OCH Regional Medical Center optimizes patient services with IBM XIV storage

Exceptional cost per terabyte brings enterprise-class storage to progressive rural medical facility

Overview

Challenge

To enhance the efficiency of its health-care services and support new software for centrally managing all data, OCH Regional Medical Center needed storage that was scalable and high performing.

Solution

The IBM XIV® Storage System, sup-porting its VMware virtualized environ-ment and Tivoli® management software, centralized storage and man-agement of all its data, including of PACS, Allscripts, and other healthcare applications, and diverse databases.

Benefits

- 50 percent increase in performance
- Tier one storage at "stunning" cost per terabyte
- Flexibility and speed—70 to 80 percent faster provisioning

OCH Regional Medical Center, in Oktibbeha County, Mississippi, in the United States, is a county-owned and operated primary care healthcare facility for residents in east-central Mississippi. It has 22 medical specialties, 650 employees, including 100 staff physicians, 27 contract employees, and 125 volunteers.

As part of a major initiative to expand its services and client base, the medical center is currently building a US$27.5 million state-of-the-art facility. They are also implementing a new Allscripts healthcare man-agement package—initially, for practice management and, later, for full Electronic Health Records (EHR) management.

"Our organization takes a progressive approach in all we do. We see technology as a major enabler for excellent healthcare—whether it's advanced equipment or software that helps medical staff and business managers deliver the best possible quality of service," says Chamath N Wijewardane, Chief Information Technology Officer at OCH Regional Medical Center. "We knew that rolling out Allscripts would increase our data storage requirements by at least 8 TB and that we would need at least 2 TB more for medical images. The XIV system gave us all the capacity we needed, with phenomenal performance and flexibility, at a stunning cost per terabyte. As a smaller hospital, the ability to invest in tier-one storage from IBM is remarkable—the XIV system's efficiency and modular nature make that possible."

Seeking healthier data management

OCH Regional Medical Center's adoption of Allscripts organization-wide was driven by the desire to centrally integrate and manage its data. The hospital had been using several different management appli-cations, creating a costly and fragmented infrastructure. Wijewardane explains: "Managing data that resided internally for our different clin-ics and departments was costly. We needed to centralize all existing data, then add at least 10 TB of new data—yet had only 6 TB on our existing storage system."

The hospital's ITS team consulted Dynamix Group Inc., their long-time IBM Business Partner, which ran a series of demonstrations to show how the XIV system would meet or exceed the defined perform-ance and availability targets. Recalls Wijewardane: "We consider

IBM Solution Components

Hardware

- IBM XIV® Storage System
- IBM BladeCenter® HS20, HS21, HS22, JS22, JS23
- IBM Power Systems™
- IBM System x®

Software

- IBM AIX® 5.3
- Lotus® Domino® 8.0.2/Lotus Notes®
- Lotus Sametime®
- IBM PowerVM™ supporting virtual instances of AIX 5.3 and 6.1
- IBM Systems Director
- IBM Tivoli® Provisioning Manager
- IBM Tivoli Provisioning Manager for OS Deployment
- IBM Tivoli Storage Manager 5.5

Business Partner

- Dynamix Group Inc.

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—Chamath N Wijewardane, Chief Information Technology Officer, OCH Regional Medical Center

Dynamix a true partner: They have been a driving force in improving the hospital when it comes to technology, always delivering the right solution for our needs, and at a competitive price. They told us that XIV is a brilliant solution—that we had to consider it."

"Hearing that a storage system with 7,200 rpm drives could outperform one based on 15,000 rpm drives had me skeptical," recounts Wijewardane. "Once we got our heads around the grid concept that underpins the XIV system—how it stripes data across all disks and enables extremely parallelized read-write operations—we knew that it was the ideal solution for us, and we were happy to be the first organization in the state of Mississippi to deploy an XIV system."

Mind-boggling migration

"Had we chosen any other storage, there would have been a migration cost—implementation services and downtime—that would have been hard to cover for a hospital our size," Wijewardane explains. "The mind-boggling thing is that XIV makes migration a background activity: while the data is copying over, the XIV acts as an interface to the old storage, so that all applications continue to run as normal."

"We made sure priorities were set and the MPIO driver was installed, turned the server off, rezoned it to the XIV, pointed XIV to the location on the old box, and turned the machine on. Instead of hours, it took five minutes. At first, we said we'd do one of six LUNs at a time but, after a few minutes, said, 'Let's just do it all at once.' We migrated our PACS in one shot: Turned it off, mapped everything, and told our guys to go back to work."

One storage system for all needs

The XIV system at OCH Regional Medical Center is connected to multiple IBM servers running a mix of native and virtual operating systems. The system is integrated with VMware servers, supporting a total of 65 virtual machines. In addition to Allscripts, the XIV system is connected to a leading PACS application and several smaller medical applications, including Olympus for surgery outpatients and GE QS Perinatal. The IBM XIV system supports the organization's Microsoft® SQL Server and Oracle databases, and 251 Lotus Notes® users

50 percent performance increase: A well-being enhancer

"The performance of the XIV system is even better than we expected," says Wijewardane. "We have had positive comments from almost every department in the hospital since putting IBM XIV in place, with reports of faster access to PACS images and faster document retrieval. I estimate that we've seen more than a 50 percent increase in performance: We are clearly providing better service to our company users, so delivering higher-quality, faster healthcare to our clients."

IT Environment

Operating systems

- IBM AIX 5.3
- Microsoft Windows Server 2003 and 2008
- SUSE Linux Enterprise Server 9, 10 and 11

Databases

- Microsoft SQL Server 2000, 2005, 2008
- Oracle

Applications

- Allscripts 11.6
- Olympus
- GE QS Perinatal
- Microsoft Terminal Server 2003
- Apache Tomcat

Virtualization

- IBM PowerVM
- VMware ESX Server 4.0
- VMware ESXi Server 4.0

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—Chamath N Wijewardane, Chief Information Technology Officer, OCH Regional Medical Center

He continues, "When we require more capacity, we can simply slot in new XIV modules. Each new module adds CPU and 8 GB of cache, so the performance will actually increase as we grow."

Glynn Stone, MRST, Imaging Director at OCH, comments: "Moving our PACS over to IBX XIV has aided the entire medical staff with a faster response time to visualize images, which in turn correlates to more efficient and compassionate care."

Allocate and let it grow

The XIV system comes with software all inclusive, including thin provisioning and snapshots. OCH Regional Medical Center is using the XIV thin-provisioning capability to save on capacity costs. Describes Wijewardane: "When the thin provisioning was explained, it didn't sink in at first. Now that we're using it, we see how well it works. It's like an airline oversubscribing seats—eventually someone will claim the seat but, for the meantime, you can allocate small portions and let it grow."

XIV snapshots and copying features are helping improve IT productivity. Wijewardane explains: "XIV lets us bring projects in faster than ever before. Our IT team is constantly testing, adding, upgrading—pushing the envelope. Even with an upgrade, we can now copy a volume before we 'mess' with it. "He added: "We used to wait for snapshots to complete. With XIV, it's instantaneous: We have the confidence to take down a 300 GB server, copy it, and put it straight back online without batting an eyelid. It's truly remarkable."

Snapshots are also helping the team implement applications faster; it recently deployed IBM Tivoli Provisioning Manager in just three days, taking snapshots and restarting the server as they progressed. "I was told there are very large organizations that don't even have that capability," Wijewardane notes.

The IT team estimates that provisioning a new LUN is now 70 to 80 percent faster than on a traditional storage system. "We just copy a LUN over—it's a flexibility that we didn't have before."

So easy, you have to think less

Wijewardane says, "The XIV system is so easy to use, you have to step back a little and not overthink, not make it more complicated than it is. As an IT person, it's hard to say you don't really know where the data is—it's all over the place. But, very quickly, you learn to trust the XIV system."

Wijewardane summarizes, "IBM XIV brought full redundancy of our most critical application within our financial reach—we couldn't have achieved such a level of protection at this price point with any other system."

"The IBM XIV Storage System gave us all the capacity we needed, with phenomenal performance and flexibility at a stunning price."

—Chamath N Wijewardane, Chief Information Technology Officer, OCH Regional Medical Center

For more information

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For more information about Dynamix Group, visit: dynamixgroup.com

For more information about OCH Regional Medical Center, visit: och.org