



Solution Brief

Enhance Higher Quality of Care by Running Epic with NetApp Flash Solutions

KEY BENEFITS

Meet Stringent Latency Requirements for Epic Workloads

Meet Epic service-level objectives for critical applications with consistent, submillisecond latency and a scale-out architecture.

Boost GenIO Workload Performance

Improve performance for Epic workloads that are random read-intensive without adding more high-performance disk drives.

Keep Pace with Growing Clinical Data While Controlling Storage Costs

Deliver optimal performance and accommodate data growth at a reduced cost by using flash to provide I/O throughput and by combining solid-state drives (SSDs) with hard disk drives.

Flash Performance Augments Quality of Care

Today's flash technology makes it possible for clinicians to accelerate time-sensitive decisions regarding treatment plans by having near-real-time access to critical patient data. Local flash storage can improve application performance with greater efficiency and rack density, making it possible to deliver superior speed and responsiveness from clinical operations.

NetApp Flash-Accelerated Storage Portfolio

With the broadest flash portfolio in the industry, NetApp provides flexibility and choice to maximize the value of flash across the entire compute, network, and storage stack. Flash technology delivers a powerful combination that's critical for Epic customers who need to accelerate workloads without compromising the way they deploy, manage, and protect data across their environment.

NetApp's approach to flash takes advantage of the company's full portfolio and partner ecosystem to deliver the right flash solution for the right workload, with over 111PB of

flash in the market to date. Our complementary platforms are designed to deliver low-latency performance with enterprise-class RAS to improve speed, responsiveness, and value from the applications that control key clinical and business operations. Healthcare organizations can:

- Increase I/O throughput and eliminate performance bottlenecks.
- Lower costs while increasing performance with a minimal footprint.

NetApp all-flash FAS

NetApp® all-flash FAS configurations use high-performance SSDs that are available in a broad set of capacity points from 200GB to 1.6TB, enabling customization to meet specific cost and density needs. If additional IOPS are required, all-flash FAS configurations can scale out in a cluster of up to 24 nodes, providing millions of IOPS at submillisecond latency and supporting nearly 5PB of SSD capacity.

Flash Cache

NetApp Flash Cache™ modules improve performance for workloads that are random read-intensive, such as file services, messaging, OLTP databases,

and server or desktop virtualization. Flash Cache speeds data access through intelligent caching of recently read user data or NetApp metadata. No setup or ongoing administration is needed, and operations can be tuned. Putting active data blocks in the storage controller speeds access by a factor of 10 or more compared with that of disk.

NetApp Flash Validated Architecture for Epic Environments

NetApp Flash Cache and all-flash FAS have received High Level of Comfort rankings in Epic's June 2014 *Storage Products and Technology Status* document. With NetApp flash technologies, Epic customers can optimize the performance of their patient-care critical environments.

Epic has validated GenIO workload performance test results with NetApp, helping customers determine the optimal use of flash technology in sizing storage configurations. This gives healthcare providers an additional level of assurance in meeting the stringent low-latency and high-IOPS requirements of their Epic systems environments.

Low Latency Performance

Including NetApp flash solutions in Epic environments is an excellent way to maintain submillisecond response times for demanding clinical workloads. These systems optimize I/O and maximize application throughput while running leading data management functions. They also meet the required response times of 15ms read latency and less than 1ms write latency, as defined by Epic for meeting application-level performance.

Scale-Out Architecture

Powered by the NetApp Data ONTAP® operating system, NetApp flash solutions are a key part of IT when advanced storage control is needed for high-speed workloads. In clustered scale-out configurations, storage systems and components can be replaced or combined with different FAS models. The combination of capacity-optimized drives with Flash Cache and all-flash FAS can increase storage capacity by 50% while providing comparable performance. Scaling occurs without maintenance windows or the challenge of coordinating downtime across teams. This makes it easy to expand the storage infrastructure to meet growing data volumes with performance optimized for specific workloads.

State-of-the-Art Data Protection

NetApp Integrated Data Protection is a core component of Data ONTAP. It provides availability, backup, compliance, and disaster recovery services, right from the storage platform.

NetApp storage efficiency technologies and techniques are designed to reduce unchecked storage growth. These technologies include deduplication, compression, thin provisioning, and thin replication. They help lower costs and accelerate business performance, making it possible to store, replicate, and recover data faster while storing more backups longer.

Cost-Effectiveness

NetApp all-flash FAS for Epic environments reduces physical space requirements and costs associated with overprovisioning. By eliminating disk drives that are not needed for

storage capacity, healthcare providers can reduce the purchase price of a storage system and can obtain ongoing savings by consuming less power, cooling, and rack space.

Snapshot Copies

NetApp Snapshot® technology protects data—from a single file to a complete disaster recovery solution—by creating point-in-time copies of file systems. It can be used while applications are running, creating Snapshot copies in less than a second, regardless of volume, LUN size, or level of activity on the NetApp system.

Summary

NetApp combines the industry's richest data management features with low-latency performance and a proven scale-out architecture. NetApp flash solutions are ideally suited for Epic customers who want to build efficient shared storage infrastructures by using the power and efficiency of clustered Data ONTAP.

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

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