Puerto Rico’s Largest Hospital Prepares for Digital Record Evolution with Force10 Networks

In the capital city of San Juan, the 530-bed Hospital Auxilio Mutuo is the largest medical center in Puerto Rico. To continue its mission of providing top quality healthcare to its patients, the medical center wanted to move toward electronic patient records. As part of an overall modernization program marking the hospital’s 125th anniversary, the IT staff recognized that to provide additional services and deliver them efficiently, it had to improve the reliability and security of its network infrastructure.

The hospital’s legacy network impinged upon its ability to adopt and effectively use new technology as well as keep up with the hospital’s overall growth. The IT staff wanted to replace and expand its network infrastructure to better support the hospital’s growing number of devices, which had increased from 200 to 6,000 in the last five years.

Driven to act in part by HIPAA (Health Insurance Portability and Accountability Act) mandates and the addition of an emergency room in a neighboring city of Cupey, the hospital also wanted to improve its overall communications to securely share applications and patient records between the hospital staff and remote facilities. To make this a reality, the IT staff deployed a reliable, high performance network based on the Force10 Networks® TeraScale E-Series® family of switch/routers and the S-Series family of access switches.

Electronic Patient Records Demand Reliable, Always-On Network

As the hospital began to digitize its medical records and offer secure two-way communications between its campus, the new cancer therapy center, off-site emergency room and radiology lab, network reliability became paramount. Auxilio Mutuo turned to the reliability of the Force10 TeraScale E300 as the lynchpin of its network.
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“When we first undertook our network upgrade, we needed to focus on the core, which was being overwhelmed by traffic," said Edgard Rodriguez, Auxilio Mutuo's director of IT. "We deployed the E300 and that really allowed us to build a network that could reliably accommodate the traffic we were seeing and provide a platform that would allow us to integrate files from our imaging systems into a single network." With support for 288 Gigabit Ethernet ports, the TeraScale E300 provided the hospital with the scalability it required to support an expanding campus as well as its back office applications, including patient data, payroll and e-mail. The distributed multiprocessor architecture of the TeraScale E300 distributes Layer 2, Layer 3 and management functions between discrete processors, providing a high level of fault isolation that works to eliminate unplanned network downtime.

The architecture of the Force10 TeraScale E-Series also efficiently accommodates spikes in traffic without compromising overall network performance. For Auxilio Mutuo, which faces two traffic spikes a day – one at the hospital in the morning and one in the emergency room in the evening – the predictability of the network during these times was essential.

"As we moved to electronic records, the network became critical to how doctors assess a patient and develop a treatment plan," said Rodriguez. "To effectively serve our patients, we needed a network that was always there for us, and Force10 delivered."

However, IT officials at Auxilio Mutuo also heavily weighed their decision based on the Force10 FTOS operating system. The modular architecture delivered the enhanced reliability, scalability, flexibility and security it needed to introduce new services, make processes more efficient and facilitate better communication moving forward.

Reliable Core-to-Edge Network Core Enables Hospital to Provide New Services

While acknowledging the importance of having the horsepower to effectively run bandwidth-eating applications, Rodriguez implemented Force10 because of its ability to provide enhanced reliability and security from the core to the edge of his growing network.

At the core of the network, the Force10 TeraScale E300 provides the reliable infrastructure doctors need to access patient files across the campus. The Force10 S50s provide line-rate Gigabit Ethernet down to the network edge and wiring closets, enabling the hospital to integrate into the network its Radiology Information System (RIS), which stores, manipulates and distributes radiological data and imagery, and its Picture Archiving and Communications System (PACS), which digitally stores images from ultrasounds, mammograms, magnetic resonance imaging (MRI) and other medical diagnostic tests.

"To effectively serve our patients, we needed a network that was always there for us, and Force10 delivered.”

Edgard Rodriguez
Director of IT
Auxilio Mutuo

With Force10, Auxilio Mutuo built a converged network that supports all patient records and advanced imaging files as well as traditional voice and data applications.
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With PACS and RIS integrated into the network, doctors can retrieve files from anywhere on the hospital campus, including the radiology labs or emergency room to more efficiently diagnose their patients. The Force10-based network provides the hospital with the bandwidth to transmit and access these critical files fast enough to make the technology a highly effective diagnostic service, especially at the cancer center and radiology lab. At these facilities, healthcare practitioners are now able to easily conduct online research and view medical images from other locations to make treatment recommendations.

"Having the E-Series and S-Series gives me flexibility within the network to stay at 10/100 if needed or move to Gigabit Ethernet for our imaging systems, for example," says Rodriguez. "This allows our doctors to effectively access any patient's file from anywhere in our facility."

In addition to building the network capacity to handle the growing number of devices and applications, deploying Force10 enabled a smooth upgrade path to 10 Gigabit Ethernet that Auxilio Mutuo can rely on well into the future.

"Once I had the security and reliability in place that we need, it gave us the opportunity to acquire additional applications and facilitate more development," says Rodriguez. "Several months ago, before Force10, that was not case."

Setting the Foundation for Growth

Prior to deploying its E300 and S50s, Internet access and connection speeds were not adequate to support the growing number of patients and the increasing number of devices. Today, whether it is medical practitioners now having access to high resolution MRIs or administrative staff being able to register patients or access insurance information, the improved connectivity permeates the medical center.

"Having this level of speed and reliability in our network has instilled a higher level of confidence in our employees because they believe the information they have is more accurate," says Rodriguez.

Smooth Future Scaling

As Hospital Auxilio Mutuo begins its next 125 years, its IT staff believes it now has the reliable, flexible and secure network infrastructure to provide improved communications and additional services. With robust connectivity options provided by Force10 network architecture, the hospital can now smoothly scale to accommodate both its ever-increasing number of patients and networked devices as it continues to set the standard for healthcare in Puerto Rico.

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