Regional Healthcare Leader Optimizes WAN to Serve Patients, Clinicians

Wide Area Application Services solution helps enable EMRs for Sparrow Hospital and Health System

EXECUTIVE SUMMARY

Customer Name: Sparrow Hospital and Health System

Industry: Healthcare

Location: Headquartered in Lansing, Michigan, with affiliates and satellites throughout the mid-Michigan region

Number of employees: 7330

BUSINESS CHALLENGE

- Unify multiple regional care centers on electronic medical record system
- Help ensure speed and reliability of remote medical imaging delivery and other applications

NETWORK SOLUTION

- Deploy WAN optimization on data center and remote site routers

BUSINESS RESULTS

- Conversion of remote physician practices from paper-based to electronic medical records (EMRs)
- Improved patient care
- Enhanced physician productivity and expanded practices

Business Challenge

Sparrow Hospital and Health System is mid-Michigan's premier healthcare organization and the region's largest. Sparrow has two campuses in Lansing, Michigan, two additional wholly-owned subsidiary hospitals and an affiliate hospital in other regional cities, and dozens of satellite care centers and other affiliates, including nearby Michigan State University's three human health colleges.

In support of its mission to provide the finest care available to the hundreds of communities and hundreds of thousands of patients served each year, Sparrow embarked in 2007 on a transformation of its information technology. The initiative began with the overhauling of the organization's LANs, WAN, and data center. Comprising several Cisco switching and security solutions, a Cisco® Medical-Grade Network foundation was in place at Sparrow by the end of 2008. But that was the beginning, not the end, of the organization's IT transformation.

About that time, Tom Bres joined Sparrow as chief information officer, followed shortly by Patrick Hale as chief technology officer. Both were 20-year veterans in IT, both were new to the healthcare industry, and both found the Sparrow challenge irresistible.

“The idea of helping this institution adopt the same technologies I had worked with in other industries to improve the healthcare of families and neighbors and fellow citizens was compelling,” says Bres.

“When you work in a service organization,” says Hale, who resigned as CTO for the State of Michigan to join Sparrow, “you get a little addicted to the altruism. If I was going to leave my job with the state, I would only do it to come to another service organization. Sparrow was that organization.”

Both were impressed by the institution’s long-term commitment to a certain vision of excellence and the investment required to make it a reality. “Sparrow’s board and executive team share a common vision of using technology to transform patient care, and not just as a way of gaining ‘a competitive edge,’” says Bres. “The idea is to deliver the best care to every patient by having *all* the information needed at the *point* of care at the *time* of care, wherever and whenever that might be.”

Even with the network foundation in place, achieving those goals was a daunting challenge. Like many healthcare organizations, Sparrow was burdened with a legacy of heterogeneous applications in various departments and locations. “From the emergency room to radiology, from one facility to another, we had multiple systems, some connected or overlapping, some not,” says Bres.

“As a result,” says Hale, “the clinical staff’s confidence in the IT department was rather low, and understandably so. We had to fix the system and our image at the same time.”

Network Solution

Sparrow’s IT managers were confident that providing a fast and integrated flow of information to physicians and others would drive vast improvements in quality of care. With the network in place, the next step was to convert the organization from the paper-based patient charts still in use at Sparrow to electronic medical records (EMRs).

“EMRs were already in use and had demonstrated their value at many healthcare organizations,” says Bres. “But it was still a significant leap of faith for our doctors and others to make the transition. We had to earn their confidence that it would improve their practices, their lives, and the lives of their patients.”

> “We knew we would need robust, high-speed connectivity across the WAN, not only for EMRs and images, but for the numerous other applications and web-based services we use. WAN acceleration and optimization with WAAS was the solution, and it has worked great for us from the day we brought it online.”
> **— Tom Bres, Chief Information Officer, Sparrow Hospital and Health System**

Sparrow partnered with the leader in EMR solutions for mid-sized and large healthcare organizations, Wisconsin-based Epic. But the Sparrow IT managers decided on a phased approach to adopting EMRs systemwide, for a couple of reasons.

“At the time, Michigan was still in the grips of the recession, and people use medical services less during hard times,” says Bres. “So we needed to make our capital expenditures on the EMR system in stages.”

Together with Sparrow’s executives, the IT managers also decided to start not with the organization’s main campuses or hospitals, but with the organization’s widespread ambulatory service affiliates.

“Starting at the edge of the Sparrow care network, before working back to the center, was a bit counterintuitive,” says Hale. “But we saw it as a low-risk way to gain experience with Epic and our other software and see how it performed on our network. It increased our odds of success with the whole transition.”

The decision put immediate pressure on the WAN that would serve to distribute not only EMRs, but also the x-rays, MRIs, and other images that are part of so many patients’ records, between Sparrow’s data center and remote physician practices. The organization had in place a Picture Archive Communication System (PACS), supported by a Connected Imaging-Medical Image Infrastructure built on Cisco and partner technologies. Although the PACS provides efficient image storage and availability, the Sparrow IT managers wanted to help ensure the fastest possible transmission of images over the WAN.

“In healthcare, physicians’ time is at a premium,” says Bres. “The sooner a doctor can see a patient’s diagnostic images, the faster, and better, he or she can treat that patient. Delivering those images quickly can even be a life saver.”

The Sparrow team achieved the goal of fast image transmission, and more, by adding Cisco 3800 Integrated Service Routers (ISRs) or or 3900 Integrated Service Routers Generation 2 (ISR G2s), each equipped with a Wide Area Application Services (WAAS) Network Module, at each remote location as well as at the data center.

Given the health system’s Cisco Medical-Grade Network foundation and PACS, the decision to go with Cisco WAAS was straightforward. “Cisco is the number-one provider of network solutions, and the skills to implement and support Cisco products are widely available in Lansing and the Midwest in general,” says Hale. “And we know from experience that Cisco solutions are compatible with our various medical applications.”

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Business Results

The initial deployment of Sparrow’s EMR solution, called iSparrow, at 23 family practices in the mid-Michigan region which amounted to a fundamental transition from paper to digital charts, was sometimes challenging for the 1500 doctors, nurses, and support staff involved. “No matter who you are, what industry you’re in, or what the technology is,” Bres says, “there’s always a learning curve.”

Within months, 90 percent of the Sparrow physicians using iSparrow qualified for “meaningful use of an electronic health record system” under a new federal incentive program, which helped earn Sparrow more than a million dollars in subsidies.

The system is also drawing and engaging more patients. An online portal called MySparrow, which allows them to make appointments, see test results, and request prescription refills online, has been eagerly adopted by more than 11,000 patients. “It makes them more active participants in their own healthcare,” says Bres.

Meanwhile, some 50 Sparrow IT staffers are focused on deploying the hardware and software to bring iSparrow to the organization’s four hospitals and other affiliated care centers. To convert the departments from paper charts to EMRs, the staffers are scanning millions of records. “When we go live in December 2012, we’ll have a year and half’s worth already in the system,” says Bres.

The completed system will have 7000 users in all. Clinicians will be able to capture and retrieve patient information, even issue orders, from desktop workstations, cart-mounted laptops, tablets, and smartphones, all with one simple but secure badge-based logon.

Beyond EMRs and user portals, the Sparrow IT managers are looking to derive even more and greater benefits from their optimized WAN. They are considering productivity-enhancing workflow management and collaboration solutions. They're already engaged in implementing video to facilitate remote collaboration and, someday perhaps, telemedicine.

Still, the goal remains the same: providing more and better care to more patients. "The entire transformation of Sparrow's IT has always been about the quality of care we can deliver," says Bres. "That is, and always will be, the measure of our success."

PRODUCT LIST

- Cisco Medical-Grade Network
- Picture Archive Communication System, or PACS, supported by a Connected Imaging-Medical Image Infrastructure built on Cisco and partner technologies
- Cisco 3800 Integrated Service Routers (ISRs) and 3900 Integrated Service Routers Generation 2 (ISR G2s) with Wide Area Application Services (WAAS) Network Modules

For More Information

To find out more about Cisco Wide Area Application Services, go to: http://www.cisco.com/go/waas.

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Printed in USA

C36-705356-00 02/13

EDCS-1229320