

## Solution Brief

# Transform Patient Care with Superior Management and Control of Clinical Data

Higher performance, higher availability with NetApp storage

### Key Benefits

#### Enhance Patient Care

Give clinicians fast access to review and share medical records data—from anywhere at any time—to increase the quality of patient care. Provide this benefit with common data services across private data centers and a hybrid cloud.

#### Support Exponential Data Growth

Easily accommodate rapidly growing terabytes of patient data with infinitely scalable storage that leverages storage efficiency technologies to deliver more usable space and improved utilization.

#### Optimize Access to Patient Records with Nondisruptive Operations

Maintain business continuity by keeping data available to clinicians, even during maintenance and lifecycle operations as well as unplanned outages.

#### Support Compliance and Promote Patient Privacy

Preserve compliance with regulations and data retention policies with access to robust data protection, strong security, and powerful disaster recovery capabilities.

### Manage, Control, and Access Growing Patient Data

The need for always-on data access is mandatory for delivering excellence in patient care. Retrieval of patient information saves valuable physician time and can mean the difference between life and death in the operating room. To support this capability, healthcare organizations must capture and preserve medical data with integrated backup and archiving of electronic health records (EHRs) and picture archiving and communication systems (PACS) applications.

Government regulations have significantly affected the way healthcare provides patient care. With the HITECH act, the majority of healthcare providers now use EHRs for centralized access to clinical data. The expanded granularity of the ICD-10 codes enables healthcare providers and payers to better distinguish newer technologies and resource differences, including the ability to differentiate surgical approaches, anatomical regions, and new medical devices. HIPAA regulations continue to drive protection of patients' medical records. And the Affordable Care Act has made it possible for over 9 million Americans to get insurance.

As a result, healthcare organizations have experienced a significant increase in clinical data, and they seek ways to do more within tight budgets. Advances in technology and cloud computing provide key capabilities to help healthcare redesign storage systems to keep pace with this tremendous data growth. With the ability to securely share, store, and retain data—including big data from multiology images, diagnostic reports, and other critical patient-care information systems—the healthcare industry has the tools to continue to transform patient care.

### Why NetApp?

As a leading vendor of data storage and management solutions, NetApp has installed solutions in over 3,500 healthcare organizations around the world. These solutions help IT solve key operational challenges that face the industry, such as:

- **Accommodate exponential data growth with infinite scale.** Deliver nonstop operations with the NetApp® clustered Data ONTAP® operating system to capture, store, and manage the massive volume of data entering healthcare systems, even during updates and technology refreshes.
- **Reduce IT cost and complexity.** Help reduce capital and operational expenses and streamline operations through increased efficiencies.
- **Enable faster delivery of patients' critical information.** Allow caregivers to make faster, more confident decisions based on real-time data and improve virtual desktop performance a hundredfold by eliminating I/O storms with NetApp all-flash storage.
- **Protect clinical data from security threats.** Securely access, share, and exchange clinical data among medical professionals and implement processes that demonstrate compliance with HIPAA, HITECH, and other industry regulations.
- **Store new, unstructured data and keep it available.** Keep clinical application workloads always up and running with NetApp big data solutions to gain business insights and achieve value faster.

## Make the Best Decisions for You and Your Patients, Every Time

Technology is reshaping how healthcare works. NetApp's vision for the future of data management is to create a Data Fabric that spans your entire IT landscape. The Data Fabric enabled by NetApp takes the worry and complexity out of managing and maintaining control of clinical data across private and public cloud resources. This capability enables healthcare organizations to adhere to internal data security policies, maintain compliance with HIPAA and HITECH requirements, and promote greater innovation and IT responsiveness. With a Data Fabric, you have:

- The choice to select the mix of private and public cloud services that will result in providing patients with the most secure and cost-effective services
- Data mobility so that your data flows seamlessly to wherever your clinicians need it most—across flash, disk, and private and public clouds
- Speed that allows you to innovate faster with fewer resources to improve patient outcomes

NetApp helps healthcare organizations embrace the cloud on their terms by integrating on-premises enterprise-class data management and control with the flexibility, speed, and economics of the public cloud. Advances in technology and cloud computing provide key capabilities to help the healthcare industry redesign storage systems to keep pace with tremendous data growth in clinical data. These advances also help you to do more within tight budgets. By providing the capability to securely share, store, and retain data—including big data from multiology images, diagnostic reports, and other critical patient-care information systems—the Data Fabric gives healthcare the tools to continue transforming patient care.

“NetApp plays a big part in our ability to deliver higher-quality care at a lower cost, offering tier 1 performance and availability while helping us delay capital expenditures and contain operational costs.”

Don Franklin, Assistant Vice President of Infrastructure and Operations  
Intermountain Healthcare

## Share Data and Images More Efficiently

Achieve maximum performance and scale without wasting resources or affecting availability with NetApp FAS and All Flash FAS storage. Combining reliable, high-performance hardware with the industry-leading NetApp Data ONTAP operating system helps IT seamlessly scale the storage infrastructure to keep pace with increasing patient data requirements.

- **Consolidate images and information for immediate use.** NetApp Data ONTAP delivers extreme flexibility with the most robust efficiency toolset built into a single solution, eliminating the need to purchase and integrate disparate components.

- **Protect multisite data with cost-effective archiving.** The simplicity and scalability of NetApp FAS systems efficiently store PACS images and patient records without sacrificing accessibility or availability and still meet compliance requirements for data retention.
- **Enhance data protection.** Protect against single path failure with storage resiliency, delivering consistent performance in the event of controller failover.
- **Be flash ready to boost performance.** Up to 2TB of on-board NetApp Flash Cache™ or Flash Pool™ intelligent caching provide an instant response to workload spikes in access requests for patient files.
- **Reduce change control windows.** Clustered Data ONTAP delivers nondisruptive operations, delivering five-9s uptime that minimizes both planned and unplanned downtime.
- **Get improved speed and scalability.** New NetApp FAS systems deliver up to 80% more processing power and 100% more capacity.

## Effective Compliance and Retrieval of Patient Data

Meet government standards for retaining, protecting, and accessing regulated and reference data with a flexible, integrated, cost-effective storage solution. Healthcare organizations can reduce the risk of noncompliance by improving recordkeeping, monitoring, and oversight to maintain compliance with federal and organizational policies on retention time, deletion policies, and where to store data.

### Manage

Tight integration between NetApp and partner solutions simplifies the implementation and ongoing management of patient data. Consolidating multiple terabytes of clinical data on the NetApp unified storage platform considerably reduces the number of servers and storage devices that the IT team must manage.

### Protect

NetApp, an industry leader in backup and restoration solutions, provides complete disaster recovery and file restoration services based on a powerful portfolio of Snap solutions and NetApp AltaVault™ cloud-integrated storage. With NetApp, you can protect healthcare data with no performance impact and minimal consumption of storage space. In addition, the deduplication of primary and secondary data eliminates redundant files while maintaining data integrity, and it helps you to manage your data resources with greater efficiency. A disk-to-disk backup replicates data to multiple sites, requiring fewer support personnel at a lower cost.

### Secure

A range of NetApp embedded data security technologies helps healthcare organizations comply with regulatory requirements, such as HIPAA, to protect stored patient data without impeding employee productivity. Encryption, authentication, and logging allow clinicians to access secure data only while they are logged in and to keep data from being transferred outside the session.

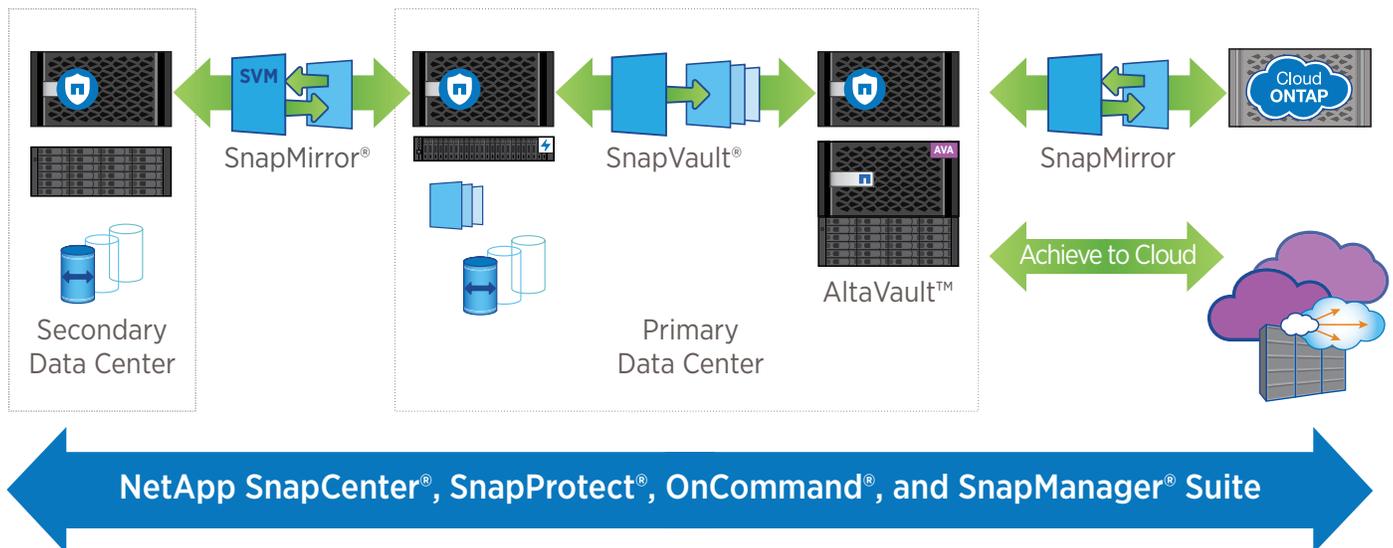


Figure 1) Data Fabric powered by NetApp.

In addition, NetApp solutions with Cisco and VMware technology help provide secure, end-to-end multitenancy across applications and data to extend the benefits and business advantages of a shared IT infrastructure with virtualized and cloud computing. Data is securely isolated and workload performance is maintained, eliminating the need to trade off security for the efficiency of storage consolidation in a multitenant environment.

### Performance, Density, and Flexibility for Data-Intensive Workloads

See a patient's complete story of care, make informed decisions, and enhance treatment and outcomes with efficient data storage. Big data applications, such as EMR and multiology imaging systems, are especially demanding, requiring high performance and efficient scalability with a single set of tools.

The NetApp E-Series storage system delivers superior performance for big bandwidth, such as video process and analytic applications, with multiple drive shelf options for custom configurations. Healthcare organizations can grow incrementally to keep pace with changing data requirements. And with the exceptional uptime, redundant components, automated path failover, and online administration of E-Series, healthcare professionals can be productive 24/7. The E-Series helps:

- **Increase IT agility.** Transition from traditional applications-based silos of servers and storage to virtualized, shared IT infrastructure. Make it easy to respond to business demands, such as bundled reimbursements, ICD-10, ACOs, and advanced analytics.
- **Streamline operations with a lean IT approach.** Automatically provision and optimize storage resources by using policy-based management, storage efficiencies, embedded security, and data protection, and evolve data centers toward the constructs of private, public, and hybrid cloud offerings.

- **Minimize cost.** Deploy a simple, scalable, easy-to-maintain data storage solution to help lower total cost of ownership (TCO) while delivering better patient outcomes.

### Enhance Clinician Mobility

Drive efficiencies with a storage infrastructure that makes it easy to use mobile devices across patient care facilities. This infrastructure includes support for bring-your-own-device capabilities to facilitate today's healthcare work style.

NetApp's easy-to-manage virtual desktop infrastructures deliver reliable, secure access to critical data, images, and files for thousands of users anytime, anywhere. NetApp's partnering with companies such as VMware and Citrix allows workflows to be coordinated and streamlined through virtualized desktops to improve productivity and efficiency. Clinicians can now easily access sensitive patient information by using mobile devices from a virtual environment as they meet with patients throughout the workday, both within the facility and across buildings.

### Quality Solutions Delivered by Long-Term Relationships

As a leader in innovation, NetApp partners with clinical application vendors such as Agfa HealthCare, Allscripts, BridgeHead, Cerner, Epic, Fujifilm, GE Healthcare, INFINITT, McKesson, MEDITECH, Merge, Philips, and Siemens. Working together, NetApp and our partners:

- Protect and manage valuable patient data with real-time monitoring information.
- Secure data across the connected healthcare continuum to support distributed clinical decision-making and collaboration.
- Support the high-availability demands of EHRs and health information exchanges with less complexity and a lower TCO.
- Gain efficiencies of scale while leveraging existing solutions for multiology imaging systems.

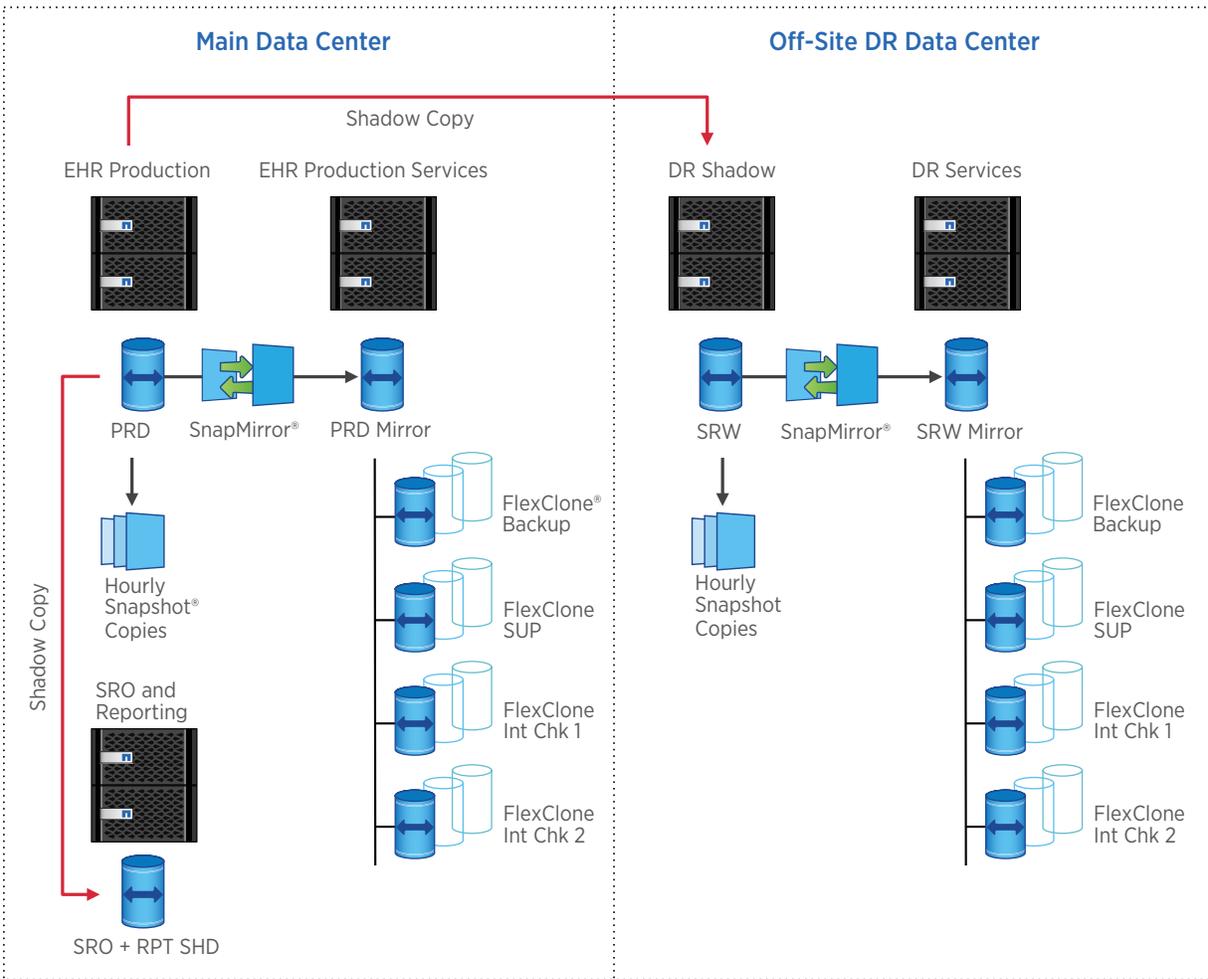


Figure 2) NetApp's modular architecture with Integrated Data Protection manages the end-to-end data flow between primary, secondary, and DR data centers.

Healthcare organizations can now buy with confidence, knowing that tested and certified solutions include high-density, performance-optimized storage to easily store and retrieve patient records across a secure, continuously available storage infrastructure.

### Get Started

Flexible storage systems are now a requirement to accommodate rapidly expanding patient information and clinical data. Implementing a NetApp shared storage infrastructure helps organizations maximize the advantages of health information technology with ready access to mission-critical clinical data. The infrastructure also helps maximize advantages by efficiently managing large pools of vital patient data across multiple sites.

Get started on the path to help your organization improve clinical workflow and patient outcomes. A worldwide team of experts is ready to help maximize the effectiveness and increase the value of your storage investment for years to come.

### 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.

[www.netapp.com](http://www.netapp.com)