INTERNETWORK ENGINEERING

Case Study: Greenville Hospital System

CASE INFORMATION

Customer: Greenville Hospital System

Industry: non-profit academic health organization

Location: Greenville, SC

The Challenge

Founded in 1912 as City Hospital in Greenville, SC, Greenville Hospital System today is a not-for-profit academic health organization that includes a tertiary hospital, community hospitals, a long-term acute care hospital, a nursing home, outpatient facilities and wellness centers and is home to the new University of South Carolina School of Medicine Greenville.

While the advent of electronic medical records (EMR) systems has greatly improved the quality and efficiency of patient care, it has also increased healthcare providers' reliance on computers and the Internet exponentially. That lesson was driven home to Greenville Hospital System in 2011 when it experienced a power outage in its main data center coupled with the failure of backup battery and generator systems.

While its cold site backup allowed data to be recovered when power was restored, that event created major disruptions. Even though patient care wasn't affected, the event became the catalyst for a change in the entire infrastructure.

"We had talked for several years about the need to move from a disaster recovery/backup posture to full business continuity in order to ensure high availability for our systems," says Pam Shirley, Manager, I/S Network Infrastructure for Greenville Hospital System. "But when everything shut down that day we knew it was time to stop talking and start doing. With our commitment to providing exemplary customer service, the move to the Soarian EMR system and the responsibility we feel toward maintaining the health and wellbeing of the community, we knew we had to make this type of infrastructure investment."

Other factors in the decision were being able to provide 24 x 7 access to the lab and pharmacy from the 80 remote sites that are part of the system and ensuring redundant Internet connections in case one provider's network went down. Although Greenville Hospital System considered outsourcing the business continuity infrastructure, ultimately the organization decided the best way to serve its patients and staff was to build it internally. Now the question was which system would make the best investment?

The Solution

To find the answer, Greenville Hospital System turned to Internetwork Engineering, a Cisco Gold Partner with whom they were already engaged on several other projects. Together they determined that Cisco Overlay Transport Virtualization (OTV) would provide the fastest and most reliable connection between Greenville Hospital System's two data centers, effectively converting the infrastructure from one hot and one cold site to two hot sites for most data-intensive applications.

Move to electronic medical records (EMR) drives commitment to business continuity/high availability

INTERNETWORK ENGINEERING

This was a huge project for us, with a lot of visibility to our management. We knew from past experience that we could count on Internetwork Engineering to help us get it right. They don't just quote prices, they really partner with you, and their experience with data centers was invaluable. They took care of us like we take care of our patients."

— Pam Shirley, Manager, I/S Network Infrastructure, Greenville Hospital System

The Results

By all accounts, the business continuity effort has been a complete success. The goal was to reduce downtime as much as possible, but even IT team members at Greenville Hospital System were delighted by what they achieved.

"Going into the project, we told upper management we thought we could reduce downtime to five minutes, which was a huge improvement over the hours it took to get back online after that last power outage," Shirley says. "But when we came back from the CPOC, we were able to show them with hard metrics that most VLANs would come back up immediately, most outages were under 30 seconds, and no matter how we tried to break the system the longest outage was 90 seconds. They were floored."

Because a hospital is a 24x7 operation, the project required a great deal of planning and coordination. Shirley, Greenville Hospital System Network Architect Bryan Lawrimore and Internetwork Engineering had to ensure that service/outage windows were well-communicated and documented, and that the various service units were prepared for the loss of connectivity.

"This was truly a partnership between Bryan, myself and Internetwork Engineering," says Shirley. "We have a high commitment to customer service, and, in this day and age, that means providing our users with a network that is highly available, stable and redundant. The information our caregivers and physicians use to treat patients is now digitized, which means 24x7x365 availability isn't a "nice to have;" it's critical. We feel a responsibility to the community to make this type of infrastructure investment in order to provide them with the best possible care. Although we're technical, we always keep in mind that everything we do affects our patients. They are our priority."

Another benefit to moving to OTV is that many of the servers and applications are now virtualized, and Internet connectivity for everyone on the network is now fully redundant. Critical Internet, Demilitarized Zone (DMZ) and server/application VLANs are extended over a Layer 3 boundary, splitting Internet pipes between the two data centers and allowing improved load balancing, all of which contribute to the high availability and free flow of information Greenville Hospital System needs.

Shirley says upper management at Greenville Hospital System is delighted with the outcome and is quick to praise Internetwork Engineering for its role in making the migration to full business continuity so successful.

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