

GE Healthcare and IBM Storage: Resilient solution for medical information

*Helping improve patient outcomes by sharing
data across the enterprise*



Highlights

- Leverage IBM Storage qualified with Centricity Clinical Archive software to create a patient-centric view of medical imaging
 - Deliver enterprise-class capabilities with a shared storage infrastructure for healthcare organizations of all sizes
 - Simplify and automate data management across storage tiers and at virtually limitless scale
 - Achieve new operational efficiency and operational effectiveness to drive lower costs
 - Provide a core platform for seamless image exchange to unify images and documents across the care continuum
 - Offer exceptional availability and reliability with robust clustering and advanced features and functions
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In today's healthcare environments, there is increased focus on providing secure access to medical information and improving quality of care. These are highly desired goals across the board—for patients, clinicians, physicians and healthcare providers alike.

Interoperability between medical devices and information systems is key to meeting these objectives in order to improve communications and collaboration, offer real-time insights and deliver high-quality patient care. And having the right storage infrastructure in place is necessary to securely, efficiently and cost-effectively support these collaborative applications and handle the growing volume, velocity and variety of today's medical data.

Patient data — always available, anywhere, with IBM and GE Healthcare

With these broad healthcare goals and challenges in mind, healthcare organizations are seeking new ways to boost productivity, optimize scarce resources and most importantly, trying to ensure that data is always available in the right place at the right time—across the entire care team. One way to help meet these needs is to provide rapid access to images and reports when and where needed. Vendor neutral archive (VNA) solutions help address today's most crucial healthcare issues—enabling patient data communication across the continuum of care, creating a more complete patient record and supporting clinician collaboration.

IBM Storage, together with GE Healthcare applications deliver a superior, proven solution that is designed to improve patient outcomes. The solution provides seamless shared access to medical information—anywhere, at any time and on any device.



The solution leverages Centricity Clinical Archive along with qualified storage from IBM—IBM Spectrum Scale™ or IBM Elastic Storage Server™—to provide a standards-based, secure, robust and reliable platform for departmental and enterprise healthcare environments.

**Centricity Clinical Archive:
Robust vendor-neutral platform**

Centricity Clinical Archive delivers a powerful vendor neutral solution that presents clinical data to more care providers with greater efficiency, while at the same time, enhancing clinicians’ productivity by allowing access to a longitudinal patient record through their choice of the Electronic Medical Record (EMR), physician portals or Radiology Information System (RIS).

This GE Healthcare VNA solution helps transform rigid, departmental data and information silos into fluid, information sharing systems. By liberating patient data from departmental silos, Centricity Clinical Archive relieves clinicians from navigating through multiple systems that do not communicate, and puts patient data into one resource directly at the point of care. Centricity Clinical Archive enables solution planning, implementation, service and management through a single team of clinical and IT experts. The result is a robust solution with predictable delivery and reliable service that helps reduce the total cost of ownership.

IBM Spectrum Scale: Data management at scale

A staggering estimate: Medical data is expected to double every 73 days by 2020¹. IBM Spectrum Scale is a proven

software defined storage solution for managing all of this data—medical images, videos and patient records—and it can support up to nine quintillion files effectively with unlimited capacity. Storage and performance nodes can be added on demand with no impact to applications, and Spectrum Scale is a parallel file system that not only permits many users access to the same data simultaneously, but also maintains its high performance throughput over time, with a self-adjusting storage infrastructure.

Providing continuous access to data is a key design point of the Spectrum Scale architecture. Clustering technology is built into Spectrum Scale itself, and does not require expensive and complex add-on hardware and software. Spectrum Scale survives hardware and even site outages without interrupting end-user access to data.

Spectrum Scale supports up to 16,000 nodes on a single shared namespace. This dramatically simplifies storage management as it breaks down storage silos and optimizes all storage resources at a macro level. Spectrum Scale includes an advanced feature that not only creates tiers of storage based on cost and performance characteristics, but also uses policies to automatically place and to migrate data to the optimum storage pool. For example, when medical data has not been accessed for a specified time, it automatically moves to a lower cost storage tier. The applications and users are unaware of where the data resides and can still access the active file through the same namespace.

With its innovative transparent cloud tiering, Spectrum Scale gives enterprises the option to build a hybrid cloud that seamlessly bridges between on premise and offsite storage

Major leading US medical center case study

	5,000 beds	3.5 million outpatient visits a year	
<p>Requirements</p> <ul style="list-style-type: none"> Highly reliable VNA system with limitless scalability High performance storage for research and genomics Centrally managed shared storage 	<p>Results</p>		
<p>Solution</p> <ul style="list-style-type: none"> GE Healthcare Centricity Clinical Archive IBM Spectrum Scale IBM FlashSystem IBM Spectrum Computing IBM Elastic Storage Server 			

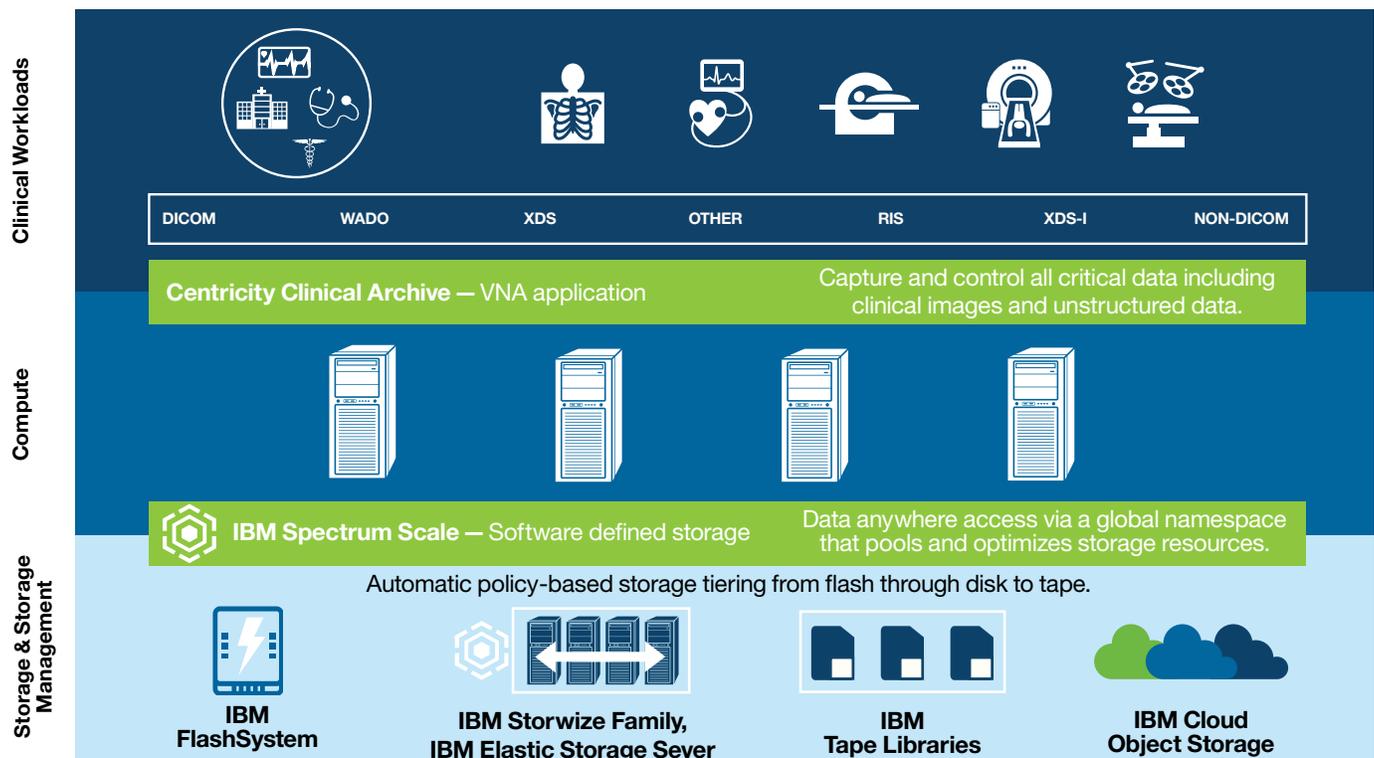


Figure 1: Centricity Clinical Archive together with IBM Storage, like IBM Spectrum Scale or IBM Elastic Storage Server provides a robust, secure and highly scalable vendor-neutral archiving solution.

pools. For example, IBM Cloud Object Storage is a solution building block that can be used in combination with Spectrum Scale to migrate infrequently accessed files to a low cost cloud tier.

Spectrum Scale offers extensive management tools, advanced storage virtualization, integrated high availability, automated storage tiering capabilities and the superior performance needed to effectively manage very large quantities of file and object data. With the ability to independently scale in capacity and performance, IBM Spectrum Scale is an ideal choice in large, demanding healthcare environments, as well as smaller hospitals and clinics that plan to grow.

IBM Elastic Storage Server: Modern software defined storage system

IBM Elastic Storage Server is a convenient building block solution that is based on Spectrum Scale and designed for high-performance shared storage to handle modern workloads driven by unstructured data. This software defined storage system is easy to deploy with a complete

infrastructure, including preloaded software that is assembled and tested prior to being delivered. By consolidating storage requirements with IBM Elastic Storage Server, healthcare organizations can realize new operational efficiency and cost effectiveness.

Unique to IBM Elastic Storage Server is IBM Spectrum Scale RAID software that utilizes erasure coding instead of traditional RAID for data protection. By using this technique, IBM Elastic Storage Server can rebuild disks in minutes, which can minimize multi-disk failures. IBM Spectrum Scale RAID is implemented completely in software, allowing the use of standard servers and storage enclosures.

IBM Elastic Storage Server can help healthcare organizations improve storage utilization and data economics. For example, when each department maintains its own storage needs, the result can be a costly duplication of hardware resources, resulting in islands of information that may hold valuable insights that other clinicians could use, if they had access.

By consolidating storage requirements onto IBM Elastic Storage Server, healthcare organizations can reduce inefficiency and acquisition costs while simplifying management and improving data protection.

Solution benefits

By delivering the performance, scalability and departmental visibility that is critical to enhancing the quality of care, Centricity Clinical Archive with IBM Storage offerings help foster medical collaboration and can significantly reduce operational costs. The solution offers these benefits:

- **Simplified administration** by consolidating short-term and long-term storage into a single system.
- **Integrated management tools** to help manage petabytes of data and billions of files, accomplished by a simplified storage infrastructure, with a reliable and secure shared global namespace that is easy to administer and can be scaled quickly—helping to eliminate “filer sprawl.”
- **Improved graphical user interface** for common administration tasks to help speed provisioning, configuration and monitoring of an IBM Spectrum Scale cluster.
- **High availability and reliability** with no single point of failure in large-scale storage infrastructures. Administrators can configure the file system so it remains available automatically if a disk or server fails. IBM Spectrum Scale can be configured to automatically recover from node, storage and other infrastructure failures.
- **A robust, multilevel VNA and core platform** for seamless image exchange that unifies patient images and documents across the care continuum to help care teams make informed decisions with greater efficiency.

Enabling healthcare transformation

IBM works with healthcare organizations around the world, enabling them to deploy solutions using existing health IT investments and current environments at lower costs, without compromising flexibility and choice.

As a market leader in the storage industry, IBM can help you handle the performance, availability and scalability requirements related to your storage environment, whether you are a small, midsize or large healthcare organization. Innovative technology, open standards and excellent performance are just a few reasons why IBM Storage, including IBM Spectrum Scale and IBM Elastic Storage Server, can meet your healthcare information infrastructure needs.

For more information

To learn more about this solution, read the white paper:
Enabling Centricity Clinical Archive with IBM Spectrum Scale
ibm.biz/Bd4YGV

To learn more about IBM Storage visit:
ibm.com/systems/storage/



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1 IBM Watson Health: “The Data Explosion”. (<http://www.ibm.com/smarterplanet/us/en/ibmwatson/health/>) Accessed August 2016.



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