

# **SATA DISK SYSTEM ELIMINATES TAPE**

## **A NEXSAN CASE STUDY OF LENOX HILL RADIOLOGY**

Lenox Hill Radiology provides state-of-the-art imaging services as well as diagnoses. As Lenox Hill Radiology grew, the old tape-based archive failed to meet the performance and reliability that doctors and patients demanded. They chose Assureon, a super-secure high performance PACS archive storage solution to help them increase performance, keep cost down and comply with HIPAA.



Assureon has improved our operational efficiency by at least 25% and costs 50% less than other disk-based archive solutions.”

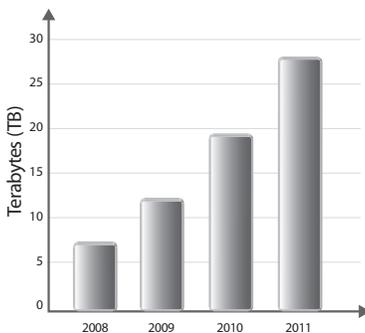
**JOE FUNARO**  
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LENOX HILL RADIOLOGY

## BACKGROUND

Lenox Hill Radiology provides state-of-the-art imaging services as well as accurate and efficient diagnoses. It applies the most innovative methods in diagnostic radiology, including PET/CT, CT/CTA, nuclear medicine, digital screening mammography, digital x-ray and bone densitometry, and offers services to healthcare practitioners, researchers, universities, hospitals and individual patients.

Lenox Hill Radiology is a leader in deploying systems that deliver fast, accurate diagnostic capabilities. These systems ensure better patient diagnostics and care, provide cutting-edge data security for reliable and private patient information access, and enable anywhere, on-demand access to Picture Archiving and Communication System (PACS) images. Now, physical prints are replaced with digital images for nearly instantaneous response to patient and physician needs.

Lenox Hill's Predicted Capacity Growth

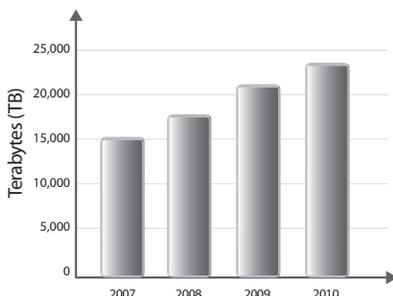


## THE CHALLENGE

As Lenox Hill Radiology grew, the old tape-based archive failed to meet the performance and reliability that doctors and patients demanded. Their image archive had grown to 14 Terabytes and it was time to find a new solution.

Like many other organizations in the healthcare industry, IT professionals at Lenox Hill Radiology realized that continuous growth in image size and the ever-increasing volume of image data would quickly consume existing data and archive storage resources. Image management and retrieval would be impacted as the storage resources became overburdened.

US National Growth of PACS Image storage Required through 2010



Source: Frost and Sullivan PACS Report

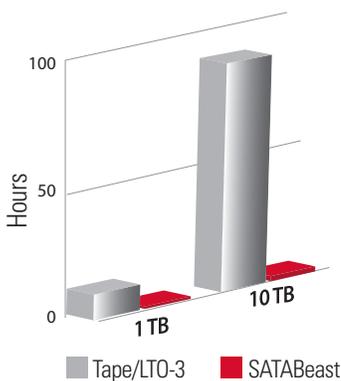


The very slow image retrieval times we had with tape, could be several minutes to even hours, were unacceptable. Assureon is online, very fast and completely secure, allowing doctors to immediately access their patient's images."

**LEMONT THORNHILL**

IT MANAGER, LENOX HILL RADIOLOGY

Recovery time:  
tape vs disk



Lenox Hill Radiology's IT leaders wanted to address these needs with a single integrated solution:

- **Cost-effective Scalability:** Lenox Hill Radiology needed to future-proof its PACS image archive. With new mammography studies growing to 2 GB and 128-slice CT studies approaching 10 GB in size, the new storage infrastructure had to be highly scalable and cost-effective to keep pace with growing study sizes and quantities.
- **Increased performance:** Lenox Hill was using a tape-based image archive to augment their primary storage, but it lacked the response time, performance and reliability that physicians and their patients demanded. Further, the tape-based system was labor-intensive to operate and time-consuming to manage. The new archive solution needed to provide nearly instantaneous image retrieval and guarantee continuous access to images while also providing user-friendly operation and management.
- **Super-Secure HIPAA Compliance:** Lenox Hill Radiology also complies with HIPAA regulations which required digital store of images for very long periods of time, in many cases decades. The new storage system had to provide the automated, secure data audits and integrity checking required for HIPAA compliance and to meet Lenox Hill Radiology's stringent requirements.

**THE SOLUTION**

Lenox Hill Radiology turned to the storage experts at Maureen Data Systems. Together they reviewed available options which included expanding existing tape archive, installing an optical system or moving to a high speed disk-based solution. After an extensive review, they selected an innovative approach with the Nexsan long-term, secure storage archive — Assureon.

Assureon is a highly scalable, high-performance disk-based archive storage system for PACS images and other fixed-content files and is certified with GE Healthcare DIS Centricity PACS-IW, a powerful Web-based PACS for acute care and ambulatory institutions. Assureon delivers all the required HIPAA compliance support including automated data protection, confidentiality, security, and study retention management. The performance of Nexsan's disk-based archive system was noticeably faster, in some applications 100 times faster than Lenox Hill Radiology's former existing tape-based system.



The scalability and flexibility of the GE and Nexsan solutions allowed us to meet our short-term needs while providing a future-proof solution that will grow and change along with our practices.”

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**GE DYNAMIC IMAGING**

- Various Modalities at Lenox Hill Radiology
- GE Healthcare DIS Centricity PACS-IW (Web-based viewing and access)
- PrimaryStorage: Nexsan SATABeast
- Secure ArchiveStorage: Nexsan Assureon (Processing Node and Archive Storage)

**THE DEPLOYMENT**

Lenox Hill Radiology installed an application server to host the different operational elements of the GE Health-care–Dynamic Imaging Solutions’ Centricity PACS-IW solution. A Nexsan SATABeast provides primary storage for Centricity PACS-IW. Nexsan’s Assureon disk-based secure archive replaced Lenox Hill’s existing tape-based archive system.

The features and process flow enabled by the GE Healthcare– Dynamic Imaging Solutions’ Centricity PACS-IW, Nexsan SATABeast and Nexsan Assureon solutions exceeded the requirements set forth by the Lenox Hill Radiology IT department, thus delivering a user-friendly solution that is super-secure, very fast and cost-correct.

GE Healthcare DIS Centricity PACS-IW and Nexsan SATA-Beast for PACS primary storage offer a variety of benefits:

- Image collection and archiving from different modalities
- Images are easy to search and view
- Secure local and Internet access to images
- Fast, scalable, cost-correct primary storage (up to 42TB in just 4U; more than 400TB per rack)

Nexsan Assureon adds value in many different ways:

- Securely archives PACS images to meet long-term retention policies
- Meets mandatory HIPAA requirements
- WORM storage ensures image immutability
- Continual auditing to ensure image integrity and authenticity
- Provides audit trail of user access
- Archived images can be encrypted to ensure patient security and privacy
- At the end of an image’s retention period, either the retention period can be extended or the images can be permanently deleted
- Provides local or remote replication for Business Continuity
- In remote replication: when primary site is down, applications transparently fail over to secondary site. When primary site is back up and active, Assureon’s automatic self-healing replication re-synchronizes the two sites.

## ASSUREON – SECURE, SCALABLE, COST-EFFECTIVE ARCHIVE

Assureon is known for its next generation security measures, but when you look ‘under the hood,’ Assureon reveals a full suite of features.

### Manageable

- Simple to install and use
- Automated audits of file availability, integrity and access
- Automated file fingerprinting
- Automated file ingestion, retrieval, audits, de-duplication and replication without user intervention
- Quick and easy search with near instantaneous retrieval

### Scalable

- No object limit; scale without performance penalty
- Scale performance and capacity independently
- Scale from a few terabytes to multiple petabytes
- Scale from a few terabytes to multiple petabytes

### Green

- Energy saving AutoMAID® reduces energy costs up to 60%
- “Speed with Green” — near instant-aneous response from idle state
- Green Maximizer automatically migrates files to ‘green, greener, greenest’ states of energy savings based on file usage

## KEY BENEFITS

- **Cost-effective Scalability:** Assureon’s processing power can be scaled independently of its storage capacity. This processing power is designed on Assureon’s unique grid architecture, which expands to process billions of images. Assureon’s data storage nodes are comprised of Fibre Channel-connected, high-density SATA storage systems. It is also highly flexible, growing to hundreds of TB for pennies per MB.

This scalable architecture has saved Lenox Hill Radiology tens of thousands of dollars in storage costs while also allowing the digital imaging center to grow significantly without needing to replace the Assureon infrastructure.

- **High-performance:** Assureon’s architecture coupled with its disk storage capabilities provides the performance Lenox Hill Radiology requires. Because of its grid architecture, additional Assureon processing nodes can be easily added to scale performance without disrupting day-to-day operations. Assureon is fully automated and disk-based, therefore eliminating cumbersome and expensive aspects of handling, storing and restoring images from tape.
- **Secure HIPAA Compliance:** Assureon utilizes the highest levels of encryption and access security to ensure the privacy of patient records and images. Assureon is unique in that it possesses powerful HIPAA auditing and integrity assurance capabilities.

It continuously performs two audits on all archived PACS images to ensure each image exists in all Assureon local or remote replicated archives and to verify each image’s integrity and authenticity by ensuring every bit of the image’s content matches its digital fingerprint. If Assureon detects a problem, it automatically replaces the missing or damaged image from another Assureon replicated archive store — either locally or from an Assureon business continuity/disaster recovery site. Assureon also enforces HIPAA retention periods to ensure that images are kept for the requisite amount of time.



We sleep well at night with the GE/Nexsan combination. HIPAA compliance is a key component of our business and the solution not only meets all the necessary requirements but all security and optional requirements as well. Moreover, the solution increased our staff's archive management efficiency by 75%."

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- **Automatic Replication to DR or Business Continuity Site:** Assureon's built-in replication is fully automatic, self-diagnosing and self-healing. It provides three types of replication: local replication (between two local archives), remote replication (between two sites) or both local and remote replication (two replicated archives at each of two sites). This capability supports Lenox Hill Radiology plans to add a secondary business continuity site — switching from local replication to remote replication.

Should the primary site be down, the secondary site can be set to active and application servers including Centricity PACS-IW transparently begin writing to and reading from the secondary site. Once the primary site is back up and set to active, applications transparently switch back to the primary site and Assureon automatically resynchronizes the PACS images between the two sites.

#### THE RESULT

Over the past year, Lenox Hill Radiology has archived more than a million patient studies with Nexsan Assureon. Every day, hundreds of thousands of new images are created, managed by GE Healthcare DIS' Centricity PACS-IW and archived to Assureon with the highest levels of security and performance. With a proven secure, high-performance disk-based archive, the IT professionals at Lenox Hill Radiology plan to add more modalities to their Nexsan solution in the near future.

#### ABOUT IMATION

Imation is a global data storage and information security company. Imation's Nexsan portfolio features solid-state optimized unified hybrid storage systems, secure automated archive solutions and high-density enterprise storage arrays. Nexsan solutions are ideal for mission-critical IT applications such as virtualization, cloud, databases, and collaboration; and energy efficient, high-density storage for backup and archiving. There are more than 11,000 customers of Nexsan solutions worldwide with more than 33,000 systems deployed since 1999. Nexsan systems are delivered through a worldwide network of cloud service providers, value-added resellers and solutions integrators. For more information, visit [www.imation.com/nexsan](http://www.imation.com/nexsan).