The town of Ottawa in north-central Illinois has a long history of providing quality healthcare. The Ottawa Regional Hospital & Healthcare Center was founded in 1895, and more than a century later, its 1,000 employees provide comprehensive inpatient and outpatient health services and emergency care through the hospital’s 120-bed facility.

Challenges
The rapidly developing needs of technology in healthcare drove Ottawa Regional Hospital to upgrade its network infrastructure. Ottawa Regional’s campus spans eight buildings, which are interconnected with a private fiber network. A physician office is connected to the main campus through T-1 circuits.

The hospital wanted to upgrade its 100 Mbps campus network to 10GbE. It also wanted to enhance network reliability and availability to meet the rigorous demands of healthcare IT, while minimizing complexity and reducing operating expenses.

It was time for a new approach and “the new network.”

Selection Criteria
Ottawa Regional Hospital’s new campus network had to meet several requirements. First and foremost, the healthcare provider needed a high-performance infrastructure to support voice over IP (VoIP) and new healthcare information management software. Higher WAN speeds were also essential to support its enterprise virtual private network (VPN), remote access, and a quality voice experience.

The hospital also wanted to improve network resiliency. Its Ethernet switches were daisy-chained on the fiber, which meant that if one switch failed, the entire network could go down. Plus, the incumbent switches didn’t support Power over Ethernet (PoE), which the hospital needed to support IP telephony. Furthermore, the campus WAN architecture had a single point of failure that could negatively impact the hospital’s enterprise VPN, firewall, and WAN services.

“At the project outset, our assumption was that the new network would include Cisco—just like our existing infrastructure,” says Curt Sesto, director of construction management, medical electronics, telecom, and network administration at Ottawa Regional Hospital. “We were pleasantly surprised when we saw the Juniper Networks’ proposal.”

Prior to this project, Ottawa Regional partnered with PosTrack Technologies, a solution provider based in Joliet, Ill., for managed voice service and healthcare applications. PosTrack stayed on board to help the hospital with its network refresh, and helped Ottawa Regional evaluate Juniper Networks as a better alternative to the old way of doing things.
Solution
Ottawa Regional Hospital deployed Juniper Networks routing, switching, and security solutions to build its new network. The hospital also installed new single-mode fiber between campus buildings to support high-performance networking.

The campus network consists of Juniper Networks® EX Series Ethernet Switches. The EX4200 line of Ethernet switches with Virtual Chassis technology provides carrier-class performance in a single rack unit form factor that is easy to deploy and manage. The EX4200 switches are also powered by the field-proven Juniper Networks Junos® operating system, which delivers operational efficiency across Juniper switching, routing, and security products.

“Virtual Chassis technology reduced the overhead of managing the campus network and lowered our total cost of ownership.”
Curt Sesto, director of construction management, medical electronics, telecom, and network administration, Ottawa Regional Hospital

Virtual Chassis technology enables up to 10 interconnected EX4200 switches to behave and operate like a single logical device, reducing management overhead and operational expenses. Switches can be added to a Virtual Chassis configuration incrementally, as needed, delivering a scalable and energy efficient solution that doesn’t demand a large up-front investment.

“Virtual Chassis technology reduced the overhead of managing the campus network and lowered our total cost of ownership,” says Sesto. Ottawa Hospital deployed Juniper Networks J Series Services Routers at the network edge. The J6350 Services Router is a modular router that’s ideal for enterprises running desktops, servers, VoIP, and enterprise applications. The Juniper routers connect the hospital to the high-speed Illinois Century Network (ICN) as well as AT&T for redundant WAN connectivity.

Juniper Networks SRX Series Services Gateways provide firewall, VPN, and intrusion prevention system (IPS) as well as antispam, antivirus, and Web filtering, protecting the hospital against known and emerging threats.

Physicians and administrative staff at Ottawa Regional have secure remote access to key applications via any standard Web browser, thanks to Juniper Networks SA4500 SSL VPN Appliance. The use of SSL eliminates the need for preinstalled client software, changes to internal servers, and costly ongoing maintenance and desktop support. The SA Series provides Ottawa’s IT staff with sophisticated extranet features that allow controlled access to differentiated users and groups without requiring infrastructure changes, demilitarized zone (DMZ) deployments, or software agents.

Results
One of Ottawa Regional Hospital’s biggest benefits from its new network is the ability to do more with less. A fully redundant Juniper Networks solution cost 15 percent less than the alternative, which was not designed to be redundant.

With a new network from Juniper Networks, Ottawa Regional Hospital increased network capacity more than 20 times from its previous infrastructure. The hospital has 10GbE links per fiber strand, which is enabled by a full 20GbE fiber ring to improve network resiliency. With J Series routers, the hospital has successfully migrated from a static routed environment to OSPF, which has improved network resiliency.

The EX Series switches have given the hospital the port density it needed to support core and edge access—with headroom to grow. It has 48 1GbE PoE ports in a compact platform on the EX Series switches. The routing infrastructure has sufficient room to grow as well, moving from supporting just one T1 to three T1s for redundancy.

Ottawa Regional also expects to reap energy savings with its new Juniper Networks infrastructure. For example, deploying the EX4200 will result in a savings of 9,000 watts and more than 30,000 BTU/hour for cooling per year over the alternative solution.

Junos OS, a single network operating system that runs across Juniper Networks routing, switching, and security platforms, reduces cost and complexity, minimizes operator error, and increases reliability. Because Junos OS automates network operations in a streamlined system, Ottawa’s IT staff has more time to focus on strategic, proactive efforts.

The hospital has also been able to improve security to better comply with regulatory requirements such as the Health Information Portability and Accountability Act (HIPAA). The hospital now enjoys best-in-class enterprise network compliance security while protecting against emerging security threats. Plus, physicians and staff have secure and easy access to essential applications from anywhere, anytime, which allows the hospital to deliver better patient care.

Next Steps and Lessons Learned
Ottawa Regional benefits from lower support and maintenance costs, the simplified configuration of Junos OS software, energy savings, and redundancy for greater uptime. Looking ahead, the hospital plans to extend network services to more offices and other sites the hospital has acquired.

For More Information
To find out more about Juniper Networks products and solutions, visit www.juniper.net.
About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.