Azure Storage Migration

SAXON

What is Azure Storage Migration from Datacenter ?

Storage Migration from Datacenter involves the strategic relocation of data storage systems from on-premises facilities to cloud-based storage services provided by Azure. This process is essential for organizations looking to capitalize on the cloud's scalability, reliability, and cost-efficiency.

Key Aspects of Storage Migration:

Data Assessment and Inventory: Before migration, it's critical to perform a detailed assessment of the existing data storage. This includes cataloging the data types, sizes, and usage patterns to ensure a smooth transition.

Migration Strategy: Develop a clear strategy that outlines the migration process, including the selection of Azure storage services (like Azure Blob Storage, Azure File Storage, etc.), data transfer methods, and timeline.

Pre-Migration Testing: Conduct pre-migration testing to identify potential issues and ensure compatibility with Azure services. This step helps in validating the migration plan and making necessary adjustments.

Secure Data Transfer: Implement secure data transfer protocols to protect data integrity and confidentiality during the migration. Azure provides tools like Azure Data Box, Azure Import/Export service, and Azure Site Recovery for secure data transfer.

Data Synchronization: Ensure that data remains synchronized between on-premises and Azure storage during the migration phase to prevent data loss and maintain business continuity.

Post-Migration Validation: After migration, validate the data in Azure storage to confirm that all data has been transferred accurately and is accessible as expected.

Cost Management: Monitor and manage costs associated with Azure storage, utilizing tools like Azure Cost Management to optimize spending and ensure cost-effectiveness.

Compliance and Governance: Maintain compliance with industry regulations and internal governance policies by leveraging Azure's built-in compliance controls and security features.
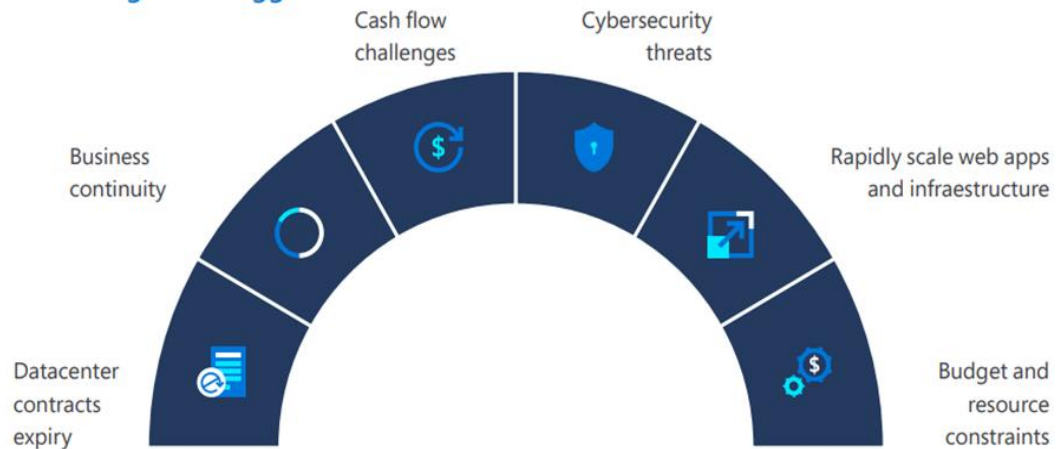
Optimization and Scalability: Post-migration, continuously optimize storage performance and scalability. Azure offers features like automated

Why is Azure Storage Migration Required

Challenges faced by existing on-Prem customers?

➤ ·Scalability Bottlenecks , Operational Overhead
➤ ·Agility Constraints , Security Vulnerabilities
➤ ·Disaster Recovery Limitations, Innovation Hurdles
➤ ·Performance Challenges , Versioning Concerns
➤ ·Integration Issues , Limited Analytics Capabilities
➤ ·Compliance Complexities, Vendor Lock-In
➤ ·Skill Shortages, Geographical Constraints.

Cloud migration triggers

- Cash flow challenges
- Cybersecurity threats
- Business continuity
- Rapidly scale web apps and infrastructure
- Datacenter contracts expiry
- Budget and resource constraints

How do customers benefit from Migrating Storage to Azure

⮱ ·Increased Scalability and Flexibility
⮱ ·Multi-fold operational Efficiency
⮱ ·Embracing power of cloud Native technologies
⮱ ·Improved Security Posture
⮱ ·Ensuring 99.99% of Business Continuity
⮱ ·Effective integration techniques
⮱ ·Overcoming Performance Bottlenecks
⮱ ·Long-Term Cost Predictability & Cost optimization
⮱ ·Faster and wider Global reach
⮱ ·Risk Mitigation
⮱ ·Managing Software Updates and Upgrades
⮱ ·Navigating Regulatory Requirements
⮱ ·Avoid Dependency on Specific Technologies
⮱ ·Democratization of Azure technologies
⮱ ·AI and ML Integration

These capabilities enhance the overall efficiency and intelligence of Storage systems in the cloud.
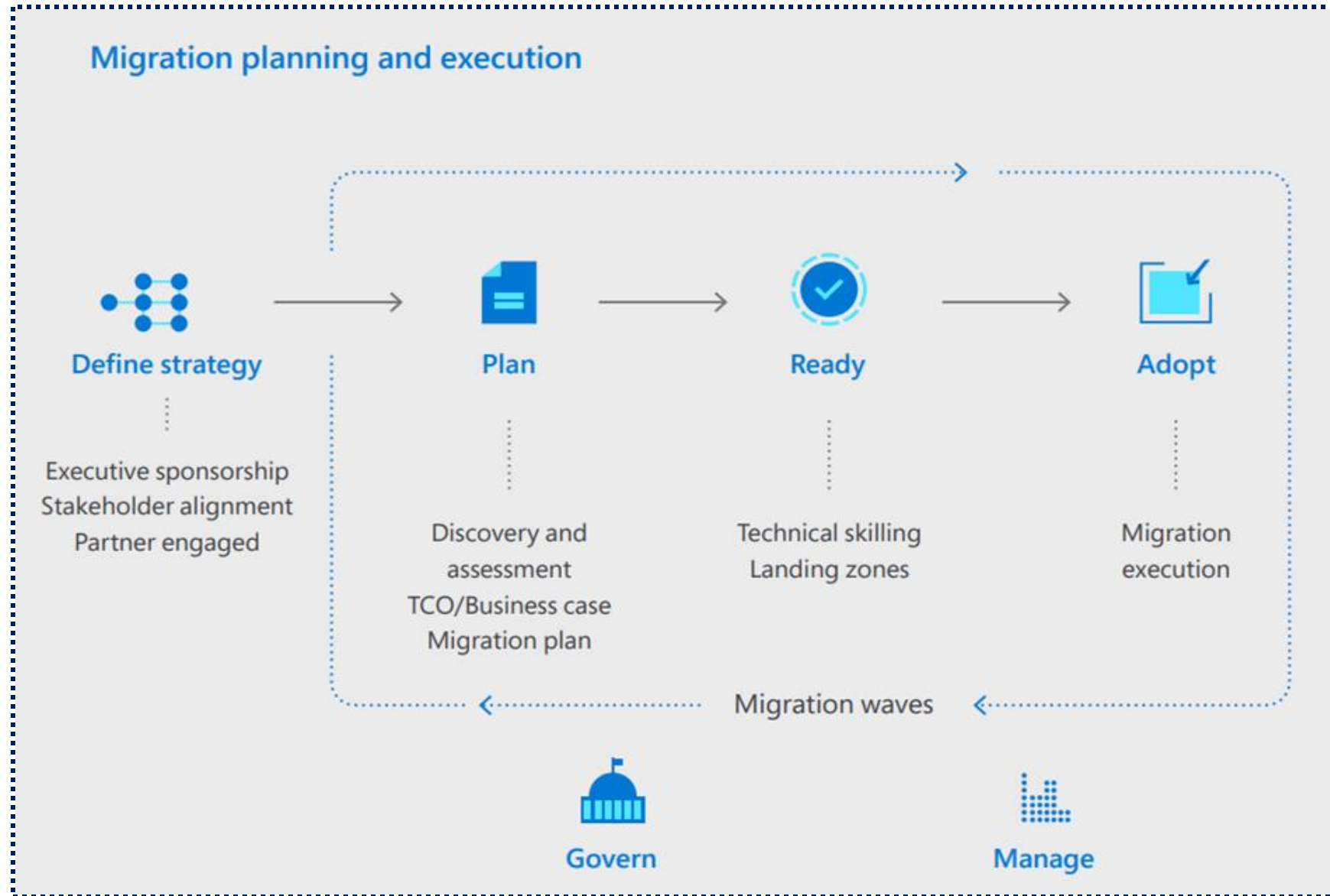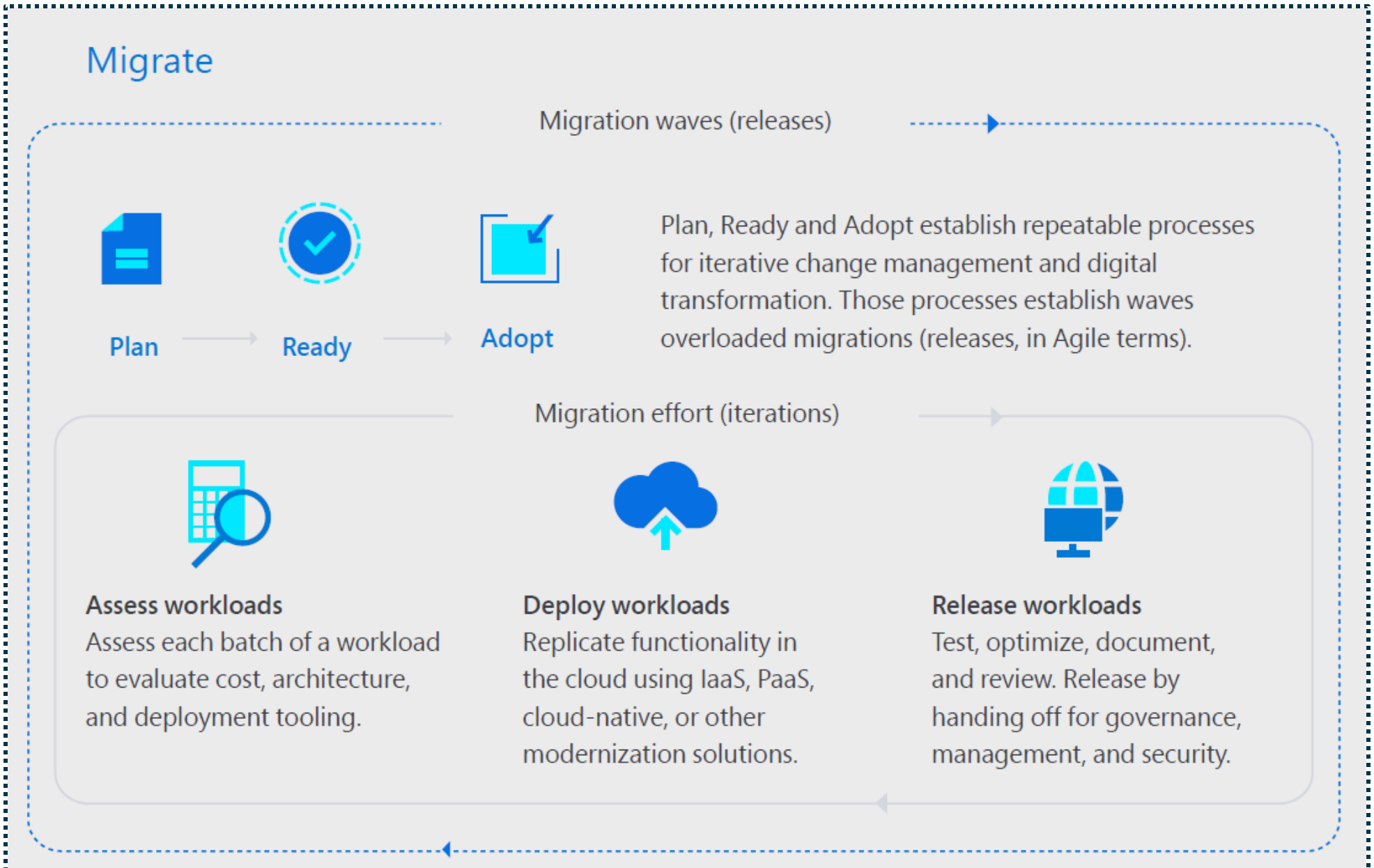
Cloud Adoption Framework (CAF)

consolidates best practices from Microsoft and others, offering tools and guidance to shape technology and business strategies, driving desired outcomes in adoption efforts.

Each methodology contributes to the cloud adoption lifecycle, supported by the Cloud Adoption Framework (CAF) throughout each phase of the journey.

The framework utilizes methodologies to address common blockers, as depicted in the following diagram.

Migration planning and execution

Define strategy
Executive sponsorship
Stakeholder alignment
Partner engaged

Plan
Discovery and assessment
TCO/Business case
Migration plan

Ready
Technical skilling
Landing zones

Adopt
Migration execution

Migration waves

Govern

Manage

Azure Migration Waves and Iterations

Migrate

Migration waves (releases)

Plan → **Ready** → **Adopt**

Plan, Ready and Adopt establish repeatable processes for iterative change management and digital transformation. Those processes establish waves overloaded migrations (releases, in Agile terms).

Migration effort (iterations)

Assess workloads
Assess each batch of a workload to evaluate cost, architecture, and deployment tooling.

Deploy workloads
Replicate functionality in the cloud using IaaS, PaaS, cloud-native, or other modernization solutions.

Release workloads
Test, optimize, document, and review. Release by handing off for governance, management, and security.

Azure Storage Migration (Cloud Adoption Journey – Phase wise approach)

Migration stages	Sub phases	Tasks Summary
Define Migration Strategy	Define business justification Establish migration goals Assess Your Environment Prioritize workloads for migration Plan for skills and training Choose a Target Storage Service Select the Migration Type Identify risks and mitigation strategies Develop a timeline Engage stakeholders	We'll initiate a comprehensive storage migration to Azure with clear business goals and SMART objectives. After evaluating your digital estate and ensuring Azure technology proficiency within your team, we'll assess your environment, identifying workloads, applications, and dependencies using tools like Azure Migrate. Next, we'll define migration goals considering factors such as data center exit, cost optimization, and compliance requirements. We'll evaluate Azure storage services like Azure Blob Storage, Data Lake Storage, Azure Files, Azure NetApp Files, and ISV solutions based on technical and financial criteria. Then, we'll select the appropriate migration method, online or offline, and engage stakeholders for a seamless transition, while calculating costs, ROI, and mitigating risks.
Migration Plan	Prepare your landing zone for migration Prepare tools and an initial migration backlog Select Azure regions for migration Align roles and responsibilities Incorporate skills readiness for migration	To streamline the migration to Azure, we'll begin by configuring a robust landing zone to facilitate the process. We'll identify essential components for a successful migration, select suitable tools, and create a prioritized backlog from your digital estate assessment. We'll choose Azure regions based on compliance and data residency requirements and assign specific roles and responsibilities to all project participants for clear governance.
Getting Ready for Migration/ Pre-Migration	Document naming and tagging standards Use IaC modules Filter the IaC registry Deploy an enterprise-scale landing zone Set up a data management zone Expand your landing zone with data Build your data management and landing zone	To enhance your Azure configuration, we will implement a systematic naming convention and documentation protocols to ensure uniformity across resources. We'll employ Infrastructure as Code (IaC) modules and refine the registry to align with the Cloud Adoption Framework effectively. An enterprise-scale landing zone will be deployed, alongside a data management zone for stringent governance. Additionally, we will augment our setup with data components and expedite deployment processes through Azure DevOps template

Azure Storage Migration (Cloud Adoption Journey – Phase wise approach)

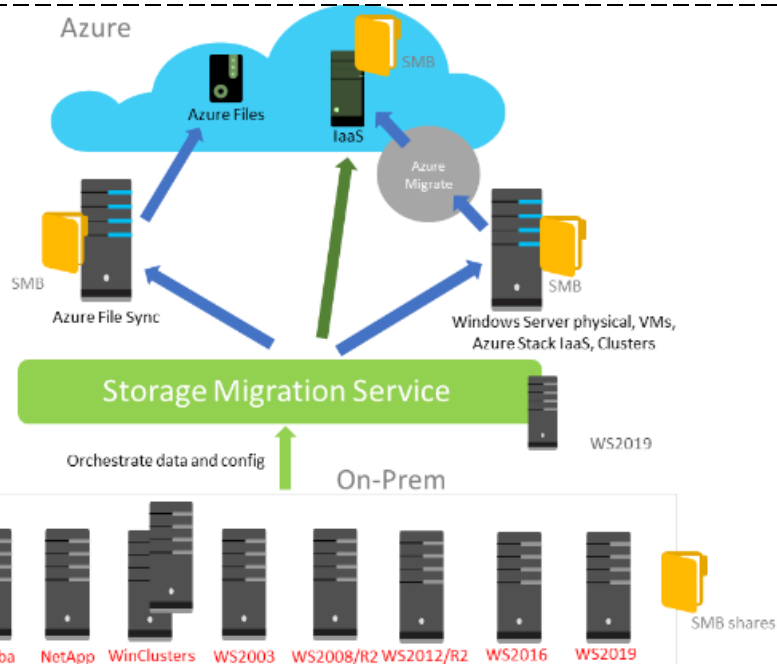| Migration stages	Sub phases	Tasks Summary
Cloud Adoption phase/ Actual Migration	Classify workloads	Once we choose the source and Target storage service (Azure Blob Storage and Data Lake Storage, Azure Files, Azure NetApp Files, Independent software vendor (ISV) solutions) and once we choose the Migration method (Online vs. offline), we will initiate Migration by Transferring data to Azure storage, while keeping the data consistent during migration by executing sync/resync jobs. During Final switch over, we will redirect applications to use Azure storage. For large-scale data transfers, we consider using **Azure Data Factory** to orchestrate movement from on-premises storage systems to Azure Data Lake Storage or Azure Blob Storage. For smaller datasets, we use tools like **AzCopy** or **Azure Import/Export** services It is extremely important to assess both technical and financial aspects to make informed decisions during the migration process.
	Evaluate workload/storage readiness	
	Architect Storage solutions	
	Deploy supporting services	
	Remediate assets	
	Replicate assets	
	Prepare for management	
	Test the migration	
	Begin change communication	
	Conduct business testing	
	Complete the migration	
	Optimize costs after migration	
	Conduct retrospectives	
Post Migration (Govern, Secure, Manage)	Assess workloads, Monitor & improve the performance, cost, operational efficiency, Security, Reliability (5 pillars of Well Architected Framework)	As part of the Azure Post Migration phase, we engage in a series of crucial activities to ensure a smooth transition for our customers. we assess storage for cost, modernization, and tooling, ensuring security by managing traffic and deploying encryption. We monitor the usage and decide the right storage access tiers as per the business requirement . We replicate the functionality in the cloud (As per the High availability specs), followed by rigorous testing and optimization for ongoing operation.
	Release Workloads	

Azure Storage Migration Saxon's Approach & Timelines

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
2 to 4 days	1 to 2 weeks	1 to 2 weeks	2 to 4 weeks	1 to 2 weeks
Define Migration Strategy	Migration Planning	Getting Ready for Migration / Pre-Migration	Cloud Adoption phase/ Actual Migration	Post Migration (Govern, Secure, Manage)

Disclaimer : These Timelines vary depending on the Architecture portfolio of the customer's environment , Viz. # of Servers, Workloads, Data volume, Dependencies etc.

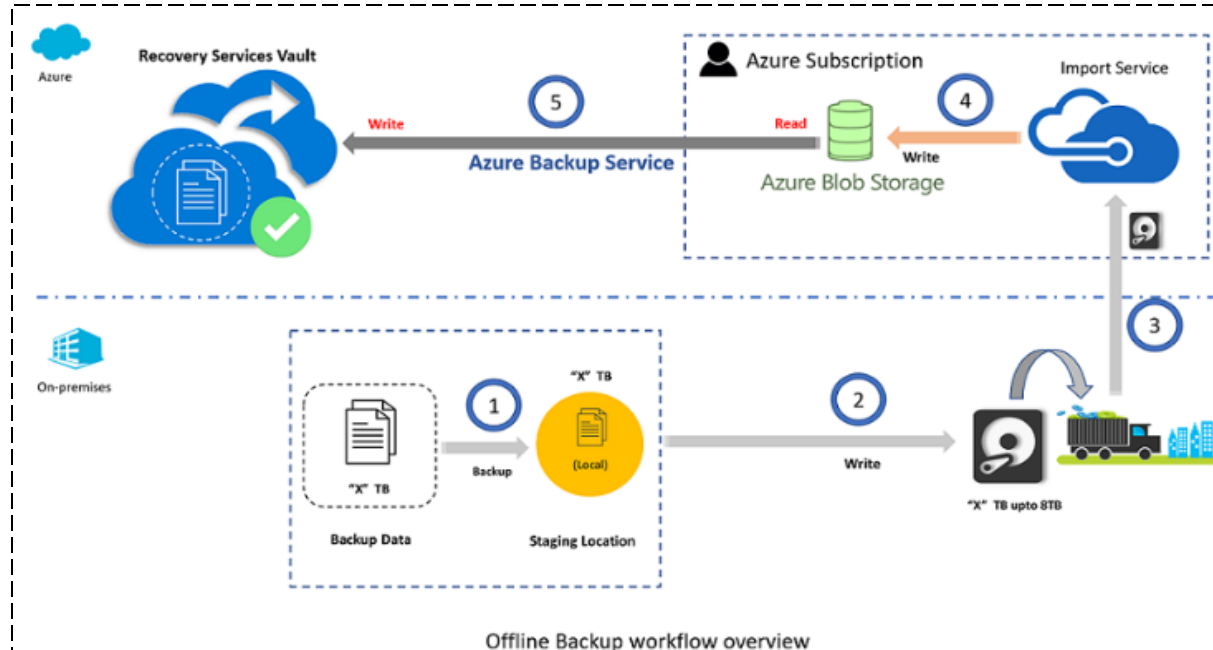# Azure Storage Migration Types

Online Migration

Online Azure storage migration is the act of moving data to Azure Storage via the internet. It's ideal for situations where direct device shipment isn't an option. The transfer can occur over the public internet or through Azure ExpressRoute for enhanced connectivity. In cases where the migrated service lacks a public endpoint, we establish VPN for secure data transfer.

Offline Migration

Offline Azure Storage migration involves physically transferring data using devices like Azure Data Box, Data Box Disk, or Data Box Heavy, which are shipped to Microsoft for data upload to Azure. We recommend this method for large-scale data transfers, especially when network bandwidth is scarce or when enhanced data security and privacy are essential.

Offline Backup workflow overview

Saxon's Deliverables of Storage Migration

Deliverables

- ✓ **Storage Inventory Report**: A document detailing all storage assets, including types, capacities, and configurations.
- ✓ **Data Assessment Document**: Analysis of data types, sizes, and usage patterns to determine migration readiness.
- ✓ **Cloud Readiness Report**: Evaluation of each asset's suitability for migration to cloud storage.
- ✓ **Migration Strategy Proposal**: An initial proposal outlining the approach, tools, and services for the migration.
- ✓ **Cost Estimation and ROI Analysis**: A report providing a preliminary financial analysis of the migration.
- ✓ **Migration Plan**: A comprehensive document detailing the migration strategy, architecture, and processes.
- ✓ **Tool and Service Selection Documentation**: Information on the chosen migration tools and services, including licenses and configurations.
- ✓ **Proof of Concept Report**: Results and findings from the proof of concept, including any issues encountered and resolutions.
- ✓ **Training Materials**: Guides and documentation prepared for IT staff to manage and operate the new storage solutions.
- ✓ **Migration Execution Schedule**: A detailed timeline of the migration execution, including key milestones and checkpoints.
- ✓ **Performance Reports**: Documentation of the performance tuning and optimization efforts post-migration.
- ✓ **Data Validation Reports**: Confirmation of data integrity and completeness post-migration.
- ✓ **Decommissioning Plan**: A plan for safely decommissioning and disposing of old storage hardware and data.

About Us

Saxon is a data and analytics company specializing in industry-specific solutions to make organizations more insights-driven. It helps in empowering clients with actionable information for real-time decision-making, serving as a key solution partner to leading data engineering & Cloud Technology platforms, supporting diverse industries in their digital transformation journey.

Saxon has been the Trusted Partner over 2 decades for holistic business transformation: Industry Insights, Consulting Excellence, and Cutting-Edge Cloud & AI Solutions

THANK YOU