CHICAGO'S LURIE CHILDREN'S HOSPITAL DELIVERS WORLD-CLASS PEDIATRIC CARE WITH A FAST, RELIABLE, AND SECURE NETWORK FROM JUNIPER

Summary

Company: Lurie Children's Hospital

Industry: Healthcare

Challenges: Support network-enabled patient care in a new, world-class pediatric hospital in Chicago

Selection Criteria: Flexible network with 100% uptime to support life-critical medical applications, high-definition IP video, and IP voice

Network Solution:

- EX8216 Ethernet Switch and EX4200 Ethernet Switch
- SRX3600 Services Gateway
- IC6500 Unified Access Control Appliance
- ISG1000 Integrated Security Gateway
- IDP8200 Intrusion Detection and Prevention Appliance
- MX80, MX240 and MX480 Series 3D Universal Edge Routers
- STRM5000 Security Threat Response Managers
- Network and Security Manager

Results:

- Supports life-critical systems, healthcare applications, video, voice, building automation, and patient entertainment on a high-performance and flexible network
- Protects sensitive data and maintains compliance with integrated security

Children's Memorial Hospital, a top pediatric hospital in Chicago, opened a new facility in the summer of 2012. The newly renamed Ann & Robert H. Lurie Children's Hospital of Chicago offers specialized care for children in a family friendly design. The $900 million hospital is designed with private rooms and homelike amenities, with ready access to sunlight and views of nature. Lurie Children's offers the latest innovations in medical care, expanded trauma care, enhanced clinical programs, and advanced research directly affecting children.

Challenges

The three-fold objective of this not-for-profit hospital's expansion was to offer quality pediatric care to more families, provide the academic pediatric rotation wing for Northwestern Memorial Hospital, and stay ahead in its research program, which is now ranked as one of the top 10 children's research hospitals in the country.

The 24-story high-rise building is state-of-the-art. Lurie Children's uses the latest in electronic health records (EHR), high-definition picture archiving and communications systems (PACS), advanced nurse call systems, IP voice, IPTV in-room entertainment, and high-definition surveillance. More than 300 clinical instruments and applications are connected to the network. With so many life-critical systems in operation, the performance, availability, and security of the network are paramount.

Selection Criteria

Lurie Children's wanted to build a single, high-performance network that had the flexibility to support its diverse applications and systems. The network needed to be highly available to support life-critical systems. The hospital also needed to tightly secure its systems to protect sensitive patient data and maintain regulatory compliance.

"We wanted everything on one network," says Ron Isbell, director of network infrastructure, data security, and user access at Lurie Children's Hospital. "With modern healthcare systems, building automation, security, and in-patient television solutions running and increasingly communicating, it makes sense to consolidate them over a single network. Security is such a major part of the network design that it makes sense to build and integrate security into the network architecture. There's a great cost savings to bringing everything onto one single network."

When considering its options for the new hospital, the IT team explored the advantages of using best-in-class communications technologies. A multivendor approach would allow the hospital to use fit-for-purpose communications solutions as well as lower cost. In addition, a multivendor approach would deliver a lower five-year total cost of ownership (TCO).

Solution

Lurie Children's Hospital engaged in a competitive RFP and rigorous proof-of-concept testing to determine the design and deployment of all aspects of the hospital's new multivendor network and interoperability with its existing systems.

"It was a grueling five- to six-year process from creating the RFP all the way through to contract and installation," says Isbell. "Juniper met or exceeded the specs in a cost-efficient manner. We liked the people at Juniper, and we liked the maintenance model and the way that Juniper treats its customers."

The hospital leverages the complete networking and security solution from Juniper Networks. Lurie Children's uses Juniper Networks® EX Series Ethernet Switches, MX Series 3D Universal Edge Routers, SRX Services Gateways, IC Series Unified Access Control Appliances, ISG Series Integrated Security Gateways, IDP Series Intrusion Detection and Prevention Appliances, Network and Security Manager, and STRM Series Security Threat Response Managers.

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In the data center, Lurie Children's uses the EX8216 Ethernet Switch with external Routing Engines for the core, and the EX4200 line of Ethernet switches for switch aggregation. A virtualized, 10GbE data center core allows the hospital to support many different applications and services, each with its own performance and security requirements, on a single infrastructure. The EX8200 Ethernet Switch supports Juniper's unique Virtual Chassis technology, which enables up to four interconnected switches to operate as a single, logical device. An EX8200 Virtual Chassis configuration creates a network fabric for interconnecting access switches, routers, and service-layer devices.

Lurie Children's Hospital uses EX4200 switches for access switching. Up to 10 EX4200 switches can be interconnected to create a single logical device. Members of the same Virtual Chassis configuration can be in different wiring closets, on different floors, or even in different buildings, and still be managed as a single device.

The hospital uses Juniper Networks' network access control (NAC) to protect the network by guarding applications and data, providing identity enabling network security, and providing network access control management. It uses the IC6500 Unified Access Control Appliance for network access control policy management. An agent running on users' devices, or in agent-less mode for devices that can't run agents, checks user credentials and assesses the device security state. Lurie uses a variety of policy enforcement points in the network, including 802.1X-enabled wireless access points or switches, EX Series switches, SRX Series gateways, IDP, and ISG Series devices.

The SRX3600 Services Gateway is used for internal firewalls and to create secure zones to protect sensitive applications, data, and systems. The ISG1000, a multi-gigabit firewall and VPN, protects the network perimeter, while IDP8200 provides the highest level of intrusion detection and prevention. MX Series routers are used to provide WAN connectivity.

The IT staff uses Network and Security Manager to manage the performance of the hospital's network and to create and apply network and IT security policies across the network. It also uses the STRM5000 Security Threat Response Managers for converged network performance, security management, and reporting to simplify compliance requirements.

Results

"We needed to transform the patient experience," says Isbell. "We believe that recovery requires more than just the excellent care that we provide. Recovery is also about the environment that the child heals in. The new network from Juniper helped us in this transformation."

A flexible, high-performance network is the foundation for delivering that transformational level of patient care at Lurie Children's Hospital. The latest in biomedical technology shares the same infrastructure with a video production studio, where children can create light shows that might be chosen to decorate the outside of the building. The new Juniper network runs everything from EHR and PACS to nurse call systems, in-room entertainment systems, and building automation. The hospital also makes extensive use of its HD videoconferencing as part of its patient care and family centered practices.

Delivering world-class care to the sickest children can't be interrupted by network outages or security breaches. "The network can't have sustained downtime," says Isbell. "When something breaks, it needs to be fixed immediately. Our network is life-critical at times."

The need for flexibility is equally essential. "We need to broker the complex relationship between stability and speed," says Isbell. "We want to be able to put new applications on the network and adjust the network to meet the need. But on the other hand, we want to retain a stable network. We need a network that has very predictable behavior."

The hospital must uphold the highest levels of security and maintain strict regulatory compliance, including Health Insurance Portability and Accountability Act (HIPAA). "Using 802.1X network access control allows us to be highly assured of who's on the network, the health of their equipment, what they can access," says Isbell. "The network availability component that security provides is huge."

The consistency of Juniper Networks Junos® operating system across routing, switching, and security also contributes to that availability and flexibility. "Having one code base using Junos OS is essential to what we deliver," says Isbell. "Our engineers learn one language and can maintain an enterprise-consistent code base, which simplifies planning for upgrades."

"We can do things with Juniper that we couldn't do with other network providers," says Isbell. "With Juniper, we have excellent support, engaged product teams, and the maintenance works. When my guys call at 2:00 in the morning with a problem, they don't get called back. They get handled immediately. That's important, because if this network isn't running, if the phones aren't available, we can't care for the kids."

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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.**

Next Steps and Lessons Learned

Future flexibility is key. "If we don't have an active network, it severely impacts our ability to provide care for our patients," says Isbell. "I see that changing. I see network technology evolving and becoming more capable of delivering the type of flexible and fast network solutions that healthcare requires."

For More Information

To find out more about Juniper Networks products and solutions, please visit **www.juniper.net**.

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