Mosaic Community Services Delivers Care Reliably and Cost-Effectively with NetApp

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MOSAIC
Community Services

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solution delivered by:

CTI

CUSTOMER PROFILE

Since 1984, Mosaic Community Services (www.mosaicinc.org), a nonprofit affiliate of The Sheppard Pratt Foundation, has developed a comprehensive, integrated behavioral healthcare system that offers an array of services throughout central Maryland. Devoted to enhancing the quality of life and promoting recovery, Mosaic delivers effective, community-based, outcome-focused services that are consumer driven and flexible.

THE CHALLENGE

Expand on-site storage and implement fast, reliable off-site backup and recovery
Mosaic Community Services faces a dual challenge. As a healthcare provider for people with mental illness, Mosaic's data availability can literally be a matter of life and death. Says Matt Peeling, Mosaic's chief of Information and Telecommunications, "We have people calling all the time in suicidal situations or in some type of crisis and we need to be able to make sure that everything is up and running." Recoverability is critical—especially in the event of a disaster affecting the surrounding community, in which case Mosaic's services are needed all the more urgently.

At the same time, as a nonprofit organization, Mosaic has to make limited resources go a long way. Supporting 550 Mosaic employees across more than 100 locations as well as 800 additional personnel at three affiliated agencies, the four-person IT staff must do everything as efficiently and cost-effectively as possible. To Peeling, it was clear that Mosaic's traditional tape-based backup strategy failed to meet this standard. Beyond the constant risk of media failure, tape simply took too long—upward of 19 hours for a central backup, cutting into production time and slowing systems and people alike. To safeguard its business and its patients, Mosaic needed to improve the timeliness, reliability, and consistency of its backups.

When Peeling began discussions with local IT provider CTI, it seemed possible that a few additional storage devices might be enough to meet his needs. By the time the engagement began, though, Mosaic's requirements had expanded significantly. The company had grown rapidly, with further expansion anticipated. New data-intensive projects loomed on the horizon, including the adoption of electronic medical records and a large-scale medical imaging initiative. Not only did Mosaic need to store and back up far more data, it also needed an environment that could keep pace with its rapid growth.

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Chief of Information and Telecommunications, Mosaic Community Services

THE SOLUTION

Deploy NetApp and VMware for efficient storage and reliable off-site backup and recovery

Taking into account both Mosaic's current needs and its future growth, CTI worked with the company on a long-term road map encompassing storage, backup and recovery, and disaster recovery planning. Explains CTI's Executive Account Manager Andy Dalton, "We saw that it would be difficult to address Mosaic's full range of needs within their existing direct-attached, distributed server infrastructure." A storage area network would accommodate growing data volumes more efficiently, but the solution also needed to speed backup and recovery and provide site-to-site replication to replace off-site storage of backup tapes.

CTI identified several key requirements for Mosaic's new storage infrastructure, including dual-path controllers for redundancy and the ability to grow storage easily by adding shelves. Support for multiple protocols was essential for efficient taking of snapshots and SAN-to-SAN replication. Says Peeling, "We wanted to have our VMware traffic on

NFS, Exchange running across iSCSi, and some direct file shares with CIFS. An important part of the solution was to be able to segment out that network and take advantage of those efficiencies."

Only NetApp offered the versatility Mosaic needed. Says Peeling, "The biggest factor was that NetApp met our needs. At the same time, they were also the most cost-effective solution for our budget, and allow us to grow easily into larger devices as needed." CTI helped Mosaic install NetApp FAS2050 storage systems with support for NFS, CIFS, and iSCSi for the primary site, backed up via SAN-to-SAN replication to NetApp FAS2020 servers at the secondary site. NetApp SnapManager® software streamlines storage management and simplifies configuration, backup, and restore operations for the company's Microsoft® Exchange, SQL Server®, and SharePoint® databases. NetApp SnapRestore® software enables Mosaic to recover any volume of data, from a single file to an entire database, in seconds. NetApp deduplication technology improves storage efficiency throughout Mosaic's data environment.

Server virtualization plays an important part in Mosaic's new storage infrastructure. Says Peeling, "The fact that we could turn off some of our physical servers, maximize our space, reduce our hardware costs, and be able to restore a whole server in 3 minutes as opposed to 24 hours made virtualization quite an attractive option." The company installed four VMware ESX servers, provisioned, monitored, and managed using VMware Virtual Center software. Many of the company's servers were already performing multiple roles; splitting each out onto its own virtual machine improved both speed and productivity. "We got so excited, we virtualized just about every server," says Peeling, who built 20 virtual machines at last count. NetApp SnapManager for Virtual Infrastructure automates the instant NetApp Snapshot™ backups for Mosaic's virtualized environment while providing granular restore capabilities at the virtual machine level.

Mosaic's NetApp storage environment now supports databases including Microsoft Exchange 2003, SharePoint 2007, and SQL Server 2000, as well as numerous business and industry-specific applications.
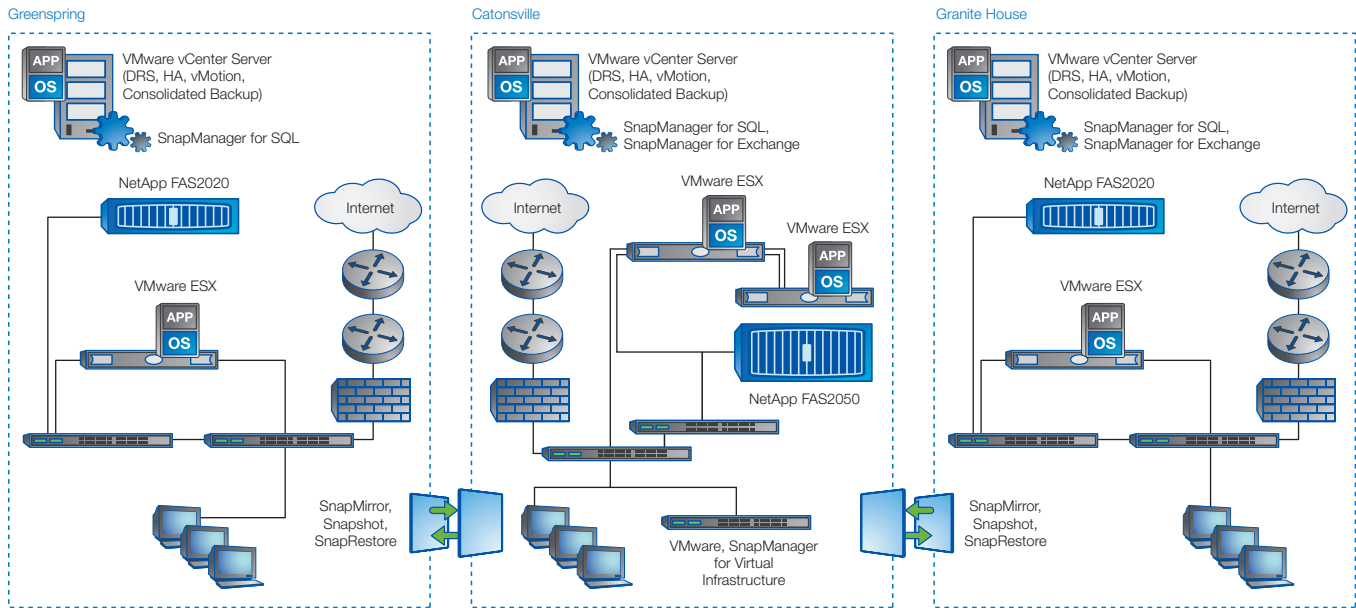
Figure 1) Mosaic's storage environment.
A NetApp 2050 clustered storage system supports core databases, business applications, and industry-specific applications, which run on 20 virtual machines on 4 VMware ESX servers. Data is backed up via SAN-to-SAN replication to a NetApp FAS2020 cluster off site using NetApp SnapManager software, with restore provided by NetApp SnapRestore software. Citrix XenApp provides virtualized desktop services to enable employees at Mosaic and its affiliated agencies to access electronic medical records.

The company will also run its planned document management and imaging systems on NetApp, as well as a new procurement system. The project has enabled Mosaic to move from its longstanding Citrix Presentation Server implementation to Citrix XenApp, an upgrade that improves manageability and flexibility by going beyond application hosting to support full application virtualization and streaming. Running on three virtual machines, XenApp enables both the company's own employees and those at its affiliated agencies to access electronic records via virtualized desktop services. Phone servers have also been virtualized, and a planned implementation of Microsoft Live Communications Server will enable Mosaic to unify its communications applications through SharePoint, Outlook, and other Microsoft Office applications.

BUSINESS BENEFITS

More reliable backups and faster recoverability
With NetApp and VMware in place, Mosaic's backup and recovery problems are a distant memory. "The speed and throughput of our NetApp devices are just incredible," Peeling reports—even before the company's upgrade to a higher-speed MPLS network.

"Our e-mail server is critically important," he goes on. "We have a lot of communications both with Washington and with people in crisis. After installing NetApp, we took that entire server down, deleted it, and restored it in just 10 minutes. It used to take days or whole weekends to do something like that." Mosaic will soon implement NetApp Single Mailbox Recovery to make it possible to recover individual messages, mailboxes, or attachments without having to recover the entire database.

"The same applies for the CIF shares in our NFS traffic," says Peeling. "Being able to go out and grab a snapshot from just a few minutes ago, if someone lost or corrupted a document—it's important for us to be able to do that quickly and easily. NetApp lets us walk the user through it and say, 'Just go to this address in your file explorer and there's your file.'" With backups consistently replicated off site, Mosaic is also working with CTI to develop disaster recovery processes and define recovery time and recovery point objectives.

Optimized staff and budget resources
"As a nonprofit community provider, we don't have a lot of money for salaries or a big IT department," says Peeling. "Our

NetApp solution is easy to maintain and manage." Automated monitoring and performance tuning allow Peeling's staff to spend more time helping users and fulfilling its objective to be a customer service–oriented organization. In the past, failed backups often meant hours of extra work. Now, Peeling says, "Eliminating that problem has given us a lot of additional time."

NetApp also helps Mosaic stretch its hardware budget further. "Our approach has always been to buy just what we need and not much more, then try to make it last," explains Peeling. "NetApp deduplication technology has helped us reduce storage usage by 35% across all applications. This, together with server virtualization, reduces the number of physical servers we need, so we can afford higher-level HP servers with better performance, power, and extendibility."

Ample room for growth
Given the versatility of his new storage environment, Peeling is confident in his ability to meet Mosaic's requirements now and in the future: "Between NetApp, VMware, and CTI, we're positioned where we need to be in order to provide the critical services we need to, and provide them

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24x7 regardless of any scenario, disaster or otherwise." Moving forward, he states, "We know we'll need to expand on the shelves we already have and add storage for our imaging and document management project, and down the road we'll be moving to larger NetApp devices. We may be a nonprofit, but when it comes to IT we're cutting edge. We do well with what we have."

SOLUTION COMPONENTS

NetApp products
NetApp FAS2020 and FAS2050 storage systems

NetApp SnapRestore

NetApp SnapManager for Microsoft Exchange

NetApp SnapManager for SQL Server

NetApp SnapManager for Microsoft SharePoint

NetApp SnapManager for Virtual Infrastructure

NetApp deduplication technology

NetApp Snapshot technology

Protocols
NFS, CIFS, iSCSI

Third-party products
VMware ESX

VMware Virtual Center

Environment
Microsoft Exchange Server 2003

Microsoft SQL Server 2000

Microsoft SharePoint Server 2007

Microsoft Windows® Server 2008

Industry applications

Partner
CTI
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