

Regional Medical Center Centralizes Applications Without Impacting Performance



This mid-Atlantic medical center is a non-profit, 919-bed, regional referral center with more than 4,000 employees. It is home to one of the top 10 heart programs in the United States and one of the nation's busiest Level I Trauma Centers. Like similar environments, this medical center consists of multiple independent facilities, including urgent care sites, hospitals and administrative locations. However, from an IT perspective, these locations are managed as a single entity. This facilitates information sharing and enables IT resources to meet the medical center's stringent demands.

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— Camc Director Of Information Technology

To accommodate the diverse IT requirements of the different healthcare and administrative facilities, the medical center's IT department made a strategic decision early on to centralize key application servers, including file, email, print, and medical billing. However, when application performance began to suffer across the WAN, the medical center's seasoned IT staff faced a major challenge.

The Symptoms

The medical center's performance challenges began in August of 2005, when they began an initiative to deploy Microsoft Active Directory services to all users. As part of this project, the IT team wanted to centralize all users' directories on a Network Attached Server (NAS) located in a central data center. This would reduce their IT support costs, minimize infrastructure investments, and facilitate their ability to backup and restore key data.

Unfortunately, as the project got underway, users began calling into the medical center's support center to complain about slow application response time. File sharing applications, which are based on Microsoft's Common Internet File System (CIFS) protocol, did not work well over the medical center's WAN links. This began to impact the performance of other applications, such as Exchange email and medical billing databases, which were vying for limited WAN bandwidth.

"We believed that our approach to centralizing servers was the best way to control IT costs and simplify management," explained the Center's Director of Technology Services. "However, performance for a wide range of applications was clearly suffering. I challenged my team to come up with a creative solution to our WAN application performance problems."

Customer: Regional Medical Center

Medical Center Challenges

- Remote users complaining of poor CIFS, email and SQL performance over WAN
- Too expensive to deploy NAS and Active Directory servers at each location
- Compliance concerns (HIPAA) with respect to server distribution

Silver Peak's Cure

- 10x improvement (average) in application performance across the WAN
- Decreased help desk complaints by 90% per facility
- Saved over \$15,000 per location in hardware and software costs
- \$10,000/year operational savings in each location

Searching for a Cure

The obvious alternative was to break from tradition and deploy Network Attached Storage (NAS) and active directory servers at each medical center facility. The IT department estimated that this would cost close to \$20,000 per site in capital equipment costs for hardware, software licenses, power supplies, equipment racks, and other infrastructure expenditures. It would cost an additional \$10,000 per location in estimated annual recurring expenditures to manage and support these servers, which would be located in remote locations throughout West Virginia.

“We knew that server distribution would improve our application performance problems, but the trade off in cost was less than desirable,” quipped the Director. “There was also a concern that the proliferation of file servers would make it harder to comply with HIPAA regulations.”

The Health Insurance Patient Portability Act (HIPAA) is meant to ensure the privacy and security of patient information. The centralization of servers and storage enables healthcare facilities to best meet this objective through a variety of means, including well-defined access procedures, better password protection, and a host of other security mechanisms, such as firewalls and antivirus protection. As a result, the medical center wanted to avoid the distribution of servers if at all possible.

Wide Area File Services (WAFS) was another alternative to address the NAS performance issues being experienced across the various medical center locations. However, due to its limited focus on files only, this option never gained much traction within the medical center’s IT department.

“File caching solutions didn’t provide us enough bang for the buck. For us to invest

in a new technology, it must improve the performance of all of our applications, including email, SQL database transactions, and the transfer of backup files. We cannot cost-justify a separate solution for every application in our network.”

The Right Medicine

The medical center’s IT staff continued to research different alternatives to accelerate application performance over the WAN.

In the end, the medical center chose to deploy Silver Peak. Through a combination of compression, QoS, TCP acceleration, and advanced techniques for data reduction, the Center was able to keep its servers centralized, while ensuring LAN-like application performance. End-user productivity increased, enabling doctors, nurses, and medical center staff to better focus on their primary objective — delivering outstanding patient care.

The medical center began by deploying Silver Peak in its main hospital in Charleston and in an urgent care facility in St. Albans.

“We were up and running in a few hours,” explained the primary Network Analyst on the medical center’s IT staff. Not having to modify our PC clients or servers was an enormous benefit. We were operating transparently to the applications and end users.”

Once deployed, the performance improvements were immediately noticeable. Opening a file across the WAN went from several minutes to several seconds with Silver Peak in the equation. Copying files had similar results — 10 times the performance when averaged over a certain period of time. Similar benefits were experienced across the medical center’s email and SQL application.

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“We initially thought our stopwatches were not working properly,” joked the network analyst. “After consistently observing LAN-like performance and seeing help desk calls drop by as much as 90% per facility, we were ready for widespread deployment throughout our network.”

Silver Peak enabled the medical center’s IT staff to turn off home drives on all local user workstations so that all end user data was stored and managed centrally. This minimized the Center’s risk of exposure by protecting user information from unauthorized access. In addition, centralizing data facilitated the IT department’s ability to perform backup

and restore procedures, which was vital for effective disaster recovery.

The decision was ultimately made to deploy Silver Peak appliances in all medical center locations. The security, compliance, cost, and management savings that the medical center achieved by centralizing NAS and Microsoft Active Directory servers more than justified the expenditure in network acceleration appliances.

“As the medical center explores future applications, such as voice over IP, we are confident that our WAN is up to the challenge. That’s a prognosis that would make any IT manager happy.”