



## CUSTOMER SUCCESS STORY

# LONDON HEALTH SCIENCES CENTRE AND ST. JOSEPH'S HEALTH CARE TRANSFORM RADIOLOGY AND IMAGING SERVICES WITH A CISCO MEDICAL-GRADE NETWORK

### EXECUTIVE SUMMARY

London Health Sciences Centre (LHSC)

#### INDUSTRY

Healthcare

#### BUSINESS CHALLENGE

- Create an eRadiology suite where images are stored and accessed online for easy access by caregivers at any time
- Reduce the number of rescheduled appointments and procedures due to inaccessible images
- Enable images to be accessed and interpreted at other Ontario hospitals by any radiologist
- Reduce the cost of processing and storing images
- Improve patient care and the patient experience by speeding the process of reading images and allowing radiologists to collaborate with each other on their findings for a quicker diagnosis
- Maximize radiologist productivity

#### NETWORK SOLUTION

A Cisco® Medical-Grade Network that provides the hospital with the resiliency, protection, and responsiveness required in a 24x7x365 hospital environment. The solution included SMARTnet® and Cisco Professional Services.

#### BUSINESS VALUE

- Radiologists can now securely view past and current images in conjunction with patient records to make the most accurate diagnoses and team effectively with primary care givers
- Extend radiology services across southwest Ontario to 41 other facilities to improve communication and collaboration
- Reduce costs associated with film production, storage, retrieval, and handling
- Eliminate the impact of misplaced films on the hospital's bottom line and on timeliness of patients' care

**Demand for advanced imaging services is quickly outpacing the supply of skilled radiologists. In Canada, the London Health Sciences Centre decided to meet the future on its own terms, deploying a Cisco Medical-Grade Network to extend its reach and increase productivity.**

#### BUSINESS CHALLENGE

The LHSC in Canada's Ontario province is one of the nation's largest teaching hospitals, with more than 600,000 outpatient and 130,000 emergency room visits annually. The Centre also partners with St. Joseph's Health Care to leverage resources and provide access to tertiary diagnostic imaging services for 1.5 million residents over 28,838 square kilometers through 41 community hospital sites. A wide range of imaging technologies—such as traditional X-rays, fluoroscopy, computer tomography (CAT scan), magnetic resonance imaging (MRI), ultrasound, and nuclear medicine—produce images that are interpreted by radiologists or nuclear medicine physicians. However as the population ages and demand for diagnostic imaging skyrockets, the pool of radiologists cannot keep up. In fact, 66 percent of hospital sites have limited radiologist coverage and the situation is becoming more challenging as many radiologists currently practicing expect to retire in the next few years.

At the same time, imaging technologies are evolving rapidly, allowing physicians to view hundreds of scans per study, instead of a handful. Now instead of 15–20 images per study, the typical MRI may yield 150–200 images, making traditional radiology films extremely cumbersome to use, store, transfer, and manage. And with multiple caregivers involved with each patient, only one person at a time could view the films, even though several physicians may need access to them. Historically, misplaced films have been a major challenge for imaging departments worldwide, with serious implications for the patient. For example, a patient may wait for months, or even a year, for a specialist appointment, and if his images cannot be found on that day, his appointment is canceled. If films required for a surgery are in the hands of another specialist that day, the surgery is cancelled. Re-doing films is costly and requires yet another appointment, which may be difficult or impossible for people living in rural areas who must travel long distances to the nearest imaging facility.

Bringing images together with physicians who need them was a key driver behind LHSC's decision to implement a Cisco Medical-grade Network. In addition, the network would simplify operations by converging data, images, and voice over a single network, and deliver a powerful tool for containing costs while simultaneously providing secure, responsive, highly secure application performance for all users.

"A Cisco Medical-grade Network is probably our most important tool," says Diane Beattie, integrated vice president of health information and CIO for the London hospitals. "It will allow us to share information across a large number of facilities, and it will do it securely and reliably, which is absolutely essential."



## NETWORK SOLUTION

The original network was designed as a cooperative effort between LHSC and St. Joseph's Hospital of London as a point-to-point network with multiple points of redundancy for maximum availability. As locations were added and demands on the network increased, it became clear that the hospital would soon require more capabilities than just added bandwidth.

"While the existing network had been a solid infrastructure, we were looking at future needs, such as IP telephony, high scalability, and wireless capabilities," said Peter Gilbert, Director of Information Technology Services for the London Hospitals. "We needed to build a highly scalable infrastructure that would enable us to add new applications without re-architecting the entire network. It needed to allow users to pull up to any workstation anywhere in the hospital and perform their duties. And because downtime is not an option, we needed immediate fail-over. Another critical design principle was standardizing on a technology to minimize management requirements because we have a minimal support staff."

The hospital also uses its robust Medical-Grade Network to extend Cisco IP Telephony (IPT) and wireless solutions to its newly constructed data centre—making them the Centres' first "all-IP" buildings. Thanks to the network, telephony costs are expected to drop. Gilbert's group is already experiencing fewer adds, moves, and changes in the data center. More than 17,000 workstations and telephone sets are connected to the network within the London hospital system. As they are migrated to the IP network over time, the hospital will eliminate the costs of PBX maintenance agreements and upgrades and be able to focus on delivering even more services directly to users' telephone sets. Adding wireless solutions enables users to stay connected anywhere in the building.

The Cisco Medical-Grade Network provides access to hundreds of applications used by clinical and administrative staff. Because of the new network, LHSC was able to improve performance and expand its GE Picture Archive Communication System (PACS), which resides on an HP storage area network. Cerner PowerChart, the hospital's Health Information System, provides the user interface to the GE PACS for internal users and for physicians' access over a VPN. Now caregivers can review cases and pull specific images from any workstation that connects to the application.

## BUSINESS VALUE

According to Dr. Donald Taves, Chief of Radiology at St. Joseph's Health Care, a connected network is the basis of the new imaging department. Now when images are taken, they are immediately available for the diagnosing physician to see. Within minutes, the images are linked with his report and associated with the patient's file. At the same time, they are available to the doctors and other caregivers involved with the patient—whether in the Emergency Department, in surgery, in the family practitioner's office or in the patient's community hospital.

“There's no doubt that the network is already successful,” says Taves. “Our radiologists’ productivity is at a level we’ve never experienced before. It’s a transformational improvement in the way we can address patient care.”

The new network tremendously simplifies image handling as well. The sheer volume of films produced from imaging equipment was costly in terms of film, and it was impractical for radiologists or nuclear medicine physicians to look at the huge number of images on film. Now that the images can be stored digitally, film costs are greatly reduced and radiologists can review images much more quickly and accurately. In addition, being able to see images when needed eliminates the need for valuable staff to take time away from patient care to track down stacks of film.

Adds Kathy Wilkins, Director of Diagnostic Imaging at St. Joseph’s Health Care, “Our referring physicians now have a secure, reliable way to review images in the clinic or in the operating room. A physician will be able to access PowerChart and see all of the diagnostic procedures and results for their patient. They can click and view specific images associated with reports. The physicians are absolutely ecstatic.”

“Our Cisco Medical-Grade Network allows us to provide an even higher level of service with the same number of people,” says Gilbert, “and that means reduced costs. Standardizing on a single converged network has allowed us to spend more time developing new applications that support the medical community.”

The London hospitals’ data center is the campus’ first complete wireless environment, enabling IT staff to stay connected wherever they are in the building. Wireless capabilities are also deployed in conference and meeting rooms, enabling users who are mobile within the campus to conveniently check e-mail, schedules, take notes, and deliver online presentations. As a result, meeting attendees can produce documents on demand, rather than having to print reams of material ahead of time and carry it to meetings.

The network’s capabilities extend well beyond LHSC and St. Joseph’s in London as well. The hospitals participate in a regional telemedicine project called Videocare, which extends LHSC and SJHC’s clinical capabilities to community and rural hospitals. It will enable patients across southwestern Ontario to have access to pediatric, orthopedic, ophthalmologic, and other specialists—saving patients the time and costs associated with long drives to the main hospital.

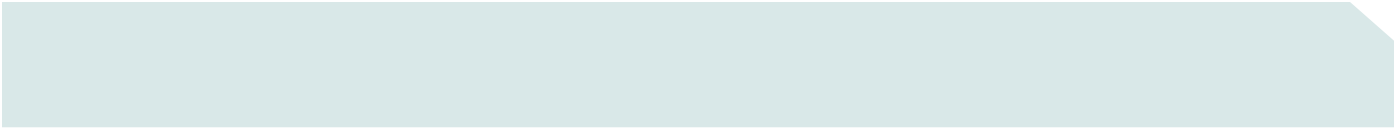
**“We have put the right infrastructure in place to ensure our radiology and diagnostic imaging is second to none,” says Beattie. “This has also enabled us to leverage a number of other significant opportunities across our hospitals.”**

—Diane Beattie, Integrated Vice President of Health Information and the Chief Information Officer, London Health Sciences Centre

## NEXT STEPS

The London hospitals are meeting the future on their own terms. Remote specialists can already consult with patients via videoconferencing. The radiology team looks forward to enabling physicians to securely view images from remote sites or home—with complete confidentiality and privacy—without having to drive to the Health Center. A referring physician in a remote clinic can consult with the radiologist and both view the patient’s images simultaneously. The network will also soon enable new applications such as tele-surgery through Canadian Surgical Technologies & Advanced Robotics, the Centre’s research division.

“The Cisco Medical-Grade Network that we’ve built gives us the confidence that we can perform such delicate operations as tele-surgery on the infrastructure that we have built,” says Beattie. “We may need to introduce new components but we know that the architecture that we have built will support future needs—even things like tele-surgery.”



Many new applications are under development, such as Cisco Emergency Responder, a 911 application that will pop the caller's exact location on the operator's screen. An integrated Nurse Call application will deliver the calling patient's information to a handheld device with a nurse and open a two-way conversation between nurse and the patient. The hospital's warehouse environment will soon go wireless, enabling just-in-time inventory and ordering from the warehouse floor.

"We have put the right infrastructure in place to ensure our radiology and diagnostic imaging is second to none," says Beattie. "This has also enabled us to leverage a number of other significant opportunities across our hospitals."

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To find out more about London Health Sciences Centre, go to: <http://www.lhsc.on.ca>

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Cisco Systems, Inc.

DR/LW7069 10/04

Printed in the USA