare environment."**

— Kevin Torres, Vice President of Information Systems, MemorialCare

"In my mind, Cisco is the standard when it comes to wireless," says Torres. "The depth of experience that Cisco has, the ability to deliver on quality of service, as well as the added value that comes from all of the other companies that they work with to develop solutions for healthcare providers all add up. They really understand the importance of the network in a healthcare environment."

Torres' positive experience with MemorialCare's Cisco wired network—and the ability to deploy new wireless capabilities as an extension of that network—also played an important role in the decision.

"The Cisco wireless solution gives us the ability to build on our LAN and WAN infrastructure and extend that quality to the wireless network," says Torres. "From monitoring, to operational continuity, to being able to engineer a system that fully integrates with our existing environment, Cisco is able to bring a total solution."

MemorialCare worked with Cisco Gold Partner DynTek to conduct a comprehensive site survey of the MemorialCare hospital environments and analyze how the solution would integrate with the existing infrastructure.

"DynTek set the mark for us in terms of making the wireless deployment a success," says Torres. "Having them do an in-depth study of our infrastructure was very important. The quality of service that we realize from the wireless network today is excellent, and that is directly related to the services DynTek provided to us."

With DynTek's assistance, MemorialCare deployed the Cisco Unified Wireless Network Solution at all of its hospitals as a pervasive wireless network foundation to support data and voice services. To simplify the deployment and ongoing administration of the hundreds of wireless access points in the network, MemorialCare used a controller-based architecture. Using a Cisco 4400 Series Wireless LAN Controller, IT staff at each hospital can configure, monitor, and manage all access points in the facility from a single, central location. Epic has been rolled out at one facility, Saddleback Memorial Medical Center, with the rest of the enterprise to be connected by 2009.

## Business Results

Today, the Cisco Unified Wireless Network Solution is transforming the way clinicians and staff work at Saddleback and throughout the MemorialCare Health System. Administrative staff can collaborate and communicate more efficiently, and even patients and visitors are benefiting from secure, ubiquitous network connectivity. Even more important, clinicians at Saddleback are already demonstrating that the new Epic system—and the ability to access it wherever it is needed—is improving the quality of patient care.

At Saddleback, physicians and nurses use roving clinical workstations—mobile carts with wireless-enabled PCs that allow caregivers to access clinical information systems wherever they need them. Clinicians can access patient records, update medical charts, verify prescriptions, and transmit physician orders right at the bedside or point of care.

“Our physicians and nurses are untethered now, and that maximizes their efficiency,” says Torres. “They no longer have to stay connected to a fixed workstation or continually go back and forth from the patient to the workstation. They can access the tools and information that they need directly at the point of care, without disruption.”

The wireless networks at Saddleback and the rest of the health system extend not only across clinical areas, however, but throughout business and administration offices as well, bringing the benefits of mobility to even non-clinical employees.

“All of our administrative staff use wireless today,” says Torres. “They have come to expect that if they go into any conference room, office, or public space in any of our locations, they can connect to the wireless network. They can access e-mail, collaborate, communicate, and work while they are traveling between sites. It has definitely made us more efficient.”

### PRODUCT LIST

#### Routing and Switching

- Cisco 2800 Series Integrated Services Router
- Cisco 7200 Series Router
- Cisco Catalyst® 6500 Series Switch
- Cisco Catalyst 3560 Series Switch
- Cisco Catalyst 4500 Series Switch

#### Security and VPN

- Cisco Access Control System

#### Voice and IP Communications

- Cisco Unified Communications Manager
- Cisco Unity
- Cisco 7900 Series IP Phones
- Cisco Unified Wireless IP Phone 7920 Series
- Cisco Unified Wireless IP Phone 7921 Series

#### Wireless

- Cisco 4400 Series Wireless LAN Controller
- Cisco Wireless Control System
- Cisco Aironet® 1240 Series Wireless Access Points
- Cisco Wireless Location Appliance

MemorialCare also took advantage of the guest access capabilities of the Cisco wireless solution to provide Internet connectivity to patients, visitors, and partners and vendors—without compromising the security or performance of clinical applications.

“We now have a public wireless hotspot at each of our facilities,” says Torres. “They run on separate networks, so we can provide these services securely. The guest wireless access has been very well received by our patients, but it also benefits partners visiting our sites from different consulting companies and regulatory agencies. It has helped in many areas.”

Unlike past wireless implementations, the MemorialCare wireless network today provides the pervasive, nonstop connectivity, simple management, and excellent quality of service required in a healthcare environment.

“Underneath everything that we do today is a solid, highly reliable infrastructure,” says Torres. “At the end of the day, our job comes down to getting information to the right people at the right time to

provide the highest-quality care. Our investment in this Cisco infrastructure is at the core of our ability to connect our clinicians anytime, anyplace throughout our organization.”

### Next Steps

MemorialCare plans to continue building on the wireless infrastructure to provide new capabilities. First on the agenda is taking advantage of the voice-over-Wi-Fi capabilities of the Cisco network. The health system is currently piloting a wireless nurse call system at Orange Coast Memorial Medical Center using Cisco wireless IP phones. The solution allows for instant two-way communication among nurses and physicians, and allows patients to immediately connect with their attending nurse. Eventually, Torres expects to extend the wireless nurse call system to all hospitals in the health system.

MemorialCare is also planning to deploy location services that will use the wireless network to track medical equipment throughout the hospital, allowing caregivers to immediately locate assets when they need them. MemorialCare also plans to integrate biomedical devices into the network, allowing heart monitors, electrocardiograph machines, and other critical monitoring systems to transmit patient data directly to the Epic system in real time.

“We are just at the tip of the iceberg right now,” says Torres. “As we begin to extend the network to new locations, applications, and devices, our wireless infrastructure is going to become even more essential to supporting the continuum of care. There are a lot of exciting possibilities, and I am confident that with Cisco behind us, our network will accommodate whatever we want to do.”

### For More Information

To find out more about the Cisco Unified Wireless Network Solution, visit:

<http://www.cisco.com/go/unifiedwireless>.

To find out more about Cisco Healthcare solutions, visit: <http://www.cisco.com/go/healthcare>.

To find out more about MemorialCare Health System, visit:

<http://www.memorialcare.org/about/core.cfm>.



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