

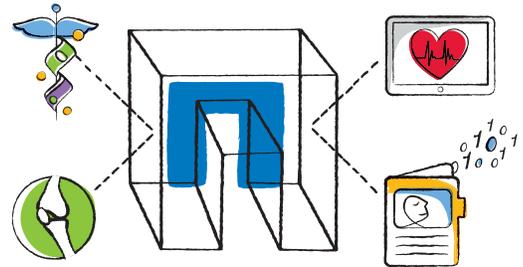


NetApp®



Solution Brief

NetApp and Red Hat Provide Timely Access to Patient Information in Epic Solutions Suite



KEY FEATURES

See a Positive Impact on Cost and Performance

A modern, agile infrastructure delivers efficiency, performance, and flexibility for Epic EHR environments with continuous access to clinical applications.

Support Exponential Data Growth

NetApp® award-winning storage efficiency technologies deliver improved utilization to meet new regulations such as MU, ICD-10 and ACO storage needs, and easily accommodate rapidly growing terabytes of patient data.

Reduce Cost and Complexity

Evolve from proprietary UNIX® systems and legacy storage arrays to a modern infrastructure using Intel®-based systems and Red Hat Enterprise Linux to optimize data center operations as the Epic platform.

The Problem

Providing access to the right information at the right time is critical for delivering quality patient care. Epic has become a clear industry leader by delivering an enterprise EHR solution that allows clinicians to make more informed decisions and deliver a higher quality of care. With patient care at the center of Epic systems, IT organizations must architect the most resilient infrastructure possible. While striving to simplify design and operations, healthcare organizations must balance technology investments with increasingly constrained budgets due to declining reimbursement levels.

However, implementing or upgrading to current versions of the Epic software suite requires customers to deliver additional processing power and high-performance storage. As healthcare organizations' budgets tighten in today's rapidly changing reimbursement climate, the question many CIOs and CTOs are being asked is "How can you deliver the high performance, high

availability, and growing capacity the Epic system demands, but with a lower cost structure?"

The industry has been migrating away from proprietary versions of UNIX and expensive RISC-processor servers, and this trend has been accelerating over the last 5 years. Healthcare organizations and top global businesses have responded to tough financial times, even in the midst of rapid data growth and expanding IT deployments. Embracing the constructs of lean IT helps increase efficiency and agility to better align with business needs.

Epic announced support in 2012 for a target platform encompassing Intel® processors and virtualized servers with Red Hat Enterprise Linux® and expressing a high comfort level in NetApp storage for customers of this rapidly growing technology platform. Since that time, Red Hat and NetApp have worked to extend their existing corporate alliance to specifically support Epic customers.

We've recovered 25% of our data center space and expect to reach 40% when we've completed consolidation. We've eliminated IT silos and are benefiting from centralized resource management.

David Stark

Chief Technology Officer, Group Health Cooperative of South Central Wisconsin

Modern Infrastructure Provides Cost-Effective Solution for Epic Solutions Suite

Healthcare organizations have long recognized the need to modernize their IT infrastructure to address limitations of legacy environments. Healthcare organizations today face common challenges, including:

- Application upgrades that are no longer supported by the existing infrastructure.
- Higher levels of performance, availability, and manageability that are required to provide ready access to patient information.
- Hardware refreshes and replatforming initiatives that make it possible to achieve lower total cost of ownership (TCO).

The Solution

Epic software supports all facets of patient care and the customer's revenue cycle and financial performance. Working together, NetApp and Red Hat help healthcare providers achieve an improved TCO of their Epic environment with more hardware choices, open source solutions, and scale-out storage architecture. Organizations can now deploy a flexible, cost-effective infrastructure that meets or surpasses the performance, reliability, and availability of traditional RISC and UNIX implementations. By making the

transition to a modern infrastructure, IT teams can plan for the future and easily adapt to changing business requirements.

Unified Infrastructure Delivers Scale-Out Storage

Selecting the right storage solution is a strategic decision that contributes to the delivery of high-quality patient care. To accommodate the management of all patient health information and accompanying exponential data growth, it's now a necessity to have storage solutions that scale in capacity and bandwidth, provide seamless data protection, and offer ease of administration.

Working with NetApp, healthcare organizations can deploy a unified infrastructure that offers a cost-effective approach for redesigning storage infrastructure to support Epic software environments. NetApp storage solutions let healthcare organizations consolidate access to both network-attached storage (NAS) and storage area networks (SANs) over a unified fabric and help them deliver the high-availability performance to support the rigorous workload requirements of the Epic software suite. NetApp combines reliable, high-performance FAS and V-Series systems with NetApp Data ONTAP®, the industry's top storage operating system. The key benefits of a unified infrastructure include:

- **Operational efficiency.** Achieve improved performance, management simplicity, and reliability to drive improved productivity and cost savings. And with the ability to automatically provision and optimize storage resources, healthcare providers will see significant improvements in efficiency and performance over manual processes.
- **Nondisruptive operations.** Clustered Data ONTAP transparently migrates data and network connections and distributes data across the cluster at any time, allowing organizations to retain access even during updates and technology refreshes.
- **On-demand flexibility.** Scale-out storage solutions easily accommodate data growth; a single unified architecture can support just a few terabytes up to 20PB. Organizations can start small and grow incrementally with infinite scaling to meet increasing data requirements and keep pace with change.

Investment Protection with Open Source

Linux has established a solid position in the healthcare industry, delivering performance and efficiency across EHR workloads with its power, performance, and cost savings. Many healthcare organizations today are using Red Hat

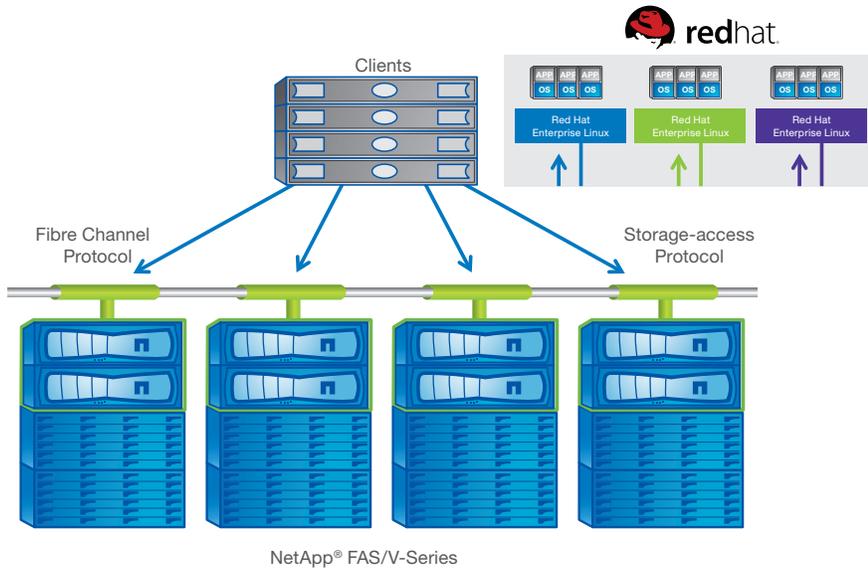


Figure 1) Sample Epic configuration running Red Hat Enterprise Linux with NetApp storage.

Enterprise Linux, a flexible, high value, enterprise-ready open source IT solution, as their platform of choice to meet the life-critical demands of patient care. Red Hat Enterprise Linux delivers:

- Proven reliability at a lower cost than proprietary software
- Enterprise-readiness from both feature and support perspectives
- Powerful and cost effective Intel Xeon® processor servers
- Improved interoperability through open standards

By deploying the Epic solutions suite on servers based on Intel Xeon running the Red Hat Enterprise Linux operating system, healthcare providers can achieve significant cost savings over traditional RISC and UNIX platforms. Additional benefits can include:

- **Maintain flexibility of configuration design.** With support for major hardware architectures, hypervisors, and application providers, healthcare providers can build best-in-class solutions based on the hardware they choose.
- **Superior price/performance.** Healthcare providers can maximize system and application performance, reliability, and security at a lower TCO using Intel Xeon hardware. Red Hat

Enterprise Linux on industry-standard Intel Xeon hardware delivers an affordable, stable alternative to UNIX software and RISC hardware without compromising on performance, security, or reliability.

- **Maximum availability.** Run critical Epic applications on a proven platform designed for mission-critical workloads and deliver quality patient care.

Improve Patient Care with Continuous Access to Medical Records

IT modernization solutions make it possible for healthcare organizations to manage and secure patient data with powerful and reliable servers and storage by using Intel Xeon processors. By eliminating downtime, even during routine upgrades and maintenance, technology refreshes, and capacity and performance expansion, IT can exceed the most demanding mission-critical challenges, with requirements such as:

- Extensive reliability, availability and serviceability (RAS) in processors and operating system
- Data protection solutions that speed time to recovery and improve operations
- Streamlined business operations across standard architectures

Accommodate Mobile Work Styles with Anywhere Access to Patient Records

Virtual desktops are an important consideration for Epic customers. With the increased use of mobile devices across patient care facilities, coupled with clinicians' desire to bring their own devices, healthcare organizations are evaluating the requirements to deploy virtualized environments.

To support this shift, Epic has conducted extensive testing of hyperspace on virtual desktop infrastructures (VDI) on NetApp storage to provide guidance for sizing, deployment, and consistent performance¹.

NetApp file-level FlexClone® volumes can lower the cost of storage for VMware® View® and Citrix XenDesktop by allowing customers to instantly make as many copies of virtual machines and virtual desktops as needed, with zero performance impact and minimal capacity use.

Increase Business Value Through Efficiency

Transitioning to an open platform powered by Red Hat Enterprise Linux and NetApp unified storage makes it possible for healthcare providers to avoid costly Epic upgrades. This

1. Refer to the latest version of the "Epic Hyperspace on Virtual Desktops" document for detailed guidance.

EMR vendors and hospitals both are seeing that they have options besides expensive UNIX and RISC systems. Why deploy far costlier systems when you can get the same performance and reliability using Intel, HP, and Linux?

Dave Spieker

Healthcare Business Development Manager, OST

foundation provides a long-term roadmap that extends the business value of critical Epic systems and delivers measurable business value with speed and efficiency. With efficiency improvements, healthcare providers can:

- Achieve superior price and performance from flexibility and cost benefits.
- Eliminate overprovisioning of compute and storage.
- Protect investments with a scale-out architecture that expands to keep pace with data growth.

NetApp and Red Hat: Better Together in Healthcare

NetApp and Red Hat help healthcare organizations upgrade Epic environments to create a cost-effective, efficient foundation. This allows providers to focus on their primary goal: Delivering safe, quality patient care.

Healthcare organizations can achieve substantial productivity, efficiency, and cost benefits by upgrading and moving their Epic environment to a standard architecture. By transforming from an aging legacy environment to a modern flexible infrastructure, IT can attain operational improvements, including:

- Increased responsiveness to business priorities
- Improved productivity with nonstop operations, reduced cost structure, and elimination of planned downtime for upgrades, expansion, and tech refreshes
- Better interoperability with open source technology
- Reduced management complexity by standardizing on modern, efficient technologies

By running Epic environments on this new foundation, healthcare organizations can expect to see staff productivity improve, while lowering capital and operating expense.

Learn More About NetApp and Red Hat Healthcare Solutions

As the industry looks to upgrade to current versions of the Epic Solutions Suite, healthcare organizations need a cost-effective platform that can help provide quality healthcare, even as patient, regulatory, and treatment data needs continues to grow. For more information about how you can transform healthcare IT by achieving economies of scale across locations, improving patient care, and lowering costs, visit www.redhat.com/healthcare and www.netapp.com/healthcare.

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