



Success Story

St. Luke's Hospital: More Efficient Healthcare, Flash-Enabled EMR



KEY HIGHLIGHTS

Industry
Healthcare

The Challenge

Implement a stable and predictable technology infrastructure that will provide caregivers with timely access to vital patient and medication information.

The Solution

Provide consistently high performance for Cerner Millennium and eClinicalWorks electronic medical records (EMRs) with NetApp® hybrid flash systems.

Benefits

- Enables EMR systems to respond 30% faster
- Provides consistent submillisecond storage latency
- Increases performance by five times for nightly batch jobs required for compliance
- Reduces help desk calls and reclaims IT staff time

Providing Informed, High-Quality Care

In today's healthcare environment, patient care outcomes and experiences depend on fast, 24/7 access to electronic medical records (EMRs). At St. Luke's Hospital, a 493-bed, not-for-profit hospital near St. Louis, Missouri, caregivers rely on Cerner Millennium EMR to access patient test results, medical history, and prescription information. Caregivers also rely on it to capture clinical documentation related to patient care. The hospital also hosts EMR as a service for its 35 employed physician practices using eClinicalWorks outpatient practice management and clinical documentation applications.

The Challenge

Eliminating barriers to rapid patient data access

As the hospital's acute care information system, Cerner Millennium is essential to operating the clinical environment. It incorporates core hospital operations, from physician order entry and nursing documentation to radiology, pharmacy, and lab records. The eClinicalWorks application provides clinical and patient

information to 130 physicians and nurses at local medical practices. St. Luke's must provide near-instantaneous access to both EMR systems to enable healthcare practitioners to be productive and efficient. Any delay in accessing information affects the patient's continuum of care, from the bedside to the lab.

"We strive to deliver 100% uptime and the best possible application performance for Cerner Millennium and eClinicalWorks," says Scott Holtswarth, director, Information Services at St. Luke's. "Any other scenario makes it very difficult to provide the high quality of care for which we are known."

However, as demand on systems grew, increasing workloads began to degrade EMR performance. This situation caused delays in patient information access and frustrated end users. When latency spiked, help desk calls increased, draining valuable IT staff time, which led the team to consider NetApp. "We needed to eliminate the bottlenecks, and database I/O was the challenge," says Joseph Stefanko, systems engineer at St. Luke's.

The Solution

Flash storage for electronic medical records

Having migrated its VMware virtual server environment to NetApp to gain performance and flexibility benefits, St. Luke's decided to do the same for its EMR systems. It deployed a NetApp hybrid flash FAS8040 storage cluster with solid-state drives and moved Cerner Millennium and eClinicalWorks applications and their associated Oracle and Microsoft SQL Server databases to flash-based SAN aggregates.

The hospital also brought its VMware environment into the hybrid cluster on spinning drives over NFS, gaining the benefits of nondisruptive storage operations and NetApp Flash Cache™ controller-attached intelligent caching. "NetApp clustered Data ONTAP simplifies data management, making it easier to meet our goal of 100% uptime," says Chris Krahl, network manager at St. Luke's.

Business Benefits

Increasing EMR application performance

Since moving its EMR applications and databases to flash storage, the hospital's database I/O latency decreased 10-fold, eliminating spikes and allowing EMR applications to respond at least 30% faster. The performance boost removed the periodic workflow bottlenecks for hospital staff and physicians, bringing greater efficiency to the patient care environment.

"Moving our EMR systems to a NetApp hybrid flash SAN immediately placed us in the top-performing 5% of all on-premises Cerner Millennium deployments by providing consistent submillisecond storage latency," says Holtswarth. "With the help of NetApp flash technology, we're giving

our caregivers the most valuable thing IT can provide: fast, reliable access to vital patient information."

Enabling more effective IT

With stable application performance, calls to the help desk dropped significantly. Because the IT staff no longer spends time troubleshooting for users and managing database performance for EMR systems, they are free to handle more strategic tasks.

There were unexpected benefits as well, according to Stefanko: "The day we moved EMR to the NetApp hybrid flash SAN, our analysts thought that our daily batch jobs had failed," he says. "They hadn't failed. They finished in 4 hours instead of 20 hours because of the decrease in database I/O latency. Those batch jobs are required for compliance—purging data that's no longer needed by law—and now we're able to stay comfortably within our nightly window."

Accommodating the future of healthcare

With NetApp hybrid flash systems, St. Luke's is consistently meeting the expectation of immediate information access for caregivers and patients alike, enabling effective treatment in a timely manner. As healthcare continues to evolve, the hospital can accommodate rapid growth in data and patient services without a corresponding increase in IT resources.

"We're rolling out Cerner to our eight urgent care centers and long-term care facility, and NetApp is giving us great performance," says Holtswarth. "With technologies like flash storage and clustered Data ONTAP, we can meet new and increasing demands while minimizing our impact on IT staffing levels."

SOLUTION COMPONENTS

NetApp Products

NetApp hybrid flash FAS8040 systems

NetApp clustered Data ONTAP 8.x

NetApp Flash Cache

NetApp deduplication

Environment

Applications: Cerner Millennium, eClinicalWorks

Databases: Oracle, Microsoft SQL Server

Server Platforms: IBM AIX, Windows Server

Server Virtualization: VMware vSphere

Protocols

FC-SAN

NFS



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