Archiving For The Healthcare Enterprise

COST-EFFECTIVE PRESERVATION AND PROTECTION OF PATIENT DATA

ARCHIVING IN THE DIGITAL AGE OF HEALTHCARE

Protecting and preserving patient information has always been a challenge for healthcare providers. But today a number of critical factors are converging—driving the need for a more robust and cost-effective approach to archiving medical images and records.

As the global population grows and gets older, the demand for healthcare services—and the need to archive the resulting data—will expand rapidly. The percentage of senior citizens is expected to double by 2050, but how many healthcare providers have archiving solutions for medical images and records that will be able to cope?

The challenge of an aging population is compounded by the emergence of new compliance requirements for the creation, retention and protection of patient data in digital form. Still other regulations require healthcare providers to guarantee the long-term immutability and security of patient data.

And in the new world of patient-centric care and Health Information Exchanges, all this data must be easily accessible and shareable across disparate teams and organizations to speed diagnosis and treatment and improve patient outcomes.

THE PATIENT DATA EXPLOSION

The sheer volume of patient data that providers must retain is growing daily. In addition, an increase in the use of medical imaging in diagnosis and treatment, as well as the movement of imaging into fields beyond radiology, has led to a rapid increase in the number of medical images and other patient data that needs to be archived.

The size of studies and exams has grown, as has the resolution of the digital images generated, which means the healthcare enterprise may have to securely archive petabytes of medical images and patient data accumulated over many years. The retention period of which is now often measured in decades.

LACK OF INTEROPERABILITY

The rapid deployment of imaging devices combined with an increasing number of new modalities operating across various clinical disciplines has led to a proliferation of incompatible, department-specific Picture Archiving and Communication Systems (PACS).

The lack of a single, integrated IT architecture for archiving of patient data has resulted in inefficient, silo-ed solutions that raise operating costs or, more importantly, negatively impact diagnostic workflows, delay treatment and ultimately lead to impaired patient outcomes.

Islands of departmental PACS with silo-ed HIS, RIS and EMR data.

TIGHT BUDGETS, GETTING TIGHTER

When you combine huge data growth with poor integration, answering the call to do more with less gets even more difficult. To meet the demand for large, readily accessible archives of medical images and patient records, new efficiencies must be found—new systems must not only be highly cost-effective, but must support relevant standards and IHE profiles.

Transform Medical Record And Image Archiving For The Healthcare Enterprise

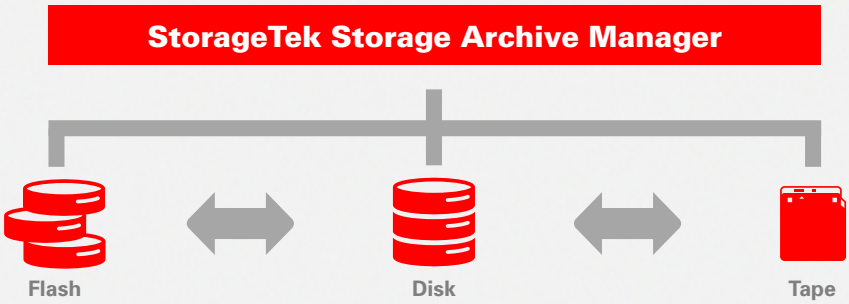
- Eliminate inefficiencies from disparate modalities and silo-ed PACS
- Dramatically reduce long-term storage costs by consolidating into a single, scalable and ultra-efficient archive
- Use "set and forget" policies to automate management and reduce the time and cost of accessing, sharing, and storing data
- Ensure the long-term integrity, immutability, and protection of medical images and patient records
- Develop a clear, simple strategy for meeting business objectives, compliance mandates, and incentive requirements

ORACLE'S STORAGE INFRASTRUCTURE SOLUTIONS FOR HEALTHCARE

By deploying a single, integrated, and standards-based archiving solution for all clinical and administrative patient data, including images and records, healthcare providers can boost the efficiency, performance, and cost-effectiveness of their IT infrastructure.

Oracle's tiered storage solutions for PACS and VNA deliver the performance and efficiency you need to reduce storage costs, accelerate access to patient data and guarantee the long-term integrity and availability of patient information.

With Oracle's full portfolio of data storage products including StorageTek Storage Archive Manager software, StorageTek tape storage and Oracle NAS and SAN disk storage, you can meet internal and external archiving mandates while enabling the speed of access that helps improve patient outcomes.



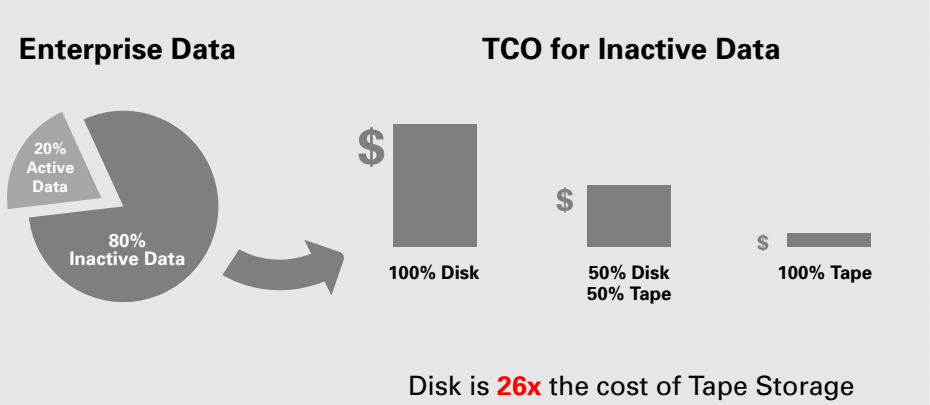
"The sum total of image data associated with many patients and over many years can run into the petabyte range. Obviously, a practical medical image archive must economize on the cost of raw storage."

Robert Glicksman

Society For Imaging Informatics In Medicine (SIIM) From "Archiving: Fundamentals Of Storage Technology" a Need To Know eBook

WHY TIERED STORAGE IS ESSENTIAL

The key to efficient, fast access archiving is tiered storage. Using a tiered storage architecture as the foundation of the archive allows healthcare organizations to provide reliable and fast access to PACS images and other patient data at the lowest possible cost. By combining high-performance disk and economical tape storage, along with hierarchical storage management software to automate file placement, you can create a truly cost-effective, scalable archiving platform.



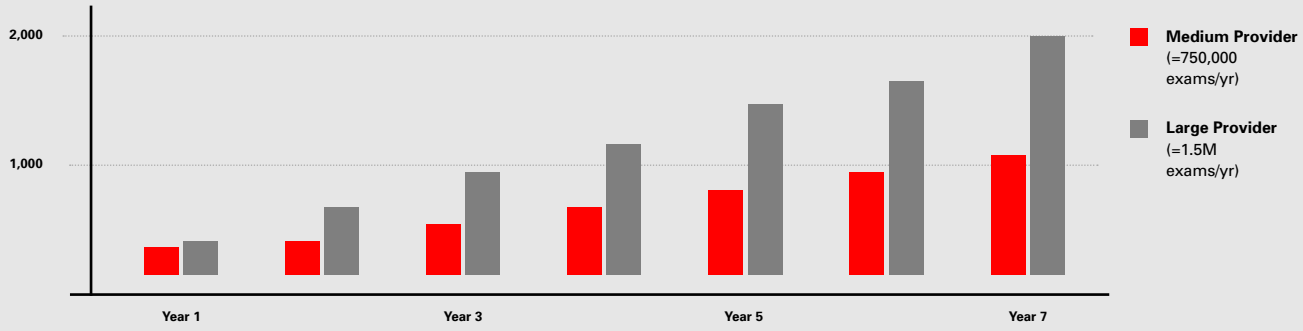
Disk is **26x** the cost of Tape Storage

TAKE CONTROL OF YOUR DATA WITH ORACLE'S STORAGETEK STORAGE ARCHIVE MANAGER

With Storage Archive Manager at the heart of a tiered storage infrastructure, you regain control over rapidly expanding PACS and EMR/EHR archives.

Storage Archive Manger is a policy-driven, hierarchical storage management (HSM) software which automatically archives medical images and records. This means you can ensure patient data is available on the right storage medium at the right time at the right cost.

Medical Image Archive Size (TB)

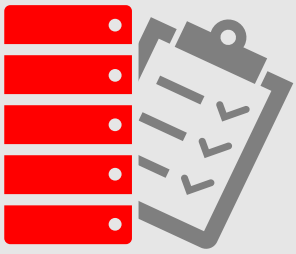


IHS, World Market for Medical Enterprise Data Storage – 2013

- Save money with HSM software that intelligently migrates files to the most efficient storage tier based on policies you establish
- Automatically manage up to four copies of a file across multiple locations
- Improve access to clinical information throughout the patient's lifetime
- Reduce or eliminate altogether backup windows and minimize vulnerability with a continuous archiving solution
- Integrate seamlessly with Oracle StorageTek tape and Oracle NAS and SAN disk storage to create cost-effective tiered storage environments at any scale
- Simplify compliance with a flexible, policy-based approach to archiving

HIGH-PERFORMANCE DISK STORAGE

Oracle's best-in-class SAN and NAS disk storage products offer the ideal tier one storage platform for your archiving infrastructure.



Oracle ZFS Storage Appliance

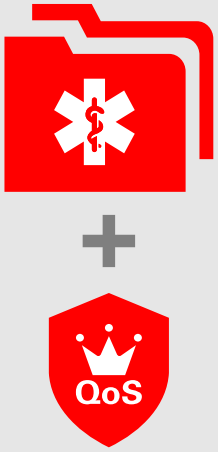
High-performance, highly efficient disk for storage, protection, and archiving of PACS images and medical records.

- Deliver unmatched scalability to support image and records archiving throughout the healthcare enterprise
- Gain complete peace of mind with solutions tested and certified in Oracle tiered storage archiving environments
- Optimize storage efficiency and manageability of patient data, with no performance bottlenecks, high compression ratios, and unlimited snapshots and clones

Oracle SAN Storage

Simplify the management, protection, and archiving of patient data by consolidating on a single platform with unique Quality of Service (QoS) capabilities.

- Maximize availability of clinical images, reports, and patient records for multiple enterprise applications
- Prioritize access and performance of administrative and clinical applications with patented QoS I/O management software
- Get the ultimate in healthcare storage efficiency with a single, storage system for all data, using ultra-fast SSD storage, performance-optimized disk storage, and capacity-optimized disk storage

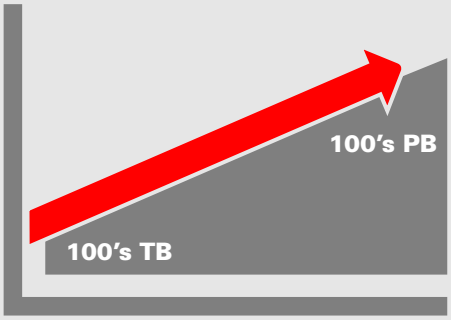


COST-EFFECTIVE TAPE STORAGE

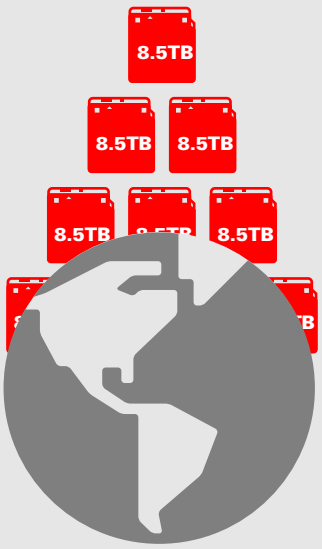
For high capacity at the lowest cost, Oracle's StorageTek tape products transform the economics of medical image archiving.

Oracle StorageTek Tape Libraries

Extreme scalability with extreme economics for the safe archiving of inactive medical images and other less active clinical and administrative patient data.



- Get highly scalable tape storage optimized for archiving PACS and VNA data at scale
- Reduce or eliminate wait times when accessing medical images from the archive, with high speed, enterprise-class tape drives and robotics
- Deliver constant access to medical images and other patient data, with no service disruption for routine or even non-routine maintenance
- Ensure the immutability and security of patient data with WORM and encryption options



Oracle StorageTek T10000 Enterprise Tape Technology

Reliably and economically archive, protect, access, and share medical images using the world's highest capacity, fastest tape technology.

- Get the industry's highest capacity, with 8.5TB native capacity per cartridge—and over 21TB with compression (that's more than 5x the capacity of LTO-5 and 3x LTO-6 capacity)
- In-drive data integrity validation (DIV) for efficient validation of your archive without tying up network or compute resources. Only available on Oracle's StorageTek T10000 enterprise tape technology
- Supports the Linear Tape File System (LTFS) open format that guarantees long-term access to data stored on highly econmomical tape storage

Oracle StorageTek Tape Analytics

Oracle StorageTek Tape Analytics software makes it easy to stay in control of your tape infrastructure—even if you're unfamiliar with the technology.

And with Oracle StorageTek Tape Analytics, you can easily pre-empt and resolve tape media and infrastructure issues with proactive, and highly customizable tape storage monitoring, reporting and analytics.

ORACLE STORAGE IN ACTION

Novant Health

Novant Health is a system of 13 hospitals and 355 clinic locations, as well as numerous outpatient centers and health programs. Novant's 25,000 employees and physician partners care for patients in North Carolina, South Carolina, Virginia and Georgia.

13 hospitals and 355 clinic locations.

25,000 employees and physician partners.

The Challenge

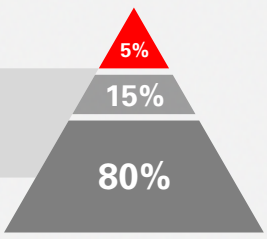
- Store and protect up to one billion patient files of various types, while ensuring fast access to images and information for a range of applications
- Create a single storage architecture to support multiple PACS systems across the healthcare enterprise
- And do it all within tight budget constraints

Store and protect up to one billion patient files

The Solution

- Reduced complexity and improved performance with an integrated storage solution combining Oracle hardware and software
- Deployed Oracle's Storage Archive Manager software on Oracle SPARC servers to manage over 800TB of archived data on Oracle storage
- Realized significant cost savings by migrating data from 65 applications to an Oracle tiered storage environment

Cost savings by migrating data to an Oracle tiered storage environment



NOVANT HEALTH

"Oracle's Sun Storage Archive Manager—in conjunction with its StorageTek T10000 tape drives and SL8500 modular library system—has enabled us to develop a cutting-edge, high performance long-term archiving solution that easily and affordably handles our high data volumes while providing the flexibility our users need when accessing critical healthcare files."

Robert Dick,
Data Center and Archiving Resources Lead, IT Technical Services, Novant Health

PROTECT AND PRESERVE

With a tiered storage infrastructure built on fully integrated, standards-based hardware and software, you can redefine the economics of healthcare archiving. High performance, optimum efficiency, and unmatched scalability combine to produce the lowest cost per gigabyte and the lowest possible total cost of ownership—so you can redirect precious IT resources into meeting your business goals.

Oracle's storage infrastructure solutions for healthcare archiving enable you to:

- Gain complete flexibility with tiered storage systems that seamlessly integrate behind PACS, VNA, and other healthcare-focused ISV solutions
- Scale with ease to handle rapid data growth throughout the healthcare enterprise with a single, unified storage architecture for archiving medical images and other patient data
- Deliver high availability access to the archive, for truly collaborative healthcare, accelerated diagnosis and improved patient outcomes
- Reduce TCO of the archive through automation, simplified management, and integrated tiered storage

"Oracle's StorageTek SL8500 Modular Library System is part of our tiered storage strategy, providing a very cost-effective, high-performance archive of our critical patient data. The library provides us with an extremely reliable, scalable, and cost-effective storage solution within a very constrained data center environment with limited power and cooling."

Steve Ramsey,
Director of Image Management and Computing Services, Radiology,
University of Michigan Health System

LEARN MORE

Get in touch today to find out how you can transform the efficiency and cost-effectiveness of the infrastructure supporting your medical image archives. Call 1-800-633-0738 to speak to your local Oracle representative. Or visit **www.oracle.com/goto/tape** to learn more.

Oracle is committed to developing practices and products that help protect the environment

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