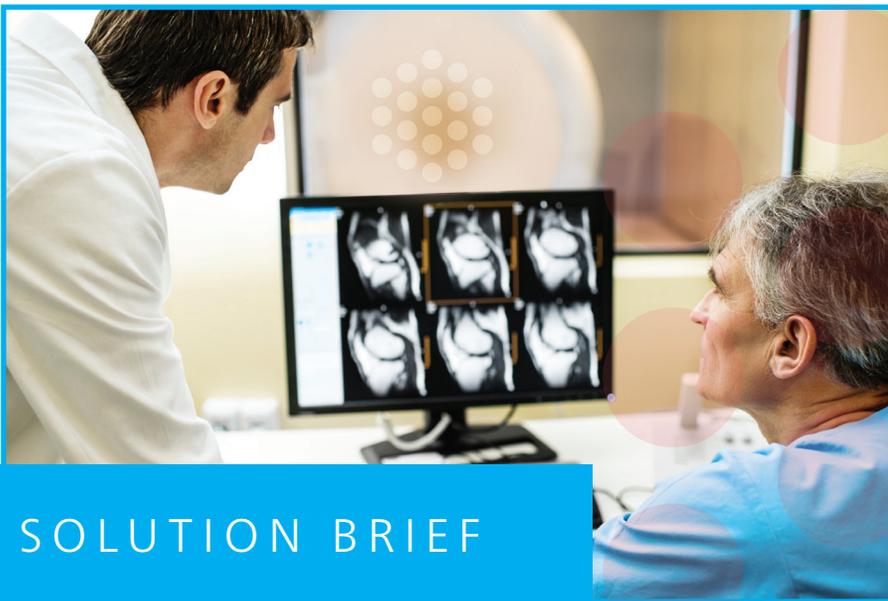


# Caringo Storage for Medical Imaging

As your healthcare organization grows, managing data from your medical imaging systems becomes more and more of a concern. Caringo can help you meet the needs of patients, comply with industry regulations such as HIPAA, and keep up with the rapid growth of that data.

Caringo® Swarm software-defined object storage platform and Caringo FileFly—which seamlessly connects Swarm to NetApp® filers and Windows® servers—offer a comprehensive solution for continuous data protection, management, organization and search at massive scale. Swarm can be installed on any standard hardware alongside any existing PACS and EMR/EHR/PHR systems with absolutely zero disruption of operations. You no longer need to migrate your medical images and files into disparate storage silos for long-term preservation, delivery and analysis.

Consolidate healthcare information technology (health IT) data on Swarm, find the information you are looking for quickly, and reduce total cost of ownership by continuously evolving hardware and optimizing use of your resources.



SOLUTION BRIEF

## The Benefits of Swarm

Caringo Swarm is an ideal solution for storing medical images and provides:

- Continuous data protection that virtually eliminates backup windows
- Built-in features to protect from accidental deletion
- Single or multi-site deployment
- Choice of imaging systems and hardware (not locked into one vendor)
- Compatibility with existing applications



## How Swarm Works

### INTEGRATES WITH VENDOR NEUTRAL ARCHIVES AND MEDICAL IMAGING SOFTWARE

Caringo Swarm can be integrated into leading Vendor Neutral Archives (VNA) and medical imaging applications enabling you to use any hardware and scale to hundreds of petabytes on your hardware of choice. Current integrations include:

- Merge Healthcare's RadSuite PACs medical imaging archive software
- Lexmark Healthcare DICOM image management, archiving, and migration solutions
- Teramedica's Evercore Smartstore digital image and patient records archiving software
- Dejarnette xDL medical image archiving software
- Karos Health's Rialto Vault clinical information archiving

### ENABLES HIPAA COMPLIANCE

Swarm uses a key/value-based content addressing method making it easy for applications to disassociate a file from identifiable information. Swarm delivered as a secure software appliance protects medical images against unauthorized external and internal access.

### EXTENDS EXISTING STORAGE INFRASTRUCTURE

Based on policies defined by the storage administrator, medical images that reside on the existing primary storage can be transparently migrated to Swarm where they are consolidated in a limitless, searchable, secure (AES 256-bit encryption/SSL) pool of more affordable storage. FileFly exposes the Swarm object storage platform via SMB or NFS, so medical imaging applications can start using Caringo right away with no changes needed for applications or by users.

### PROTECTS CONTINUOUSLY

With no single point of failure, Swarm combines automated management of replication and erasure coding with continuous integrity checks and fast volume recovery—ensuring 100% business continuity. Caringo Storage can withstand a partial or full site outage with no impact on availability of your data.

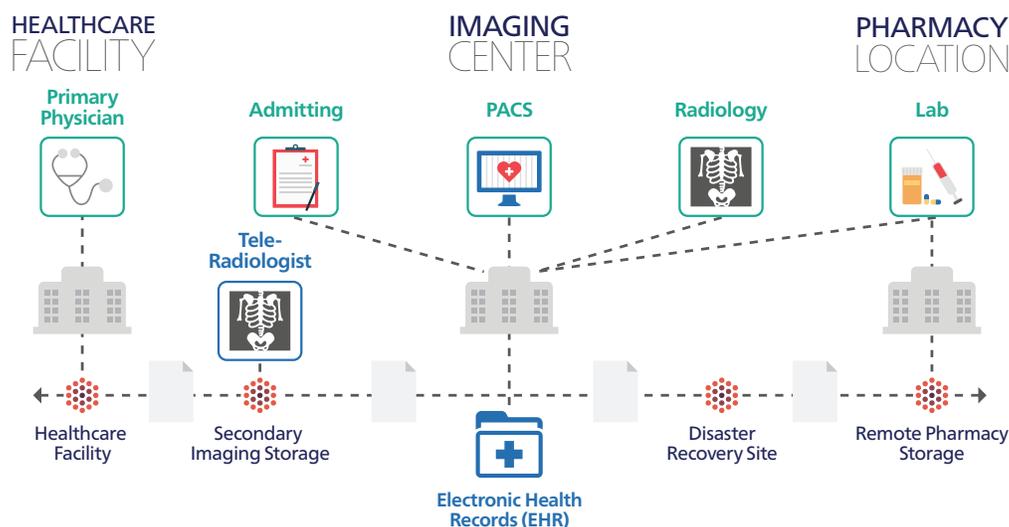
### PROTECTS FROM ACCIDENTAL DELETION AND ENSURES DATA AUTHENTICITY

Swarm comes standard with robust medical compliance features that protect you from accidental deletion (WORM) and enable you to prove in a court of law that files have not been tampered with (Integrity Seals and Legal Hold). Caringo Storage integrates with Active Directory (AD) or Lightweight Directory Protocol (LDAP) for user authentication.

## MEDICAL IMAGING USE CASES FOR CARINGO STORAGE

Caringo is 100% compatible with NTFS, SMB, NFS, Amazon S3 or HTTP protocols, so it works with your existing IT infrastructure and medical applications with no changes required for either the applications or the users. Store and retrieve medical images including MRIs, X-rays, CT scans and photographs safely and cost-effectively on Caringo Storage, or use Caringo FileFly to continuously offload any NetApp® filers or Windows® File Servers that are housing medical images today, freeing up their capacity, improving performance, and saving money while eliminating excessively long backup windows.

## Medical Image Storage Environment



### Maintain Backups of Medical Images

Your medical images have to be backed up and Caringo Swarm scales in pay-as-you-grow increments, providing the capacity and throughput to satisfy any demand. A multi-site Swarm deployment ensures backups are safely stored off-site to protect against a site-wide outage. Swarm works with all popular backup and restore applications that run on Windows.

### Perform Big Data Analytics on Medical Images

Each medical image that is stored on Caringo Swarm is an object that has metadata attached. It is easy to add additional metadata (such as DICOM) to facilitate search by humans or big data analytics applications. Additionally, metadata and data in Swarm is directly accessible from the Hadoop File System (HDFS), Logstash and Kibana to jump start any big data analytics inquiry.

Each image ingested becomes an object, and each object can have custom metadata added to it at ingest time or later using either manual or automated mechanisms.

### Get a State-of-the-Art Medical Imaging Solution

Caringo is at the heart of several VNAs for medical images at leading healthcare facilities. Through our RESTful APIs, medical imaging leaders have written directly to the object store and leveraged its powerful, extensible metadata and Elastic Search capability.

# The Leader in Object Storage

Caringo Swarm has been relied upon by healthcare organizations like yours for over a decade.



National Institutes  
of Health

**National Institutes of Health (NIH)** uses Swarm to store and protect Radiology Information System (RIS) data on a single archive for long-term retention with immediate access.



St. Jude Children's  
Research Hospital

**St. Jude** leverages Swarm integrated and configurable Disaster Recovery features and can now upgrade storage independent of PACs applications enabling their Vendor Neutral Archive.



**The Department of Defense** consolidates medical images from hundreds of geographically distributed sites—leveraging file-level governance and long-term durability that enables their Vendor Neutral Archive.

Premier of  
**TEAMHealth**

*"For us, immutable object storage with definable retention periods is the key. We rely on immutable object storage to protect against accidental deletion and corruption instead of regular incremental backups."*

*—Steve Brown, Director of IT, Premier Physician Services*

## For More Information

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