University of Utah Health Care Saves $422,500 While Improving Storage Utilization 30% with NetApp V-Series

Customer Profile

The University of Utah Health Care (University Health Care) is affiliated with academic research and educational institutions, healthcare clinics, and a hospital ranked as one of "America's Best Hospitals" for 13 consecutive years. University Health Care includes the University School of Medicine, Huntsman Cancer Institute, Moran Eye Center, Clinical Neurosciences Center, University Orthopedic Center, University of Utah Hospital, and other leading specialty care centers. The mission of the institution is to improve health and quality of life through a commitment to excellence in education, research, and clinical care.

The Challenge
Managing a growing bank of file servers

At University Health Care, 15,000 end users, including students, doctors, nurses, staff, and administrators, store and access Microsoft® Office documents, Microsoft Access databases, and applications that run off the network, such as Cerner PowerChart and a mission-critical electronic health record system. The organization previously stored this data on 30 HP file servers running Novell NetWare, supporting several thousand Microsoft Windows® and Apple® Macintosh® clients.

The organization ran into scalability and performance problems when the number of users and the amount of data began to grow at a brisk pace in recent years. "In a span of just two years, our data grew sixfold," says John Fagg, manager, Storage Management Services for University Health Care. The organization tried deploying Novell OES Linux® with Samba to replace its NetWare servers, but quickly realized the limitations of that approach.

"We were in a world of hurt," says Fagg. "We had major performance and capacity issues, as well as poor storage utilization. The system couldn't handle 3,000 to 4,000 connections to the server. Certain applications were hanging, and the existing infrastructure simply couldn't handle the workload."

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John Fagg
Manager, Storage Management Services, University of Utah Health Care

At one point University Health Care had 30 help-desk tickets open simultaneously with Novell to address these issues. "Thousands of end users in the hospital were seriously impacted," Fagg says. "With hundreds or even thousands of files in a directory, it would take users 15 to 30 minutes to open a folder. Many people couldn't access their drives at all. They would try rebooting but eventually contact our help desk. As a result, we had a huge backlog of service tickets." Also, since data was backed up to tape, any file that needed to be recovered was not easily accessible.

"As an IT team, we couldn't focus on delivering new technology solutions to the organization because we were continually responding to one crisis after another," adds Fagg.

The file-serving infrastructure was difficult to manage because of its complexity. "We had a Web-based tool for managing the Novell OES clusters, but it caused continuous problems and errors," Fagg explains. "We had to rescan each OES cluster node after adding storage [LUNs] to a cluster. We had to use multiple applications—ConsoleOne, NetWare Remote Manager, and Network Administration—to manage

our NetWare environment. It was chaotic because there were so many systems and connections that needed to be maintained, and every attempt to add storage capacity brought a chain reaction of problems. We spent 10 to 15 hours per week on administration and troubleshooting alone."

In the midst of such complexity, there were HIPAA compliance and security requirements as well. "In this field, you must have reliable access to safe, secure data—not only to meet HIPAA requirements, but also because people's lives are at stake," says Fagg.

The Solution
Wanted: snapshots, replication, and integration with Active Directory
Fagg knew something had to be done, and began investigating solutions that would allow University Health Care to save IT staff time and scale the storage more effectively. He carefully evaluated solutions from Hitachi Data Systems (HDS)—the organization's incumbent SAN vendor—and BlueArc, along with the NetApp V-Series.

"We were impressed with NetApp V-Series," says Fagg. "It supports ABE [Access Based Enumeration] and leverages NetApp Snapshot™

and SnapMirror® technology for point-in-time backups and asynchronous replication. NetApp has worked closely with Microsoft on CIFS and Windows support, and provides a solution that is very well integrated with Active Directory®. We support 8,000 directories, and we didn't want end users to have to scroll through thousands of folders to access their files. Also, we knew if there was a slip in rights access, our data could be compromised, which could create serious compliance issues for the organization. We wanted a solution that would only allow users to see the directories they had rights to access. NetApp clearly had the best solution."

Protecting existing SAN investments
NetApp V-Series open storage controllers allow University Health Care to maximize the significant investment it has already made in its HDS Adaptable Modular Storage SAN arrays by integrating the HDS arrays with the NetApp Unified Storage Architecture. NetApp V-Series not only eliminated 30 file servers, but improved system availability and reduced operational costs. "Even though we're using non NetApp SAN storage, we still get all the benefits of NetApp's innovative storage management tools and technologies, such as deduplication," says Fagg.
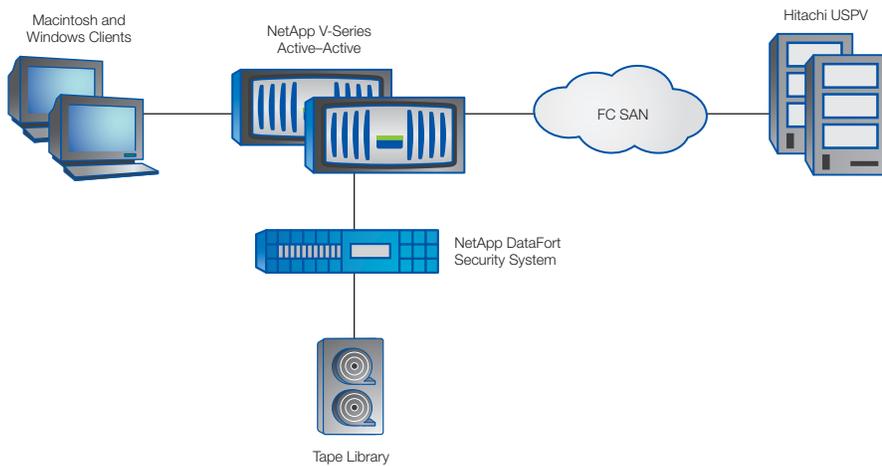
Figure 1) The University of Utah Health Care storage infrastructure.

University Health Care deployed two NetApp V6070 open storage controllers attached to Brocade M-Series switches on two HDS arrays. "I am very pleased with NetApp V-Series, because it is very stable and so much easier to manage," says Fagg. "It allows us to back up and restore data easily via Snapshot and SnapRestore® technology. Deduplication is included with the V-Series, so we don't need to purchase additional products to get the most out of our disk space." Snapshot copies are taken hourly throughout the day at University Health Care, while data is mirrored nightly between the two controllers using NetApp SnapMirror.

To provide privacy of patient data and compliance with HIPAA regulations—and to streamline data security processes—University Health Care also deployed a NetApp DataFort™ security system. "Previously, we had to encrypt all of our data before writing it to tape," explains Fagg. "NetApp happened to have a solution that allowed us to secure data across all our storage platforms. NetApp DataFort not only gives us another layer of encryption, but it has helped reduce our backup window through simplified security processes."

Fagg says the NetApp implementation was straightforward, and that the organization was up and running quickly.

Business Benefits
Improving healthcare with zero downtime

NetApp provides a highly stable system with zero downtime. "A hospital needs data to be available at all times, and downtime can directly affect patient care," says Fagg. "With NetApp, we've had zero downtime, a welcome relief."

Now there are no more data access or performance problems for nurses and doctors serving patients on the front lines. They can quickly access the files and applications they need to do their work. NetApp V-Series has eliminated end-user complaints about availability and performance, which has led to overall improvements in healthcare services. Since deploying NetApp, the organization has improved IT service-level agreements by 100% and improved storage utilization by 30%.

With heavy administration, trouble-shooting, and headaches out of the way, storage administrators are much more productive and quickly able to add storage capacity when they need to. "We have the same head count but can do more now with NetApp," says Fagg. "We can focus on implementing technologies that add value for the organization, such as deduplication."

Eliminating 30 file servers saves $422,500

Getting rid of the NetWare file servers has saved University Health Care $422,500, Fagg reports. "By employing NetApp V-Series, we were able to eliminate 30 file servers. Now we just have two V-Series units to maintain. And we're saving about 750 hours a year due to improved manageability and ease of administration," he says. "NetApp can share out CIFS a hundred times better than our previous solution. Comparing life before NetApp to where we are now, it's like night and day. NetApp has solved our business challenges. When we do need to scale, we simply add disk and we're done."

Fagg also appreciates the tight integration into the organization's Microsoft Windows environment—one of his initial requirements for the solution. "Integration with Windows Active Directory has been seamless. We never have to worry about it," he says. Fagg also says that future plans with NetApp include employing deduplication technology. "With NetApp deduplication, we anticipate significant space savings—up to 50% for some datasets. We'll be able to shrink volumes and expect it will reduce storage costs," he says.

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"NetApp has very stable products that are easy to administer," Fagg concludes. "Our experience with NetApp has been excellent across the board. The local systems engineers have been great to work with, and we've been very impressed with the NOW® [NetApp Support] self-service knowledge base. NetApp has been a lifesaver. It has given us everything we need."

SOLUTION COMPONENTS

NetApp Products
NetApp V6070 open storage controllers

NetApp DataFort security system

NetApp SnapMirror software

NetApp SnapRestore software

NetApp Snapshot software

NetApp Professional Services

SupportEdge Premium with Premium AutoSupport™

Protocols
NAS-CIFS

NAS-NFS

FC SAN

Environment
Applications: Cerner PowerChart, Microsoft Exchange Server 2007, electronic health record system

Databases: Oracle®

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