OCHSNER HEALTH SYSTEM
Transformation of backup and recovery operations leads to dramatic efficiency gains and improved protection of medical records

OVERVIEW
Ochsner Health System is southeast Louisiana’s largest non-profit, academic, multi-specialty healthcare delivery system with more than 12,500 employees, eight hospitals, and more than 38 health centers.

BUSINESS CHALLENGES
Recognized by U.S. News and World Report as a “Best Hospital,” Ochsner has grown dramatically in recent years, creating a surge in demand for IT services and huge expansion of its infrastructure. Data volumes were increasing exponentially, especially in radiology, and straining Ochsner’s mainframe-based IBM Tivoli Storage Manager (TSM) tape backup system.

“Because of the huge amounts of data requiring backup, we were exceeding our backup windows,” explains Willy Schley, Ochsner’s Technology Development Manager. “And TSM took so much of our mainframe resources to process the backups, it affected production applications and slowed information access for our clinicians.”

EMC TRANSFORMS BACKUP AND RECOVERY
Ochsner replaced TSM with a combination of EMC backup and recovery solutions to provide comprehensive protection of its virtualized and physical infrastructures and achieve a completely tapeless environment. Ochsner has virtualized 80 percent of its infrastructure with VMware® vSphere™ and IBM AIX.

EMC® Avamar® deduplication backup software and systems protect nearly 800 virtual machines and physical servers and more than 200 applications, including Citrix, Lawson EHR, Novell GroupWise email, Kronos time and attendance, Soft lab system, and Agfa picture archiving and communication systems (PACS). In addition, the Avamar NDMP Accelerator protects Ochsner’s network-attached storage (NAS) file servers. In all cases, Avamar provides fast, daily full backups via existing IP networks.

The health system relies on EMC Data Domain® deduplication storage systems and EMC NetWorker® unified backup and recovery software to back up its virtualized Oracle database and applications. Ochsner uses EMC Data Domain Boost software integrated with NetWorker to back up the cache database for Epic electronic medical records (EMR). Ochsner also plans to back up other large databases, such as Microsoft SQL Server, to the same Data Domain systems.

In addition, Ochsner uses EMC Disk Library for mainframe to back up legacy EMR mainframe applications, including Siemens Invision and Signature.

ESSENTIALS

Business Challenges
- Exponential data growth straining performance of production applications
- Backups not completing in available windows, slowing applications and user productivity
- Need for solution to support virtualization and private cloud strategy

Solutions
- EMC Avamar
- EMC Data Domain
- EMC Data Domain Boost
- EMC NetWorker
- EMC Disk Library for mainframe
- EMC Data Protection Advisor
- Oracle, Epic EMR, Citrix, Lawson EHR, Novell GroupWise email, Kronos time and attendance, Soft lab system, and Agfa picture archiving and communication systems (PACS)
Results

- Reduced network bandwidth by 99 percent
- Reduced backup storage requirements by up to 50 times
- Eliminated more than 2,300 physical tapes, a tape library, and associated costs
- Achieved fast, daily full backups well within backup windows
- Streamlined backup for physical/virtual servers, NAS, and mainframe
- Achieved six-hour recovery of critical Epic EMR application
- Freed IT staff resources to focus on strategic IT services

Backup data is replicated between Ochsner’s production and disaster recovery data centers across 500 miles for maximum protection. Since both EMC backup and recovery solutions only replicate unique data segments, replication is fast and efficient, enabling Ochsner to leverage its existing network infrastructure. Ochsner monitors and manages the entire EMC backup and recovery infrastructure with EMC Data Protection Advisor.

AVAMAR PROVIDES FULL DAILY BACKUPS EVEN AS VOLUMES GROW

Avamar has accelerated backups dramatically and delivers daily full backups, enabling Ochsner to stay well within its ten-hour nightly backup window. Most evenings, backups are completed in fewer than eight hours, even as data volume increases. Ochsner has also regained the mainframe resources once consumed by tape backup, improving performance of critical medical applications.

"Since deploying Avamar, we've more than doubled the volume of our backup data and still stay within our backup window,” reports Schley. “We're now able to complete daily full backups compared to monthly full backups and daily incrementals before.”

The key to achieving these results is a 60:1 deduplication ratio that reduces network bandwidth by 99 percent and storage by 50 times. For example, daily analysis showed that 31.2 terabytes of data was written to only 230 gigabytes of physical space. Over 30 days, 966 terabytes was written to 7.18 terabytes of physical storage.

The innovative Avamar NDMP Accelerator enabled similar results for Ochsner’s NAS file servers, according to Schley. “Avamar enabled us to pour more data into our NAS environment. We back up about 20 terabytes each night in less than 10 hours.”

“With the intelligence and automation of EMC’s comprehensive backup and recovery infrastructure, we can focus more on delivering new applications and services that improve healthcare, rather than simply managing technology.”

Doug Lauterbach
Assistant Vice President, Technology, at Ochsner Health System

ACCELERATING EMBRACE OF PRIVATE CLOUD

Down the road, Ochsner will use Avamar to back up virtual machine disk format (VDMK) images, enabling bare metal recovery of virtual servers.

Doug Lauterbach, Ochsner’s Assistant Vice President, Technology, says, “With Avamar, we expect a dramatic improvement in how quickly we can restore virtual machines. Avamar’s protection of both our virtual and physical servers is absolutely accelerating our virtualization and private cloud strategy.”

RESTORING CRITICAL EMR DATABASE IN UNDER SIX HOURS

Ochsner leverages Data Domain systems and NetWorker software to back up large databases, such as Oracle and the Epic cache database, every 15 to 30 minutes. For Oracle, Data Domain deduplication has enabled Ochsner to reduce its backup data by 90.3 percent. And Ochsner has achieved a 38:1 deduplication ratio for Epic. Both of these reductions enable Ochsner to maintain backup windows even as the environments grow.
With Data Domain Boost and NetWorker, Ochsner also met a difficult challenge to recover its Epic cache database within the tight parameters set by Epic.

Schley explains, “Epic requires us to restore the Epic database from a backup in under six hours. With our cache database sized at six terabytes, it’s not easy to find a solution to do that. Data Domain Boost and NetWorker turned out to be the perfect combination.”

Since adopting EMC Disk Library for mainframe and integrating Data Domain to further reduce the storage footprint, Ochsner can back up its legacy mainframe applications in just four hours, with a deduplication ratio of up to 8:1. This has allowed the organization to remove more than 2,300 tapes and decommission a large tape library—recapturing floor space and increasing the reliability and speed of backup and recovery operations.

Embracing a tapeless infrastructure with EMC backup and recovery solutions enabled Ochsner to eliminate tape costs, including media and off-site shipping and storage.

**FREEING IT STAFF TO FOCUS ON SUPPORTING HEALTHCARE**

Ochsner’s next-generation EMC backup and recovery infrastructure is also freeing IT staff to focus on more strategic projects. For example, tools such as EMC Data Protection Advisor provide deep visibility into the validity of each backup, saving hours of administrative time. At Ochsner, roughly 75 percent of a single administrator’s time is involved with managing the entire backup infrastructure.

Says Lauterbach, “With the intelligence and automation of EMC’s comprehensive backup and recovery infrastructure, we can focus more on delivering new applications and services that improve healthcare, rather than simply managing technology. The fluidity and integration across the Avamar and Data Domain products have allowed us to satisfy very complex backup requirements within a cohesive framework.”

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