



NetApp®

Success Story

FirstHealth of the Carolinas Cures Information Growing Pains by Standardizing on NetApp



KEY HIGHLIGHTS

Industry
Healthcare

The Challenge
Support 100% annual data growth and 650 applications while controlling costs, improving services, addressing regulations, and implementing disaster recovery.

The Solution
Consolidate on a NetApp® FAS series solution for reliable and efficient data collection, storage, and distribution. Implement NetApp NearStore® systems for disk-to-disk backup and archiving.

- Benefits**
- Deliver fast, 24x7 data access for global stakeholders
 - Achieve multimillion-dollar savings
 - Make sure of data protection, security, and recoverability
 - Administer 150TB+ of storage with < one full-time employee

Customer Profile

FirstHealth of the Carolinas is a private, nongovernmental, not-for-profit health-care network serving 15 counties in the mid-Carolinas. The organization includes three hospitals with 611 licensed beds, a rehabilitation center, a skilled nursing facility, three sleep disorder centers, three dental clinics, seven family care centers, six fitness centers, a laundry, four charitable foundations, a hospice program, home health services, and an insurance plan, as well as critical care transport, emergency medical services, and medical transport services. For two consecutive years, the organization's flagship Moore Regional Hospital has been named one of the nation's top 100 hospitals (source: www.firsthealth.org).

The Challenge

Support 100% annual data growth and 650 applications while improving information services and reducing costs

IT management in the healthcare business is not for the faint of heart. Few industries grapple with faster data growth, higher application demands, tighter regulations, or more rapidly increasing costs. Such challenges are only exacerbated by characteristic underinvestment in infrastructure

technology. "Historical inefficiency in our industry can be directly linked to outdated IT systems," says Dave Dillehunt, chief information officer at FirstHealth. "At the same time, we've been contending with phenomenal data growth. FirstHealth has experienced 100% year-over-year data growth since 2004. We've also seen an unbelievable proliferation of applications—in fact, we stopped counting at 650."

In this setting, Jonathan Campbell, director of network services for FirstHealth, says that the organization's direct-attached storage (DAS) infrastructure had become unmanageable and unable to support essential services. "We needed to implement a storage architecture that would enable more efficient collection, storage, and distribution of information to stakeholders in the healthcare delivery process. Simultaneously, we wanted to better secure that information to meet increasingly stringent patient and regulatory requirements for data protection and privacy.

"In the existing DAS environment, backup windows were too short, recovery from tape was slow and unreliable, and even physical security was an increasing problem because all of our data was

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Dave Dillehunt

CIO, FirstHealth of the Carolinas

stored on local disks that could easily be moved around. We also couldn’t implement effective disaster recovery—it would have been impossible to routinely copy critical data from all of those individual systems to three separate hospital data centers.”

To address these issues, FirstHealth launched a project to consolidate storage resources. Dillehunt points out that the project did not come with a blank check. “Raising our service levels was critical, yet so was controlling costs. Healthcare is one of the most costly industries in terms of equipment investments. Surgical robots, MRI systems—those are multimillion-dollar devices and are essential to delivering quality healthcare. So our IT investments must always be balanced against medical-equipment investments.”

The Solution

Consolidate on a unified storage solution from NetApp

After an evaluation of alternative systems, FirstHealth selected and standardized on a solution from NetApp. NetApp FAS3000 series systems now provide storage for the full complement of FirstHealth information and application environments, including file shares and home directories, and a wide array of applications based on Oracle®, including Kronos, McKesson PACS, electronic

medical records, performance and budgeting, time and attendance, and productivity systems. NetApp NearStore systems enable high-speed disk-to-disk backup and also serve as a permanent archive of PACS images and other data.

NetApp SnapMirror® software leverages NetApp Snapshot™ technology to facilitate automated replication of all business- and patient-critical data among the three FirstHealth hospitals. NetApp SnapRestore® software enables virtually instantaneous recovery of a single file or multiterabyte volumes. FirstHealth also leverages the NetApp FlexVol® functionality (built into the NetApp Data ONTAP® operating system) to dynamically provision and reallocate storage resources as needed to quickly respond to data growth and changing application and user environments.

Business Benefits

Support quality patient care, while achieving millions in savings, improved flexibility, and pace-setting leadership

“In many organizations, it’s the applications that tend to capture IT mindshare and investment dollars,” comments Dillehunt. “We’ve taken a different approach, focusing instead on building the infrastructure. It’s not glamorous, but without a solid infrastructure, it would be like building a \$10 million

home on a \$10 foundation. Standardizing on the NetApp architecture gives us the foundation we need for most efficiently delivering information services to global stakeholders.”

Quality patient care

The FirstHealth mission statement is concise and powerful: *to care for people*. Dillehunt says that consolidating healthcare data helps FirstHealth accomplish its mission of delivering the highest quality care. “NetApp’s technology allows us to more quickly put data where it’s needed. In the past, for example, if a physician wanted to compare an ER patient’s current MRI image with an earlier result, it might have taken hours to retrieve the old film. In cases where the film had already been archived to a warehouse, it might not be available until the next day. Now, with radiological images online, retrieval takes just minutes. The faster we can put information into a physician’s hands, the faster the diagnosis and treatment.”

NetApp’s solution also facilitates 24x7, global data access. “Information availability today goes beyond the walls of the hospital,” continues Dillehunt. “We are working to integrate our data and processes with other healthcare providers and to facilitate controlled access for insurance case reviewers, transcriptionists, and other key stakeholders.

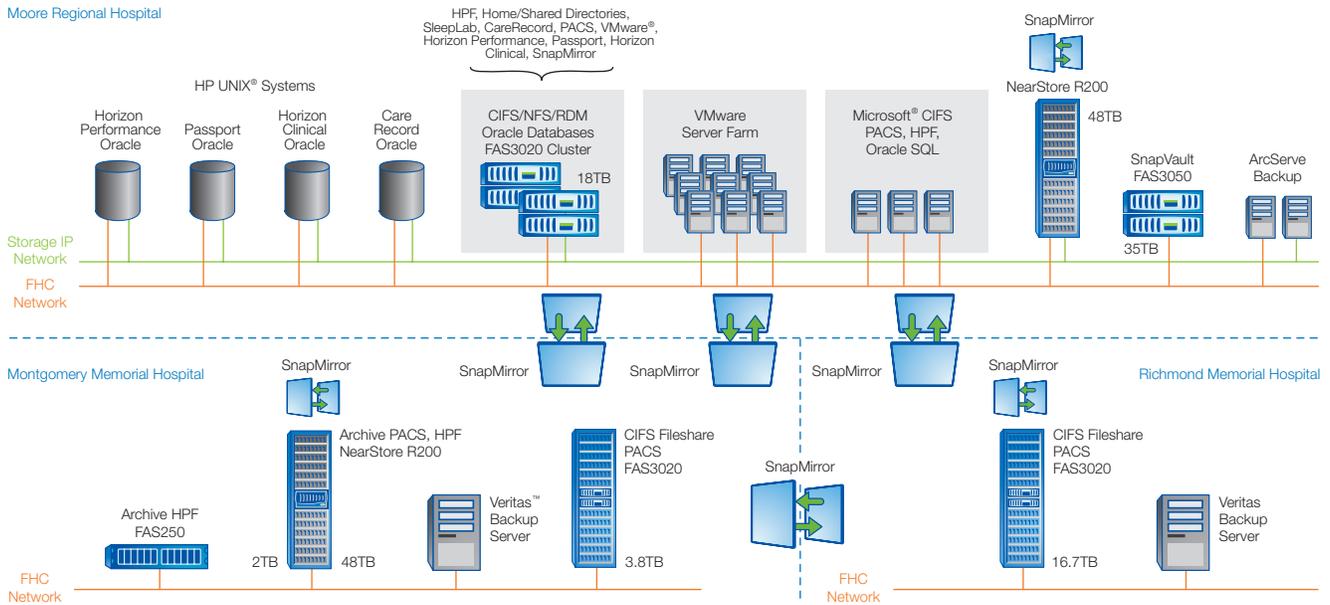


Figure 1) FirstHealth of the Carolinas environment.

Such integrated and global information access would have been impossible to deliver when our data was scattered across hundreds of individual servers in multiple locations. Today, we can effectively support a community or regional or even global view of patient care.”

Campbell notes that NetApp’s reliability has been a major benefit. “We’ve experienced no downtime related to NetApp since we deployed the solution. Information availability is a big contributor to patient care. If the storage system is degraded, so is the patient experience.”

Robust data protection and disaster recovery

Consolidation has also largely eliminated the physical security risks associated with direct-attached storage. “Standardizing on the NetApp platform dramatically improves our ability to manage information assets,” notes Campbell. “And we’ve now got the technology to support permanent archiving of records where health or regulatory requirements dictate.”

On the data protection side, Campbell says that FirstHealth leverages NetApp SnapMirror and Snapshot technology to establish and maintain data repositories at all three major facilities. “Today, all of our critical data, such as our

electronic medical records and PACS images, is stored in three locations, and we expect to eventually maintain copies of our entire data set at all three locations. That gives us tremendous data protection and recoverability and helps make sure that our hospitals can deliver critical care even in the event of a site disaster.

“We are also leveraging NetApp technology to eliminate the vast majority of tape backup processes. As we complete the transition from tape, we expect to dramatically shrink backup and recovery times; improve reliability; and eliminate the capital, operating, and administrative costs associated with tapes and tape systems.”

How does recoverability in the NetApp environment compare to the previous DAS environment? “Data recovery before NetApp took hours, and sometimes days; now with NetApp, it’s near instantaneous,” Campbell states. “Those time savings add up when you’re restoring user files several times a week. I would also point out that in the past, a system crash typically required at least four hours for data restoration, and everything was done manually. Today, utilizing NetApp technology, recovery is almost instantaneous.”

Millions in savings

Savings achieved as a result of the consolidation on NetApp’s storage systems come in many forms. Campbell describes one: “Our staffing levels have remained constant, even as we have scaled capacity to accommodate 100% annual data growth. In fact, although we currently utilize some 150TB of capacity, management of the NetApp storage infrastructure does not add up to a full-time job. With more than 200 servers and 650 applications to manage, conservation of administrative resources is always important.”

Campbell points out additional cost benefits. “With NetApp’s solution, the user training curve is minimal. Not only does that save time and money, it means that we’re not hesitant to introduce new NetApp technology. It really is true that if you learn one NetApp platform, you know them all. Overall, I’d estimate that NetApp’s solution has reduced our storage TCO by at least 30%.”

Less obvious might be the organization’s savings in data center real estate. “As part of our solution evaluation, we visited an EMC data center. We couldn’t help but notice the huge fans they had set up. Since we began consolidating on the NetApp systems, we’ve been

able to empty about four racks in each of our data centers. We estimate we now have 20% more load on our UPS without increasing the BTU output. So we're saving on floor space, cooling systems, and power. In fact, ROI on NetApp's solution was nearly immediate, well under 12 months. And we continue to receive value."

All of these savings, however, pale in comparison to what Dillehunt says is the larger benefit of deploying a solution from NetApp. "Beyond simply reducing our costs per gigabyte of storage, NetApp's solution has given us the ability to put clinical information into the hands of caregivers more quickly. That translates into better patient care, shorter hospital stays, and savings in the millions of dollars. Those are real dollars that can be invested in state-of-the-art medical technologies and patient care systems."

Flexibility and pace-setting leadership

"In contrast to other storage vendors, NetApp offers tremendous depth and breadth of product while maintaining consistency across all platforms," summarizes Dillehunt. "Within a single, unified architecture we can utilize iSCSI or NFS or Fibre Channel SAN connectivity, or economical SATA disks or high-performance FC drives. We have unprecedented flexibility to match our storage to application, user access,

and archive requirements. With a NetApp solution, we're not locked into a platform or configuration that may not work for the next application or the size of our data volumes next year."

In an industry that is relatively averse to risk, FirstHealth is unique in its approach to innovation. "We believe that innovation and improvements in patient care require a certain measure of boldness," Campbell says. "As just one example, we were determined to keep infrastructure costs down by running Oracle over NFS. Because NetApp supports Oracle Database environments using NAS and SAN, we were able to achieve both our budget and application-performance objectives."

"We were the first healthcare organization to fully convert to voice over IP," Dillehunt adds. "Most recently we were named to *Hospitals & Health Networks Most Wired Magazine's* list of most improved hospitals, one of only 25 organizations recognized in 2006. That recognition can in large part be attributed to NetApp enabling technologies. While other organizations might say 'we'll get to that,' FirstHealth tries to move forward right now. NetApp has been and will continue to be an important partner in our endeavors to lead the industry in delivering the best possible patient care."

SOLUTION COMPONENTS

NetApp Products

NetApp FAS3000 series
unified storage systems

NetApp NearStore systems

NetApp SnapMirror, SnapRestore,
SnapManager® for SQL Server®,
and Open Systems SnapVault®
software



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Go further, faster®

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