STORAGE AREA NETWORK

University of New Mexico Hospital Migrates Terabytes of Financial Data

EXECUTIVE SUMMARY

Technology Challenge

Migrate business-critical data between disparate arrays in distributed data centers within a limited maintenance window and without data loss or disruption to production SAN services

Solution

- Brocade® Professional Services
- Brocade Data Migration Manager (DMM)
- Brocade 4100 Switches

Benefits

- A successful migration without interrupting the availability of vital healthcare information on the production SAN
- No data loss
- Transfer performed within the allocated time
- Significant cost savings compared to a server-based migration

Moving data from one storage solution to another might seem straightforward, but for the University of New Mexico Hospital (UNMH), the task posed daunting challenges. Long considered a top medical facility nationwide, the 384-bed Albuquerque provider employs 4,326 healthcare professionals to care for hundreds of thousands of patients each year. In 2001 UNMH purchased its first Storage Area Network (SAN) storage array. The array capacity eventually grew to 3.6 terabytes and over time UNMH put numerous critical host servers on the system. These servers included the hospital's main file/print server, which had over 1,200 user home directories on it. The array also supported the hospital's largest e-mail post office (GroupWise), a critical clinical program that scheduled nursing staff and operating rooms, and a financial system.

On a daily basis, hospital administrators rely on a sophisticated Decision-Support System (DSS) to determine how best to spend every dollar of the medical center's $320 million budget so they can deliver the highest levels of patient care. The DSS, however, generates huge volumes of data. This system, along with the others, eventually filled the legacy storage array to its capacity. All of the servers were "diskless" servers that booted directly off the array, which added to the complexity of the migration.

To remedy this problem, UNMH decided to transfer the data, which totaled 3.6 terabytes, to a larger, faster Dell CX500 storage array. Yet, in planning the migration, the hospital's IT staff confronted several obstacles. First, the source and target arrays were in separate data centers a quarter mile apart. Additionally, the migration had to occur within the time window of a weekend to ensure that DSS data available on Friday would be available on the following Monday.

Moreover, the migration had to preserve the integrity of the data and UNMH's production SAN to avoid jeopardizing the delivery of vital patient files and healthcare services. Yet, the hospital's SAN was a multivendor environment that presented possible technical difficulties that could compromise the migration, if not the enterprise's data services.

"We considered a host-based solution, but none would work with the Novell NetWare operating system that most of the servers we needed to migrate were using," says Mike Biedermann, Systems Analyst at UNMH. "So we went about finding an array-based solution that would be completely operating system-agnostic. We approached Dell with the problem since we purchased our arrays from them. Dell recommended using one approach, which, as it turned out, would not work with the source array. I suggested that we look into data migration 'appliances' that would work on a block level. Shortly after that Dell told us about a solution that involved a product from Brocade."

RELYING ON THE STORAGE EXPERTS

In late 2006, Dell Professional Services engaged Brocade to take over the migration project, and Brocade dispatched a Brocade Professional Services Solutions Consultant to assess the enterprise's needs. The Solutions Consultant verified that Brocade could perform the migration without using the production SAN, avoiding potential disruptions of key data and medical services. Moreover, he demonstrated that Brocade could take advantage of Fibre Channel protocols by moving the information at the block level, providing a faster, more secure transfer than a traditional server-based approach. The chosen strategy was to create a temporary SAN dedicated exclusively to the migration, in an environment that could be configured precisely for the transfer without affecting the production SAN and its users.

The Brocade Solutions Consultant returned to UNMH with a pair of Brocade Data Migration Manager (DMM) systems and Brocade 4100 Switches. Brocade DMM is an innovative platform for precise, high-performance data migrations in heterogeneous storage environments.

"We were impressed with Brocade DMM as a high-speed migration device," notes Biedermann. "It performs block-level reads, leveraging Fibre Channel protocols for fast, accurate throughput. As a SAN-based solution, it's also simpler and less disruptive than server-based systems. What's more, it eliminated our need for expensive operating system-specific software like volume management and replication tools."

ANATOMY OF A SUCCESSFUL MIGRATION

The Brocade Solutions Consultant linked the Brocade DMM systems to the source array to increase both availability and throughput, key concerns given the small window in which to relocate terabytes of data. He then created a Brocade SAN by linking the Brocade DMM systems to the target array via two Brocade 4100 Switches, one at each data center.

Once begun, the migration needed to be completed successfully, so the Solutions Consultant built in redundancy to eliminate any glitches that could disrupt data flows. He also utilized Brocade Fabric OS® to help isolate the migration from the hospital's production storage infrastructure with a temporary but very stable and flexible SAN.

> "I was very impressed with the knowledge and professionalism of the Brocade consultant, who did two test migrations for both operating systems that we were planning to migrate. So we were very confident when we started the migration on our production data. The Brocade DMM solution lived up to and exceeded all our expectations as we finished the migration well within our downtime window. What pleased us even more was that there was not a trace of data loss. All in all it was a seamless operation for all of our end users."
>
> — *Mike Biedermann, Systems Analyst at UNMH*

After the source and target arrays were linked by the Brocade solutions, the migration team assigned the Logical Unit Numbers (LUNs) and zones needed to complete the SAN and ensure the proper flow of data between the storage devices. At 5:00 on a Friday afternoon, the Brocade Solutions Consultant began the data migration. By mid-afternoon on Saturday, the transfer was completed, well within the hospital's maintenance window.

"The migration was a complete success," states Biedermann. "I would without hesitation use Brocade Professional Services again and would highly recommend them to anyone that asked."

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