komprise

Smart Data Migration for Microsoft Azure

A better way to move and manage
file and object data in the cloud.

[White Paper]

The Age of File Workloads in the Cloud

File data growth is exploding and enterprises are looking to the cloud as a cost-effective alternative for unstructured data storage. A survey of U.S. and U.K. IT managers and directors found that more than half (56%) say that moving more data to the cloud is their top priority with unstructured data.[1] Data-heavy enterprise IT organizations typically have petabytes of file data, which can consist of billions of files scattered across different storage vendors, architectures and locations.

Microsoft Azure provides enterprise-grade cloud storage, built for massive scale and ease of use. Azure offers two distinct options for file storage: Azure Files and Azure NetApp Files (ANF). Both offer fully managed file shares as a service in the cloud that are accessible via the industry standard Server Message Block (SMB) protocol and the Network File System (NFS) protocol, enabling Linux as well as Windows files. For Microsoft Azure customers, this means more availability zones, more tiers and more performance options. For a full comparison of the two offerings see the **Microsoft documentation**.

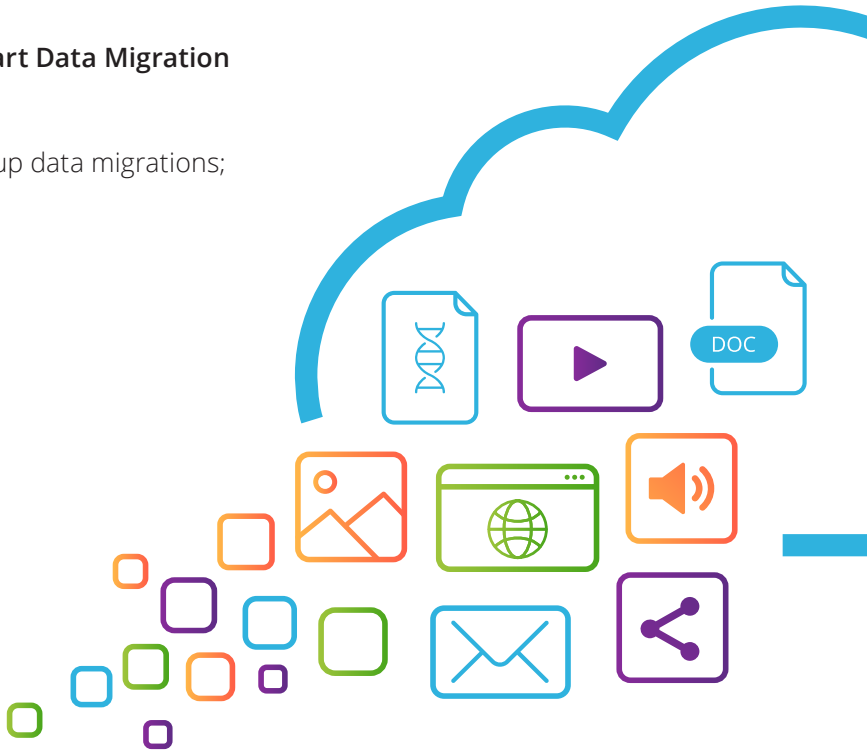
For object storage workloads, Microsoft created Azure Blob Storage. It provides massively scalable and secure object storage for cloud-native workloads, archives, data lakes, high-performance computing and machine learning.

Komprise Intelligent Data Management is a software as a service (SaaS) solution that helps customers maximize the impact and benefits of migrating file and object data to Microsoft Azure. Komprise gives you full visibility into your file data across all silos in your environment, so you can create analytics-driven, automated Azure data migration, replication and data tiering policies to manage your Azure file data with precision.

In this white paper, we outline the benefits of a Smart Data Migration strategy for file workloads to Azure, encompassing:

- How to use an analytics-driven approach to speed up data migrations;
- Get the right data to the right tier faster;
- Save 70% or more on storage and ultimately;
- Leverage advanced technologies in the cloud.

Beyond cost savings of cloud data storage, there are growing opportunities to mine file data in Azure. Whether you're launching new products or services, introducing green IT and sustainability programs or doing the kind of research that is powering the next medical breakthrough, the ability to leverage native cloud analytics, artificial intelligence (AI) and machine learning (ML) compute services on your growing volumes of unstructured data is essential.



1. The State of Unstructured Data Management, Komprise, 2021.
https://www.komprise.com/resource/state-of-unstructured-data-management-2021/

Cloud Migration Pains

Moving to the cloud requires a different mindset. On-premises decisions were restricted by rigid and limited storage options whereas the cloud has distinct storage classes optimized for various use cases. When moving to Azure, consider your data first and then select the right storage option. The old approach of simply migrating volumes of data can create unnecessary expenses and limit your potential in the cloud. To boot, large data migrations can be manually intensive, error-prone and slow. For these reasons, enterprise IT organizations delay cloud file migrations or move minimal amounts of data to the cloud, circumventing potential issues but also missing opportunities to improve unstructured data management.

The leading migration issues and decisions include:

- Deciding which unstructured data should move to cloud storage.
- Understanding the different storage tiers and when it makes sense to use object storage tiers such as Premium, Hot, Cool, Archive.
- When a higher-performing file storage option like Azure Files or Azure NetApp Files is ideal and the process for moving data between services once in the cloud.
- If multi-cloud architecture is in place, deciding which cloud to use for which data/workloads.
- Understanding the potential use of cloud-native services such as Azure Machine Learning, Azure Cognitive Services and Azure Databricks.

Data Migration vs. Data Tiering

Data Migration is the process of selecting and moving data from one location to another—this may involve moving data across different storage vendors and across different formats.

Data migrations are often done in the context of retiring a system and moving to a new one, or in the context of a cloud migration, modernization, or an upgrade strategy.

Data Tiering refers to a technique of moving less frequently used data, also known as cold data, to cheaper levels of storage or tiers, including the cloud.

Data tiering can be a smart first step in a successful, cost-effective data migration plan.

Smarter, Faster File and Object Data Migration to Azure

Migrating on-premises applications such as file workloads, high-performance computing (HPC) and analytics requires identifying and migrating tens of terabytes to several petabytes of file data stored on NAS appliances and other on-premises storage to the right tier of Azure Files, Azure NetApp Files and Azure Blob Storage.

Komprise is a pioneer partner in the Microsoft Azure File Migration Program, which gives customers access to industry leading file migration at no cost and complements the Azure Migrate portfolio which customers use to automate and orchestrate the migration of servers, desktops, databases and web applications to Azure. Komprise Elastic Data Migration eliminates the cost and complexity of managing file data by providing analytics-driven data migration to Azure without creating any vendor lock-in.

Komprise Elastic Data Migration **eliminates the cost and complexity** of managing file data with analytics-driven data migration—**without any proprietary lock-in**.

Some of the benefits of the Komprise Smart Data Migration to Azure include:

- Provides analytics across existing NAS (eg NetApp, Dell, Windows) to identify which data sets to migrate and to which tier of Azure.
- Systematically migrates files **27 times faster**. Komprise Elastic Data Migration scales elastically according to the distribution of your shares, directories and files.
- Ensures full data integrity by migrating all file attributes and permissions with full MD5 checksums on every file.

A "smart data migration" strategy for enterprise file data means you take an analytics-first approach to know which data can migrate to which class and tier and which data should stay on-premises to maximize performance. With Komprise you can create execution plans based on policy, such as for legal hold or confinement, and Komprise will continually move data to the right location.

> *Moving data to Microsoft Azure Storage needs to be fast and easy for our customers. We are excited to work with Komprise on delivering a valuable service, so that our customers can more easily and reliably move file data from expensive on-premises NAS devices to the cloud native storage services on Azure.*
>
> **Jurgen Willis**
> VP, Optimized Workloads and Storage, Microsoft Azure

The analytics-first approach helps our customers understand: *"What data do I have, what data is hot, what data is cold, how is data being used and how fast is it growing?"* Knowing which data is hot and which is cold helps you understand what data requires the performance of Azure Files and Azure NetApp Files and what data should go elsewhere.

From File Migration to Intelligent Data Management and Mobility

Migrating to the cloud is an opportunity to optimize and ensure you are using the best storage resource for your data to save money, while getting the right level of performance and data protection. Customers that thrive in the cloud understand that data optimization is an ongoing process. The pace of innovation in Azure means new classes of storage with higher performance and lower costs, along with the continual launch of new analytics capabilities.

To take full advantage customers need to maintain visibility of their data so they can always align data with the best resources. With Komprise, Azure customers can upgrade to the full platform: **Komprise Intelligent Data Management**.

- The full product brings the ability to continually optimize data placement and ensure a non-disruptive user experience with **Transparent Move Technology™ (TMT)** which delivers native access to tiered data.
- You can transparently tier across Azure Storage platforms, cutting 70% of cloud costs.
- Komprise provides a searchable global index of all your files and objects so you can find just the data you need and act on it.

Komprise Intelligent Data Management brings the ability to **continually optimize** data placement, ensure a **non-disruptive user experience** and **maintain native access** to tiered data.

Key Benefits of Komprise Intelligent Data Management:

Data Lifecycle Management

The value of data and how we use data is not static. A typical access pattern for data is that files are accessed and used heavily for the first month and then less frequently as the data ages or becomes cold. Azure provides multiple tiers of performance with Azure Files and Azure Blob. With full visibility into your data, you can move it to the right tier to meet distinct requirements for user and application access. Komprise lets you see access patterns and create automated tiering policies to optimize data placement from Azure Files to Azure Blob while maintaining transparent access over the lifecycle of the data.

Data Mobility

With new cloud services and technologies developing at a staggering pace, having your data locked into a single resource potentially locks you out of opportunity to innovate. The combination of Komprise with Azure provides the agility to move, replicate and tier data as needed. By understanding your data, choosing the right resources, and then creating data management policies, you can ensure you are optimizing and driving value from your data at every step of the cloud journey.

AI-Ready Data

Another advantage of migrating your data to Azure with Komprise is the ever-growing suite of analytics, artificial intelligence (AI), machine learning (ML) and other intelligence services you can leverage. Komprise keeps your data in native format at every step of the data lifecycle journey. As Komprise moves from Azure Files to Azure Blob the data is directly accessible, allowing you to leverage cloud-native analytics and AI/ML workflows.

Komprise Data Management for Azure Storage

Storage teams are increasingly migrating their SMB and NFS workloads to Azure file services, such as Azure Files and Azure NetApp Files (ANF). These fully managed file offerings remove the burden of patching and upgrades and allow customers to consume enterprise file as a service. Komprise supports data migration to all Azure File and Blob storage classes as well as data tiering from on-premises NAS offerings, making it easier to right-place your data in the optimal storage class. Here are the top capabilities for data management and mobility with Komprise and Azure storage:

1. **Analytics:** Tear down storage silos by analyzing your current file workloads on any NAS platform and then migrate granular data sets to the optimal Azure storage class.
2. **Flexible Policies:** Empower data owners to work with storage infrastructure teams to create policies, such as for legal hold or confinement of data once it reaches the end of retention.
3. **Simplicity:** Blend Azure File and Blob services into your current infrastructure without the complexity of managing file and object data in silos.
4. **Leverage File and Blob Classes:** Continually optimize your data placement in the cloud as data ages and access patterns change to take advantage of lower cost or higher performance storage.
5. **Reliable Automation:** Get a systematic way to make data available for Azure analytics and AI/ML workflows so as new data fits the bill, it is automatically copied and available.

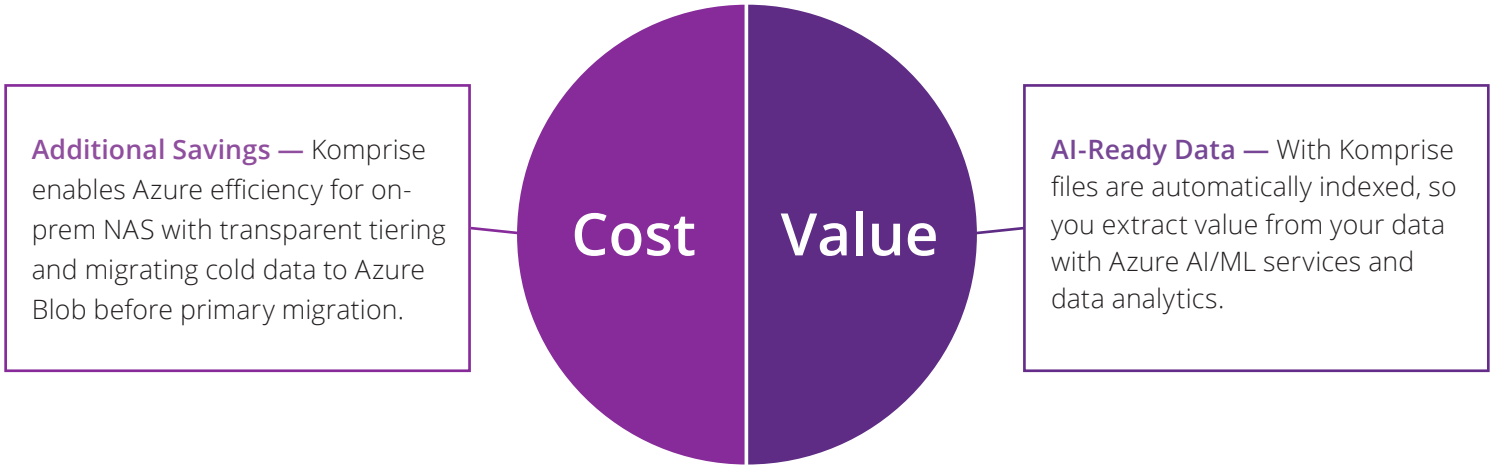


Figure 1: Komprise delivers additional savings and AI-ready data for Microsoft Azure users.

Recommended Architecture

Komprise runs as a hybrid cloud service with the Komprise Director console in the cloud and virtual machines called Observers at your datacenters. The Komprise Observers analyze data on your NAS and based on your policies, do the smart migration by offloading cold data to the Azure Blob class of your choice such as Cool or Archive. The hot data is migrated to Azure Files or ANF and cold data is accessible as native Azure Blob objects. Users and applications have direct access to all of the data in Azure. The Komprise Global File Index automatically indexes all of your data for central visibility. You can also use Komprise to enrich files with tags for contextual search.

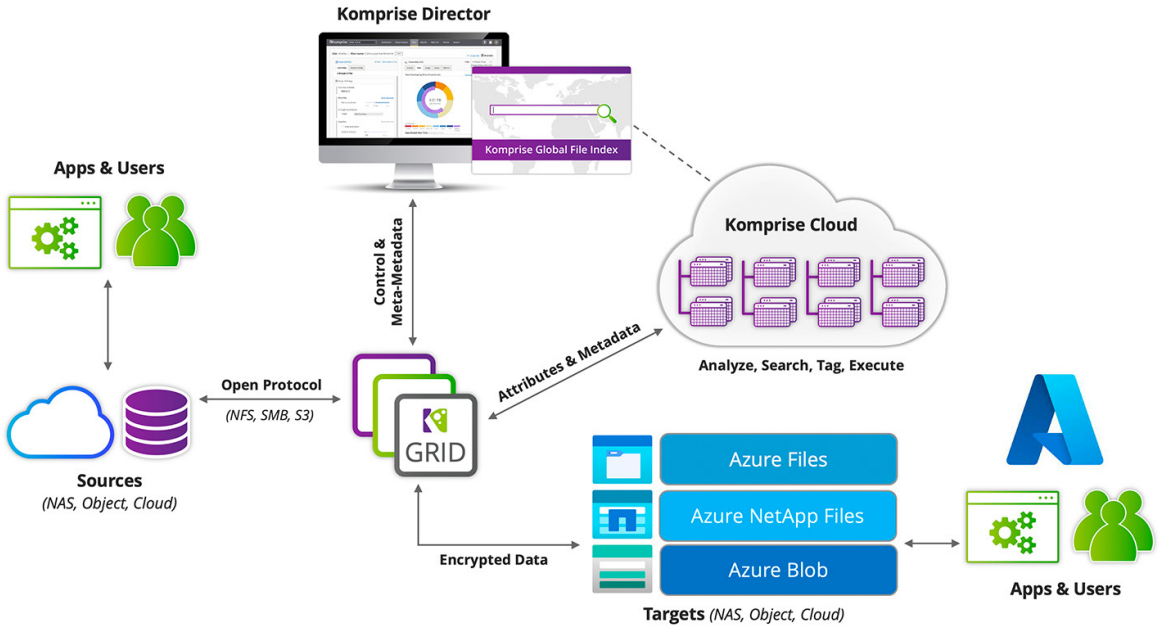


Figure 2: Overview of the Komprise Intelligent Data Management product architecture.

Key Takeaways

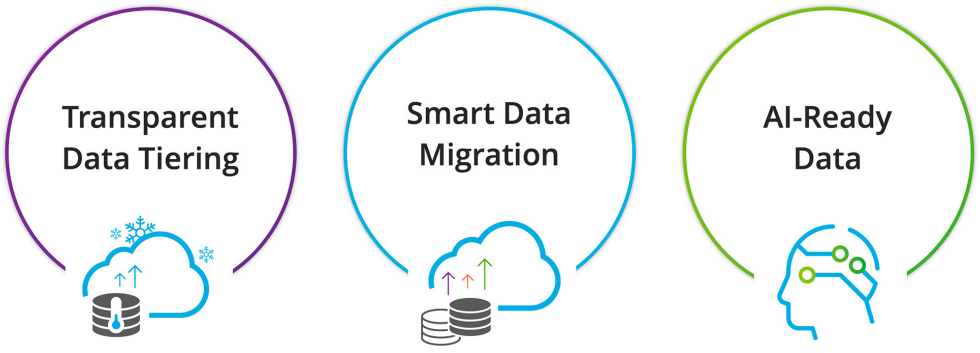
1. **Cloud storage options are expanding with enterprise demand for file storage.**
Azure has multiple classes of file and object storage and is continually launching new options for enterprise customers looking to adopt a hybrid cloud strategy for file data. To take full advantage of these storage classes in continual evolution, IT teams need a precise method to target specific data sets to the appropriate storage class—in the cloud and on-premises—to maximize spend and ensure data requirements are met.

2. **Cloud data migration complexity calls for an analytics approach.**
Selecting storage targets and which data to move where is often guesswork and common pains include high migration costs from manually intensive processes, errors and data loss, user disruption and slow time to complete.

3. **Enterprises will likely need a mix of Azure managed file and object storage.**
Managed file storage in the cloud is generally designed for high-performance file workloads and its high-performance Flash tier can be expensive. Azure classes (including Archive) deliver flexible and cost-effective options for colder, rarely accessed data, each with varying price, performance and retrieval time factors to consider. Komprise allows customers to maximize the value of their Azure deployment by taking advantage of the full portfolio of file and object services up-front with migration.

4. **A smart migration approach can "right-place" data for the cloud and maximize ROI.**
An analytics-first approach ensures that IT teams know which data can migrate, to which Azure class and tier, and which data should stay on-premises to maximize performance. You can create execution plans based on policy and Komprise will continually move data to the right location.

5. **Upgrading to the full Komprise platform delivers ongoing data lifecycle management and AI-ready data.**
Komprise transparently tiers data so that users experience no disruption, while cutting 70% of cloud costs. Komprise also delivers file-object duality so that data is readable both as a file and via the Azure blob storage API—which is important for cloud-native ML and AI applications. Finally, the Komprise Global File Index delivers visibility across all file data: on-premises and in the cloud.

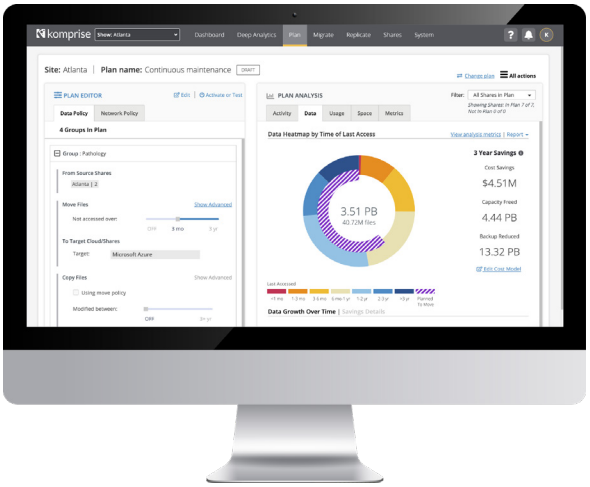


Komprise and Azure: Better Together for Smarter Data Migrations and Management

Komprise is one of a select few ISV partners sponsored by the Microsoft Azure File Migration Program. The Komprise Intelligent Data Management and Mobility Platform analyzes, migrates and tiers data transparently to any storage class in Azure so you get the easiest, fastest, no lock-in path to the cloud for your file and object data.

Together, Komprise and Azure enable your organization to:

- Understand your NAS & object data usage and growth.
- Estimate the ROI of Azure in your environment.
- Migrate smarter to Azure File and Azure NetApp Files.
- Easily integrate ongoing data lifecycle management.
- Access moved data as files without stubs or agents.
- Reduce complexity and scale on-demand.
- Deliver native data access in the cloud without lock-in.



Learn More

To learn more about Komprise for Azure, visit **komprise.com/azure**.

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