

## At-A-Glance

### Environment

- 29 hospitals
- 280 clinics
- 2,700+ patient beds
- 24,000 employees
- Over 4 million patient visits a year

### Technology Needs

- Deliver a highly efficient network that supports PAC and EMR
- Enable future technologies, such as unified communications and cloud-based solutions
- Seamless Interoperability with existing multi-vendor solutions

### Extreme Solution Components

- Extreme MLXe Routers for core routing
- Extreme VDX switches with Extreme
- VCS Fabric technology

### Results

- Delivered high network performance and reliability to support PACS and EMR systems, patient-centric applications, and mobile devices
- Reduced capital expenses by \$150,000 by eliminating unnecessary network equipment
- Provided unmatched simplicity with a single, unified network architecture built on proven solutions
- Protected IT investments by providing a standards-based, best-of-breed solution that seamlessly integrates with existing systems



## Extreme Networks Delivers Long-Term Network Solution for Mid-West Healthcare Provider

During the past decade, this mid-west healthcare provider has become one of the nation's most integrated health systems. It encompasses 29 hospitals and 280 clinics with more than 200 patient beds, and is the largest integrated healthcare system in the state. Like many healthcare systems in the United States, they understand the need to build a robust, scalable network that can support critical applications now and in the future.

For this healthcare provider, the main challenge was determining what its network would need to support in five or seven years. "We are always looking at what we want to do in the future," according to their Chief

Technology Officer. "Our plans include deploying Unified Communications and cloud computing across distances greater than 100 miles."

Such foresight is essential because they have few opportunities to upgrade their network. "We can't do a network upgrade every three years. Our network providers must be able to design an infrastructure that can evolve as technology changes and scale to meet our future requirements."

## A Network Built to Support EMR, PACS, Mobility, UC, Cloud Computing

During the implementation of its Picture Archiving and Communication System (PACS), the provider network began experiencing significant performance issues that placed the efficacy of the system at risk. “We need the user experience at the hospitals and at the patients’ bedsides to be the best it can possibly be,” said the Assistant Director of Technology.

The current network was outdated and could not provide the reliability and throughput needed to support PACS and future applications. Working closely with Extreme Networks, the healthcare provider upgraded its core infrastructure in 19 key locations, including its two mission-critical data centers. As a result, they were able to create a single, unified data architecture that would meet the demands of not only the PACS and EMR systems, but also future enabling technologies, such as Unified Communications (UC) and cloud-based computing.

To support its growing bandwidth and scalability requirements, they deployed Extreme MLXe Core Routers. These routers provide industry-leading 100 Gigabit Ethernet (GbE), 10 GbE, and 1 GbE wire-speed density; and rich IPv4, IPv6, Multi-VRF, MPLS, and Carrier Ethernet capabilities. The IT team also installed Extreme VDX switches with Extreme VCS Fabric technology. Together, these technologies enable high-performance, low-latency 10 GbE server connections while creating a migration path to Ethernet fabrics, which can support higher rates of server virtualization, deliver faster application response times, and reduce infrastructure complexity and costs.

For high availability and redundancy, the provider leverages VMware’s solution for Virtual Machine (VM) mobility. Using Extreme MLXe Core Routers and VPLS, they were able to create a Layer 2 path between data centers and extend its VLAN architecture across the MPLS cloud, allowing VMs to be moved seamlessly from one data center to the other.

The IT team also deployed third-party switches at the network edge to deliver 1 GbE connectivity and 10 GbE uplinks to the Extreme MLXe core, for out-of-band management and support for non-virtualized 100 MbE/1 GbE services.

## Higher Performance and Reliability

The network upgrade had a fast and profound effect on overall performance. “After implementing the Extreme Networks solutions, the packet losses and errors disappeared, and network performance improved dramatically.”

The PACS is now reliably transferring thousands of images across network spans exceeding 200 miles in less than five seconds. “The quantity and size of the images grow every year. The Extreme network can handle the load and deliver the traffic at the required speeds with no problem.”

With its performance and reliability issues resolved, they have moved forward with rolling out a centralized EMR system, confident that its new network can support the multitude of devices accessing critical patient records.

## Investment Protection and Cost Savings

Once deployed, the Extreme Network solutions worked seamlessly with existing systems from Nortel and Cisco. This interoperability was critical, as it allowed the healthcare provider to leverage previous IT investments. “We learned through experience that having a standards-based approach and multiple vendors gives us more options and greater flexibility. Extreme is very much a standards-based organization and met those criteria for us.”

In addition, they were also able to add MPLS functionality on top of the core deployment without having to spend \$150,000 on additional equipment.

## Support for Continued Success

During deployment, the Extreme team worked closely with them to ensure a successful rollout. The IT team deemed the project a success when the network went into production on time and budget as it seamlessly integrated with the existing network equipment.

Extreme also has provided valuable support in maintaining the network’s health. “The Extreme team has stood next to us in the trenches through everything. I cannot say enough good things about them, and we could not be happier.”

IT relies on the Extreme Network Monitoring Service (NMS) to closely watch the network and ensure that it stays up and running. The monitoring service recently notified them about problematic modules, allowing IT to proactively update them before they caused network issues.

## A Network Ready for the Future

When IT moves forward with UC and cloud computing plans, its new network will be able to handle the additional traffic. By creating a single, robust data architecture from the data center to the WAN, the healthcare provider is now ready to face the future of the evolving digital healthcare environment, confident that its network will scale and grow with the organization.

“Our industry is constantly changing, and Extreme Networks solutions can adapt based on our technology needs. We want to be a leader in technology innovation in the healthcare space, and Extreme gives us the robust network we need.”



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