Object Store Technology enables a fast, secure, and reliable alternative to existing PACS architecture

NOVARAD®
HEALTHCARE ENTERPRISE IMAGING

OVERVIEW

In recent years, the maturation of medical imaging, patient record and other clinical technology has resulted in a proportionate increase in data. With that progression and the rapid growth of healthcare organizations, a significant challenge remains: how to optimally and securely manage the ongoing explosion of image and other object data, including video and medical records. The best solution is Object Store technology.

Object Store facilitates the management of data on a broad scale. With Object Store, data need not be moved into disparate PACS and other platforms that may result in inefficient archiving and retrieval and, resultantly, delayed clinical analysis. Instead, Object Store has the capability of merging data into one localized platform, supporting the swift, secure and reliable movement of objects across a healthcare enterprise.

TRADITIONAL TECHNOLOGY

For three decades, Picture Archiving and Communication Systems (PACS) have been the preferred technology used by radiologists to store DICOM images. Useful for the short- and long-term storage, retrieval, management, distribution and presentation of medical images, PACS have inherent limitations. Reliability and security are imperfect, image retrieval times vary widely relative to file size, non-DICOM objects are precluded, and scalability is restricted. While radiology managers have accommodated those issues using innovative solutions, more permanent and reliable storage advancements have recently begun to emerge. One is Object Store.

OBJECT STORE TECHNOLOGY

As medical imaging expands its scope, the challenges facing hospitals and healthcare enterprises are far-reaching. Images and other clinical objects are no longer confined to the radiology department, medical records or even the primary healthcare facility. Instead, clinical objects are spread across many departments, clinics and satellite facilities, making their location and identification time-consuming and the overall management of vital clinical data challenging. As object storage extends beyond the hospital walls, retrieval becomes increasingly time-consuming. Add to that the fallibility of storage architecture, risking data loss and the breach of vital and proprietary medical records, and the need for enhanced storage capabilities is clearly demonstrated. Indeed, despite these many challenges, objects nonetheless must be efficiently identified, quickly retrieved, stored for easy future reference and preserved during technical failures—all within secure parameters. The overriding goal of Object Store is to provide PACS administrators with more flexible and reliable installation scenarios in an effort to securely protect the health and data of patients.

Leveraging high-end computerization, Object Store is a vendor-neutral solution that creates a secure active archive environment that efficiently manages data objects from various storage silos, at the same time creating an opportunity to mine the significant amount of metadata that is now available in an effort to provide optimum search capabilities. Storage may be implemented at several levels, and in all cases is designed to address efficiencies that are not addressed by other architectures. The primary purpose of Object Store is to compartmentalize and manage large amounts of clinical data, including vast CT and MR datasets and other extensive medical image files.

The proliferation of digital medical images, patient records and other clinically relevant objects and the sprawl of PACS

and other archive systems across the healthcare enterprise have created both the need and opportunity for data consolidation, faster image loading, enhanced data security, seamless auto data recovery, and extensive data mining. Object Store intuitively and securely uses software that analyzes file access patterns that interact with current applications, migrating data while eliminating the likelihood of inadvertent file deletion. Storage operations are secured in reviewable logs. The result is enhanced storage, quick data access, failsafe data protection, and unequaled reliability.

Object Store, including Novarad's Ncompass Universal Archive™ solution, smoothly integrates into most PACS and Vendor Neutral Archive architectures, permitting archive systems that are distributed across a healthcare enterprise to consolidate into one server rather than multiple data silos. By seamlessly consolidating into these proprietary applications, Object Store enables unlimited scalability using virtually any vendor hardware. Storage up to millions of gigabytes of high-definition patient images and other data is permitted.

OBJECT STORE BENEFITS

As with any object storage architecture, proof of its efficacy lies in the benefits that are derived by end users. The reliable and consistent nature of Object Store promises a host of real and potential benefits. These include:

- Vendor neutral storage.
- DICOM and non-DICOM object storage.
- Enhanced data accessibility.
- Retrieval speeds for large datasets more than 2x faster than other architectures, resulting in increased productivity and expedited return on investment.
- Off-site and local storage for improved reliability.
- Enhanced reliability using multiple image copies and auto fail correction.
- Increased security, especially in transit, due to military-grade encryption, therefore minimizing the likelihood of data breaches.
- An improved capability for healthcare facilities to mine all available metadata for faster, more accurate searches.

- Localized data availability that accommodates simultaneous users from off- and on-site locations.
- A higher level of robustness, data access and overall data service.
- Data-at-rest encryption.
- Verification processes that pro-actively identify errors and correct them.

CONCLUSION

While Object Store continues to evolve in its ability to benefit providers, the future for secure, reliable object storage technology is bright. Potential users have long envisioned a vendor-neutral architecture with unified access interfaces, one that significantly enhances object retrieval speed, data accessibility and metadata usage, resulting in a more full-bodied data management solution. At a time when fast retrieval saves time and money, Object Store delivers PACS administrators a time- and money-saving option that speeds data handling and improves the overall preservation of diagnostic images, medical records and other departmental data. Further, Object Store brings military-grade encryption to the hospital doorstep in an unambiguous effort to increase security. Going forward, there is vast potential for Object Store technology to revolutionize the management of data objects in a secure, reliable manner.