



# How to Manage Medical Imaging Data Growth and Costs

*Medical images contain untold value for healthcare organizations,  
yet they're exceeding the limits of on-premises storage.  
It's time to take control.*

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[White Paper]

# INTRODUCTION: FROM STORAGE TO DATA MANAGEMENT

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Healthcare organizations have shifted to digital media for medical imaging. Digital PACS, digital pathology and VNA systems are all generating and now storing petabytes of medical imaging data—lab slides, X-rays, MRIs, CT scans and more. This ever-expanding dataset is pushing the limitations of storage systems and challenging IT department's ability to effectively manage data.

To make matters worse, due to regulations, healthcare providers typically must retain medical imaging files for several years; they may even have an enterprise-wide policy of retaining medical data forever. Aside from compliance requirements, clinical researchers may need access to the data indefinitely. The potential future value of this ever-expanding repository must be weighed against the growing financial and management costs.

This presents a conundrum from both an economic and IT management perspective. Datacenter storage for large image files is expensive—costing millions a year for some organizations on Porsche-grade NAS devices. Not only is NAS storage expensive, but its data must also be secured, replicated and backed up, which typically triples the costs. Meanwhile, in most cases, imaging data is rarely accessed after a few days or weeks.

To get more flexibility and cost savings from storage, healthcare organizations are adopting data management software to tier cold medical imaging data out of expensive storage to cost-effective environments such as the cloud. Such decisions can be rife with politics and long-standing institutional perspectives. Health systems are generally risk-averse—they are handling sensitive patient information after all—and tolerance for downtime is usually quite low.

This white paper examines the benefits of augmenting your medical imaging solution with data management software that transparently tiers cold data from your storage and backups, explains what you should look for in a solution, and includes a case study of a healthcare provider that did this successfully.

**One large healthcare system saved 60% on digital image storage by using a file-based tiering solution.**

## Key Takeaways:

- Datacenter storage for large medical image files is expensive—costing millions a year for some organizations with backups and DR copies multiplying the pain.
- To get flexibility and cut costs, healthcare organizations are adopting data management software to tier cold medical imaging data to the cloud—yet the wrong approach won't deliver ROI.
- One large healthcare system **saved 60%** on digital image storage by using a file-based tiering solution.

# CLOUD TIERING FOR DEAR LIFE: HOW A HEALTH SYSTEM SAVED 60% ON PATHOLOGY STORAGE

Healthcare professionals depend upon accurate, timely data to make the best decisions; the loss of important patient data can have dire consequences. Keeping these large image files safe and readily available can be a matter of life or death for a patient with a serious illness.

A major statewide healthcare system with 17 hospitals faced exactly this dilemma: medical imaging data was growing rapidly, but IT did not want to compromise patient care by deleting any files. A digital pathology application was scanning 1TB of pathology slides per day. The workflow entailed storing images on Tier 1 HCI storage for 3 days after which the images automatically moved to a Tier 2 NAS appliance in the data center.

Keeping data on the NAS was expensive since the hospitals had to pay not only for the primary storage, but also for backups and replication of the images. The storage team started looking seriously into cloud storage and considered a few different options for tiering cold data to the cloud. Built-in storage tiering options from their storage vendor weren't viable because of costs, limitations on how much data could be tiered, and egress costs on data access. Cloud gateway solutions created a new data silo and the archived files could not be accessed by users from the original storage.

**Instead, they saved 60% by using Komprise Intelligent Data Management** to find medical images not used for 90 days or more and transparently tiering them to Google Cloud Object Storage. Moving to durable object storage eliminated the requirement for backups, since the service automatically stores 2-3 copies of the data. Their researchers, pathologists and technicians can continue accessing the tiered images exactly as before. Digital Pathology, PACS, VNA and other applications also work as before without requiring any special integrations or change to their workflow—since Komprise works behind the NAS via open standards and moves data transparently.

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### Built-in storage tiering options from storage vendor weren't viable:

- **Costs**
- **Limitations**
- **Accessibility**



# DATA MANAGEMENT CUTS COSTS SIGNIFICANTLY BY TRANSPARENTLY TIERING FROM NAS TO CLOUD

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There are many choices today for data management solutions, but the best ones work seamlessly with your existing storage systems and applications and eliminate vendor lock-in so you can access data and move it to different vendor platforms without causing higher costs or onerous processes. In the case of healthcare, data management solutions should integrate effortlessly with digital imaging application workflows to automatically move older images from NAS to resilient object storage in the cloud based on policies.

## What to consider when tiering images to the cloud for both performance and cost management:



**User experience and workflows remain unchanged** – Clinicians, technicians and other healthcare employees should not have to change how they search and access data in order to work with your data management solution. They should not need to be re-trained. You want a solution that does not disrupt their workflow. The data management solution should tier data to the cloud transparently without changing where your healthcare workers go to access the data or how they access it.



**Interoperability via standards with any medical imaging application** – You may be wondering how your PACS system or other digital imaging system will work if some of the data gets moved to the cloud. If your data management software is standards-based, then it will work seamlessly with your medical imaging application without any proprietary interfaces or changes, freeing you to add data management to your existing infrastructure with no disruption.



**Eliminates cold images not just from storage but also from backups and DR** – Some NAS storage systems offer tiering as a proprietary block-based solution that moves some cold blocks down, but this does not save your backup and DR costs and requires expensive rehydration for third party use. Standards-based file-level data tiering solutions offload the entire image file from storage to durable cloud storage, proportionately shrinking the backup and DR footprint without requiring files to be rehydrated or brought back on every access.



**Enables cloud-native access** – If you can store images in cloud-native form, researchers can access these images using new cloud-native services and tools for AI and ML processing. For example, [Amazon HealthLake](#) is a new data lake service incorporating machine learning models for analytics projects. Azure has several [machine learning initiatives in healthcare](#) including a partnership focused on decoding the immune system. By enabling direct cloud access to tiered images and data, healthcare organizations gain a larger portfolio of advanced tools and services to further their R&D efforts. Administrators can also directly conduct any legal search in the cloud without having to bring the data back. Some data management solutions require access to cloud data only through the proprietary storage filesystem. Further, the file system may not work with cloud-native services and when it does you'll pay more to do it, because of the need for additional vendor licensing and cloud egress fees.



**Provides global search** – Cutting storage costs is just one advantage of cloud tiering. The ability to create a virtual data lake with indices of all your images using cloud technology can reap long-term benefits for research, analysis and compliance needs. Clinicians can use the data lake as a basis to conduct large research projects on clinical outcomes across a broad demographic or more granular projects focused on analyzing specific patient populations for novel treatments. Look for data management solutions with an open, scalable architecture and which can deliver the flexibility to meet the search needs of IT, business and medical teams. This way, you can not only safely and cost-effectively store medical images but glean new life from them, benefiting both patients and the organization.



**Enables secure access to data for collaborators** – Many research hospitals collaborate in a consortium and need to share imaging data securely with researchers at other facilities. Providing a data lake in the cloud enables secure collaboration with access controls so researchers are only able to see the data to which they have authorized access.

## PAVING THE WAY FOR MEDICAL IMAGE LONGEVITY

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As high-value unstructured data like medical images exceed the limits of on-premises storage, the options are becoming increasingly limited. For compliance or other reasons, some healthcare organizations retain images indefinitely; the amount of storage and backups required to house petabytes of clinical data has become prohibitively expensive.

By creating a data management strategy that analyzes medical images and by policy transparently offloads cold image files to lower cost storage and backup options such as the cloud, healthcare organizations can reduce data costs, stay in compliance and potentially generate new revenue streams by mining data lakes in the cloud.

Komprise Intelligent Data Management delivers quantifiable ROI for healthcare organizations by analyzing which data can be tiered to warm or cold storage, saving up to 70% on storage and backup costs. Looking for a fast, easy path to the cloud for your file data? Komprise ensures that your users, your PACS and other clinical applications continue to work as before while cold data consumes less—*without disruption and without lock-in*.

### **Komprise delivers quantifiable ROI**

**Saving healthcare organizations**

**up to 70%**

**on storage and backup costs.**



# ABOUT KOMPRISE

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Komprise is the industry's only multi-cloud data management-as-a-service that frees you to easily analyze, mobilize, and access the right file and object data across clouds without shackling your data to any vendor. With Komprise Intelligent Data Management, you are able to know first, move smart, and take control of massive unstructured data growth while cutting 70% of enterprise storage, backup, and cloud costs.

# LEARN MORE

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To learn how Komprise works seamlessly with your PACS, VNA and digital imaging systems visit:

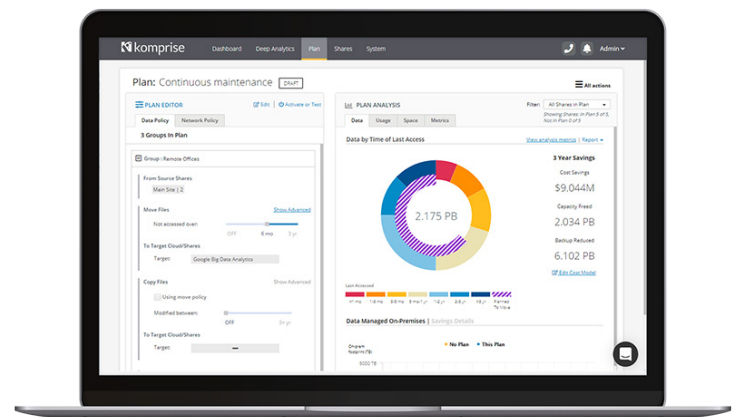
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# TAKE THE NEXT STEP

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To see Komprise in action with your digital imaging workflows and estimate your savings, schedule a custom demonstration.

[Komprise.com/demo](https://www.komprise.com/demo)



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