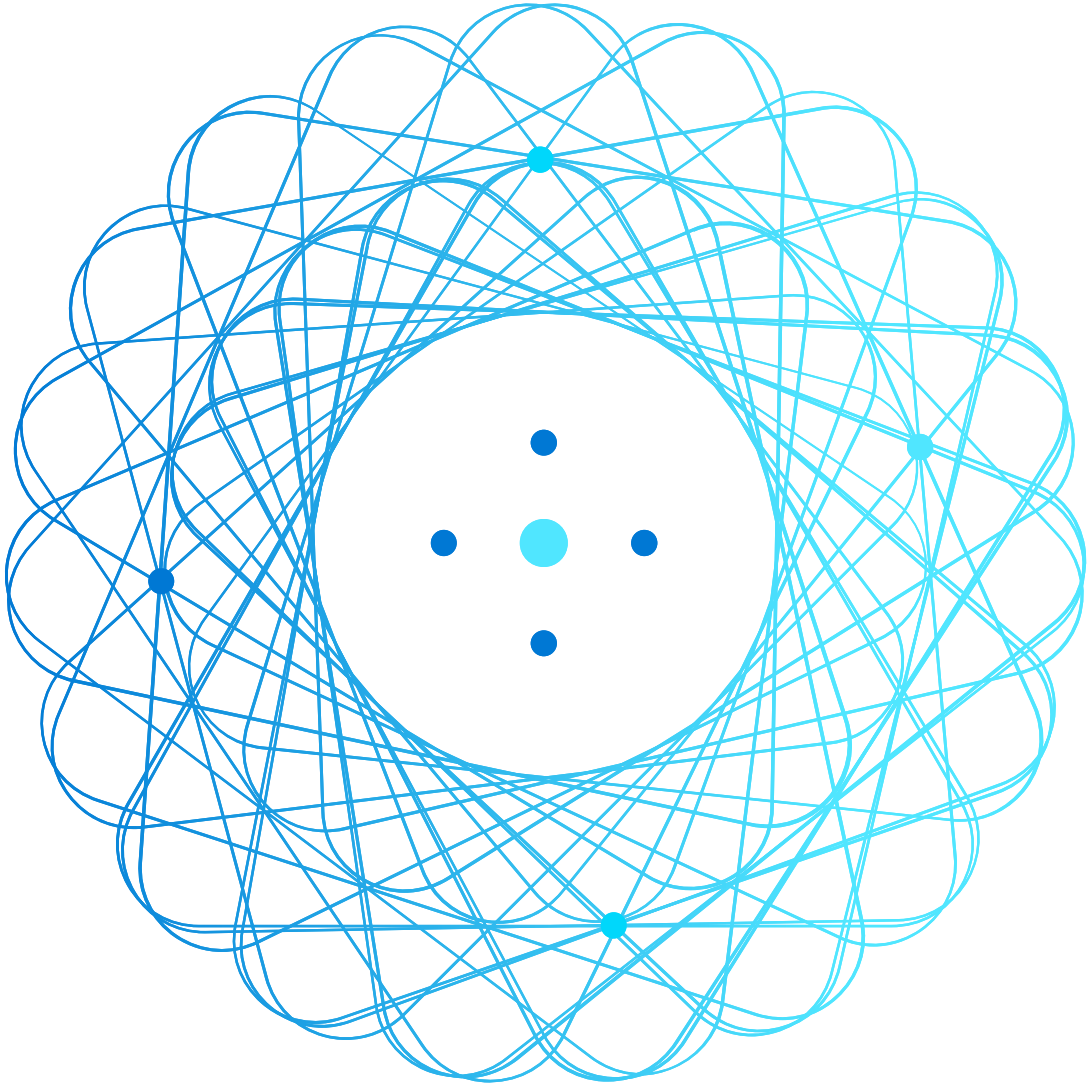
Microsoft Azure

AZ-305

Designing Microsoft Azure Infrastructure Solutions



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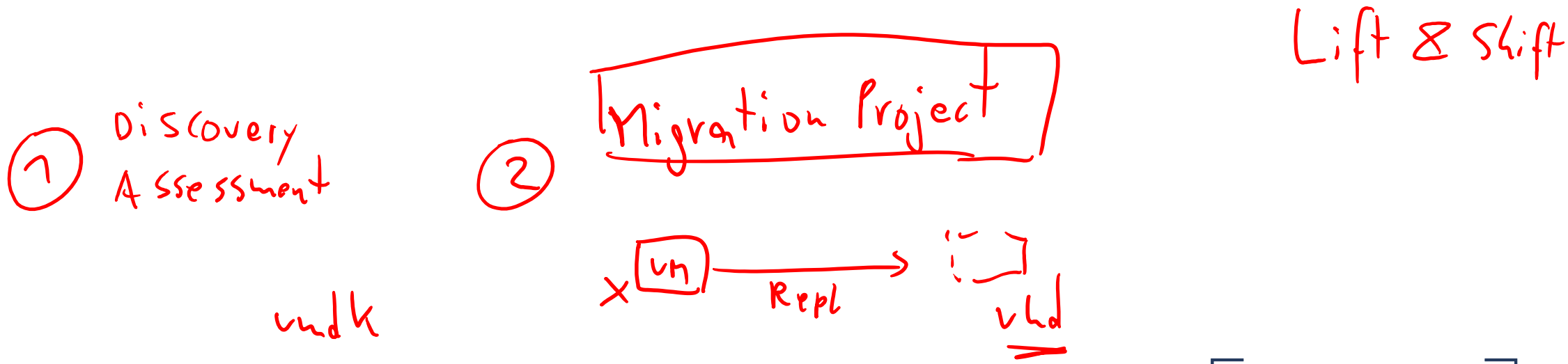
AZ-305 Agenda

Module 01 Design a governance solution
Module 02 Design a compute solution
Module 03 Design a non-relational data storage solution
Module 04 Design a data storage solution for relational data
Module 05 Design a data integration solution
Module 06 Design an application architecture solution
Module 07 Design Authentication and Authorization Solutions
Module 08 Design a solution to log and monitor Azure resources
Module 09 Design a network infrastructure solution
Module 10 Design a business continuity solution
Module 11 Design a migration solution



Module 11: Design a migration solution

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Introduction

- Evaluate migration with the Cloud Adoption Framework
- Describe the Azure Migration Framework
- Assess your workloads
- Compare migration tools
- Migrate your databases
- Select an online storage migration tool
- Select an offline storage migration tool
- Summary and resources

AZ-305: Design Infrastructure Solutions (25-30%)

Design migrations

- Evaluate migration solution that leverages the Cloud Adoption Framework
- Assess and interpret on-premises servers, data, and applications for migration
- Recommend a solution for migrating applications and Virtual Machines
- Recommend a solution for migrating databases
- Recommend a solution for migrating unstructured data

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Evaluate migration with the Cloud Adoption Framework

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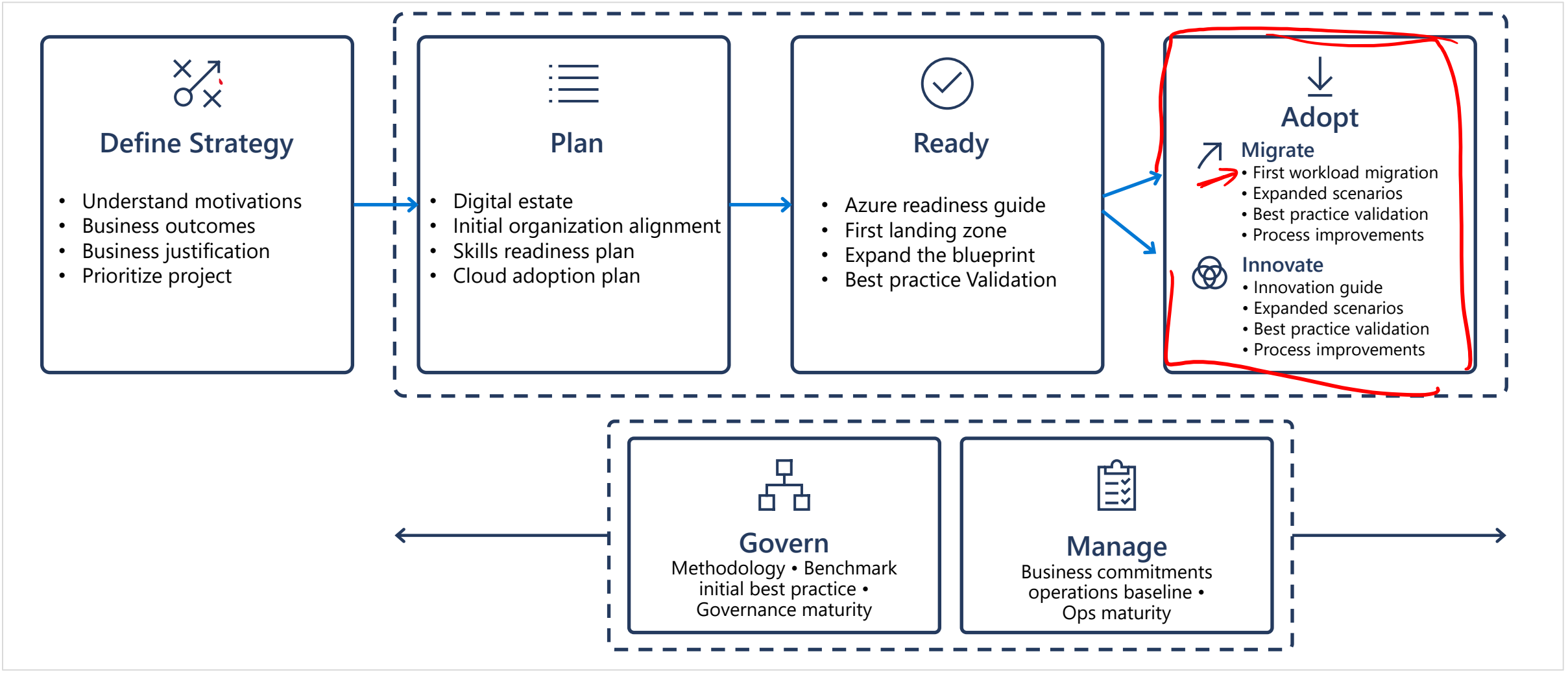
Review the Cloud Adoption Framework



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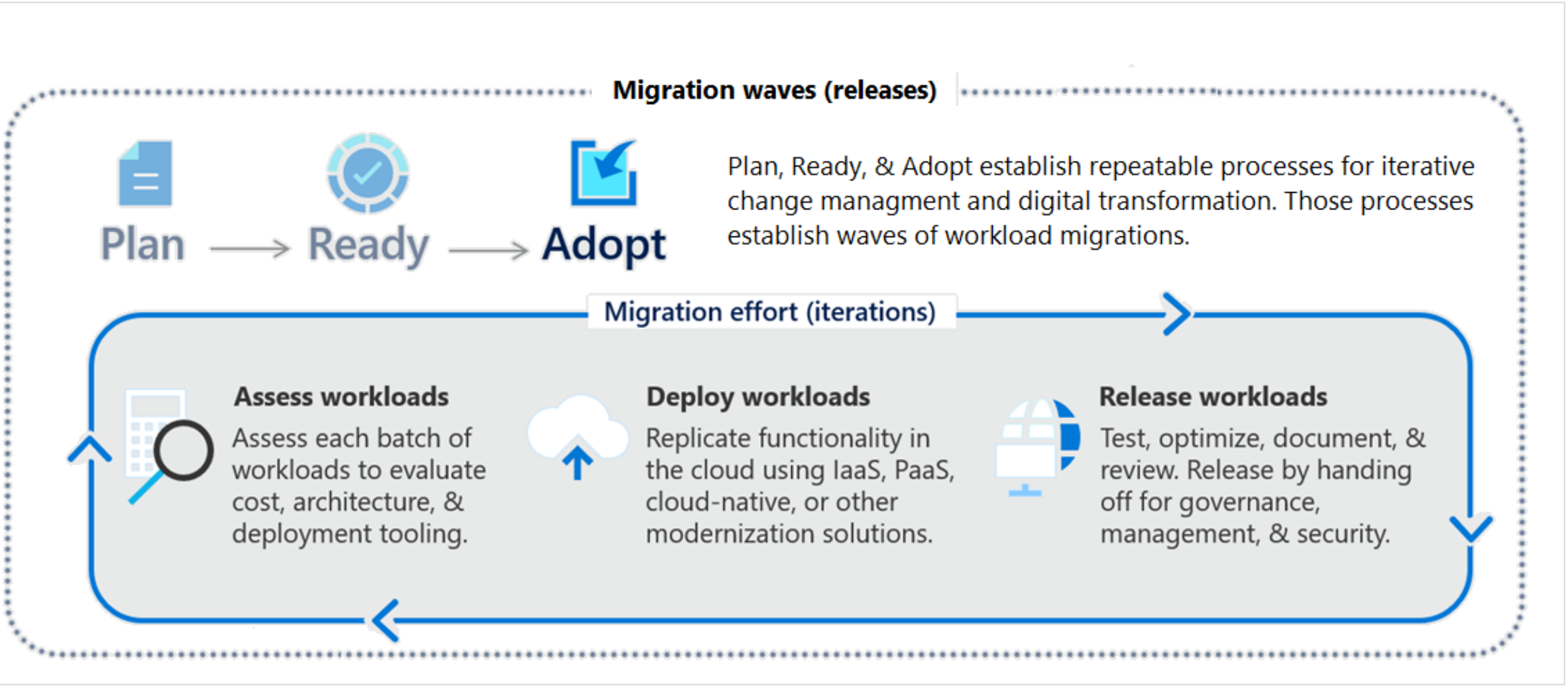
Focus on migration efforts



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Describe the Azure Migration Framework

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Determine your migration strategy

Select a strategy that meets your goals – you may need several strategies

Pattern	When to use
Rehost	• Move workloads quickly to the cloud • Don't need immediate changes to app capabilities
Refactor	• Apply Azure DevOps practices or using a container strategy for workloads. • Consider the portability of your existing code base and available development skills.
Rearchitect	• Use existing application investments, • Apps need major revisions for new features and to work effectively on a cloud platform.
Rebuild (new)	• Rapid development and existing apps have limited functionality and lifespan. • Expedite business innovation by using Azure DevOps practices. • Legacy apps as no code or low apps in the cloud.

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Assess your workloads

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Determine what to migrate

Migrate and modernize all your mission-critical workloads to Azure.

Scenario	Description
Windows Server workloads	• On-premises Windows virtual machines (not databases)
SQL Server workloads	• Databases and other functionality running on SQL Server virtual machines
Linux workloads	• RedHat or SUSE VMs, and Hadoop and Linux containers
ASP.NET-PHP-Java apps	• Customer-facing and internal-facing apps at the SaaS level
SAP HANA	• Enterprise resource planning with a centralized database
Specialized compute	• High-performance computing (HPC)

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Compare migration tools

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Identify migration tools

Tool	Usage
Azure Migrate: Server Assessment	• Physical servers and on-premises VMs running in Hyper-V and VMware environments as preparation for migrating to Azure.
Azure Migrate: Server Migration	• Physical servers and on-premises VMs running in Hyper-V, VMware environments, and other public cloud VMs.
Azure Migrate: Database Assessment	• Performs an assessment of on-premises Microsoft SQL Server databases as preparation for migration to Azure SQL Database, an Azure SQL Managed Instance, or Azure VMs running Microsoft SQL Server.
Azure Migrate: Database Migration	• Migrates data from your existing on-premises databases to databases running in Azure.
Azure Migrate: Web App Assessment	• Assessment of on-premises web apps and migrates them to Azure.
Azure Migrate: Data Box	• Move of large amounts of offline data to Azure by using Azure Data Box.

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Migrate your databases

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Select a database migration type

Database migrations can be performed offline and online

Migration type	Migration scenario
Offline	• Requires shutting down the server at the start of the migration. • Application downtime begins when the migration starts.
Online	• To limit downtime to the time required to cut over to the new environment when the migration completes, use an online migration. • Uses a continuous synchronization of live data, allowing a cutover to the Azure replica database at any time.

Each migration type supports different source and target database pairs

- Check for support of your migration scenario as migration tools are updated frequently

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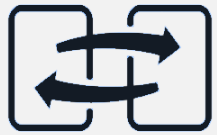
Select an online migration tool



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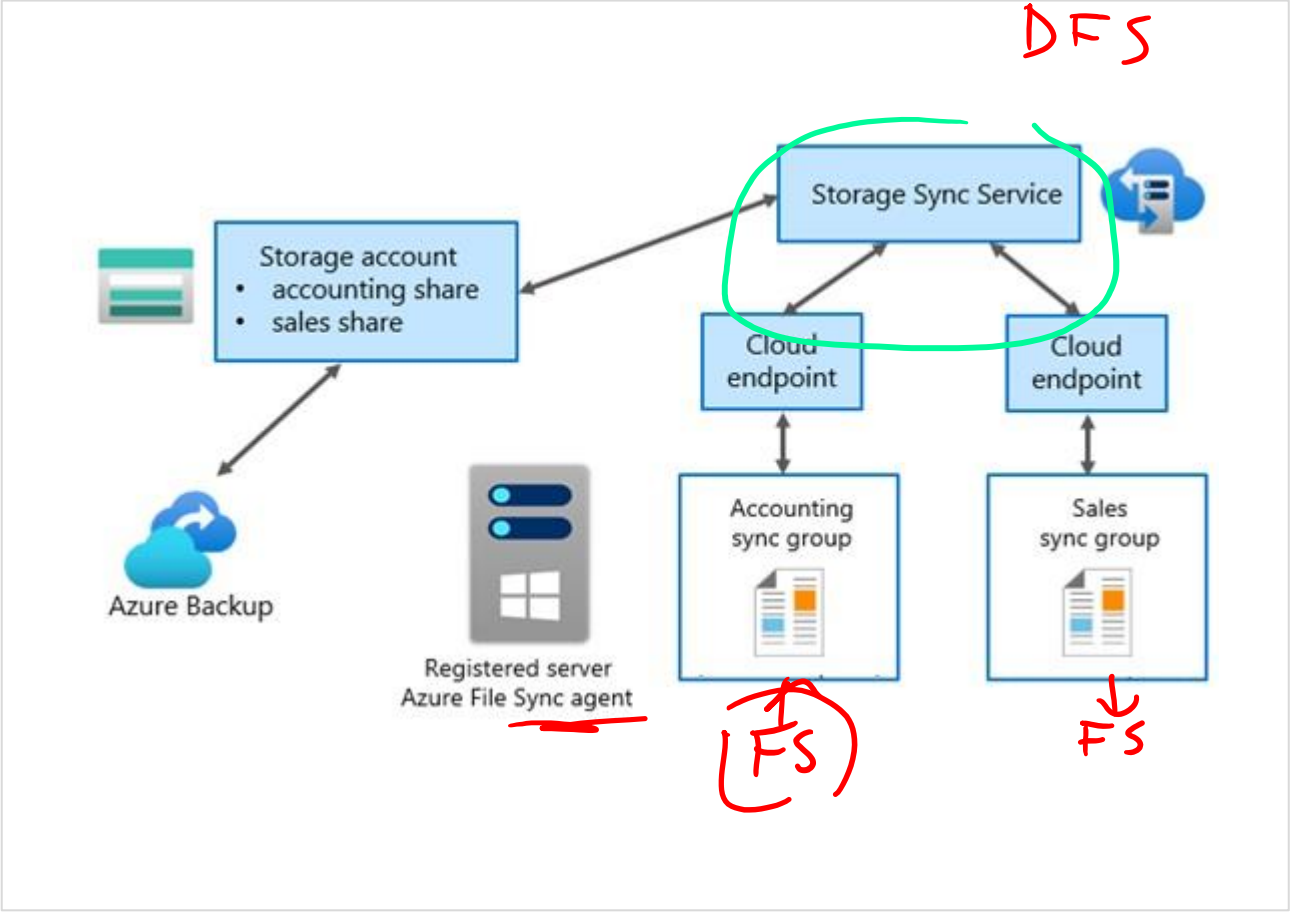
Consider using Azure File Sync

Azure File Sync can be used specifically for migration

- Works in both hybrid and cloud migrations
- Transfers both the data stream and file metadata
- Combines with other products like Azure Data Box
- Supports tiering options



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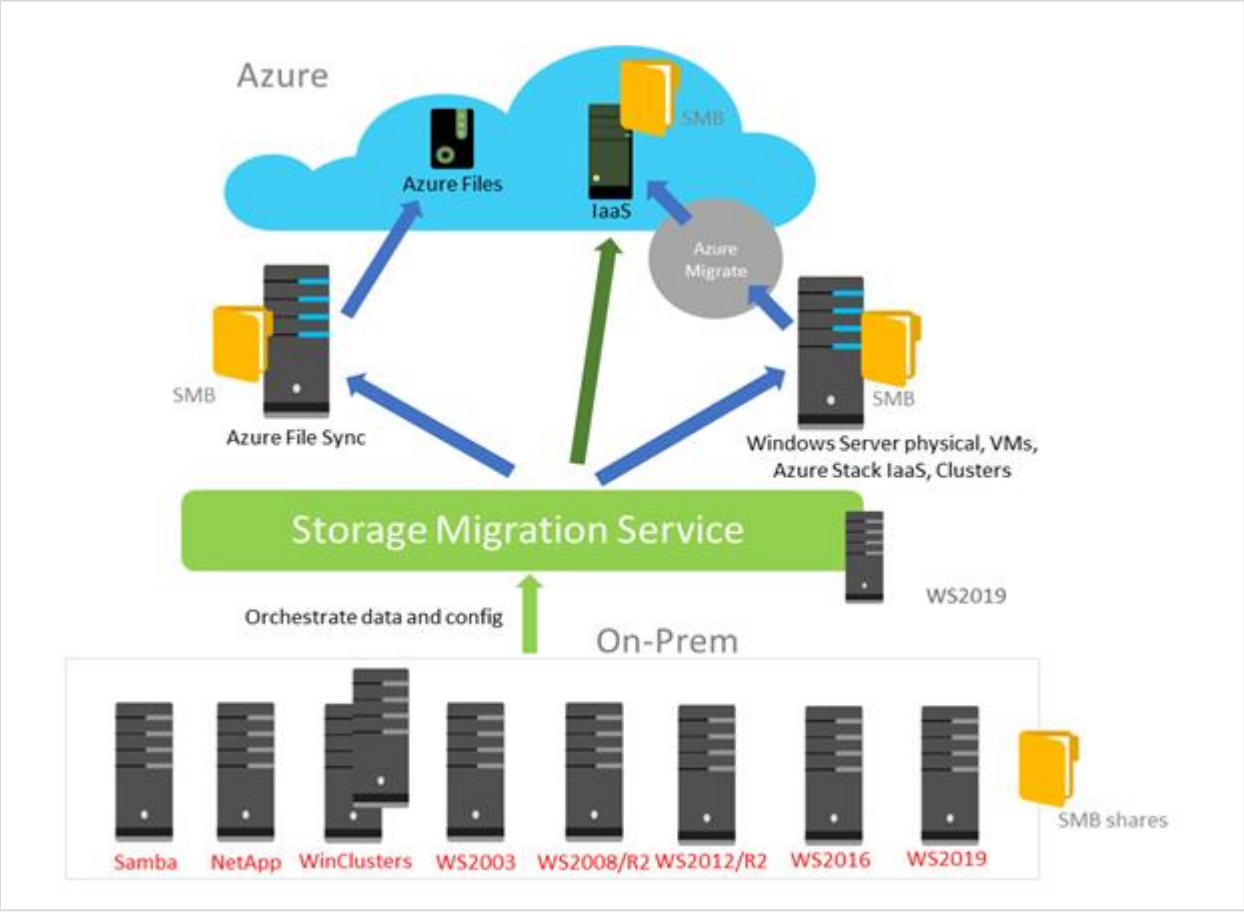
Consider the Storage Migration Service

Storage Migration Service migrates storage to Windows Server or to Azure.

- Inventory multiple servers and their data
- Rapidly transfer files, file shares, and security configuration from the source servers
- Optionally, cut over to the new servers.



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Select an offline migration tool

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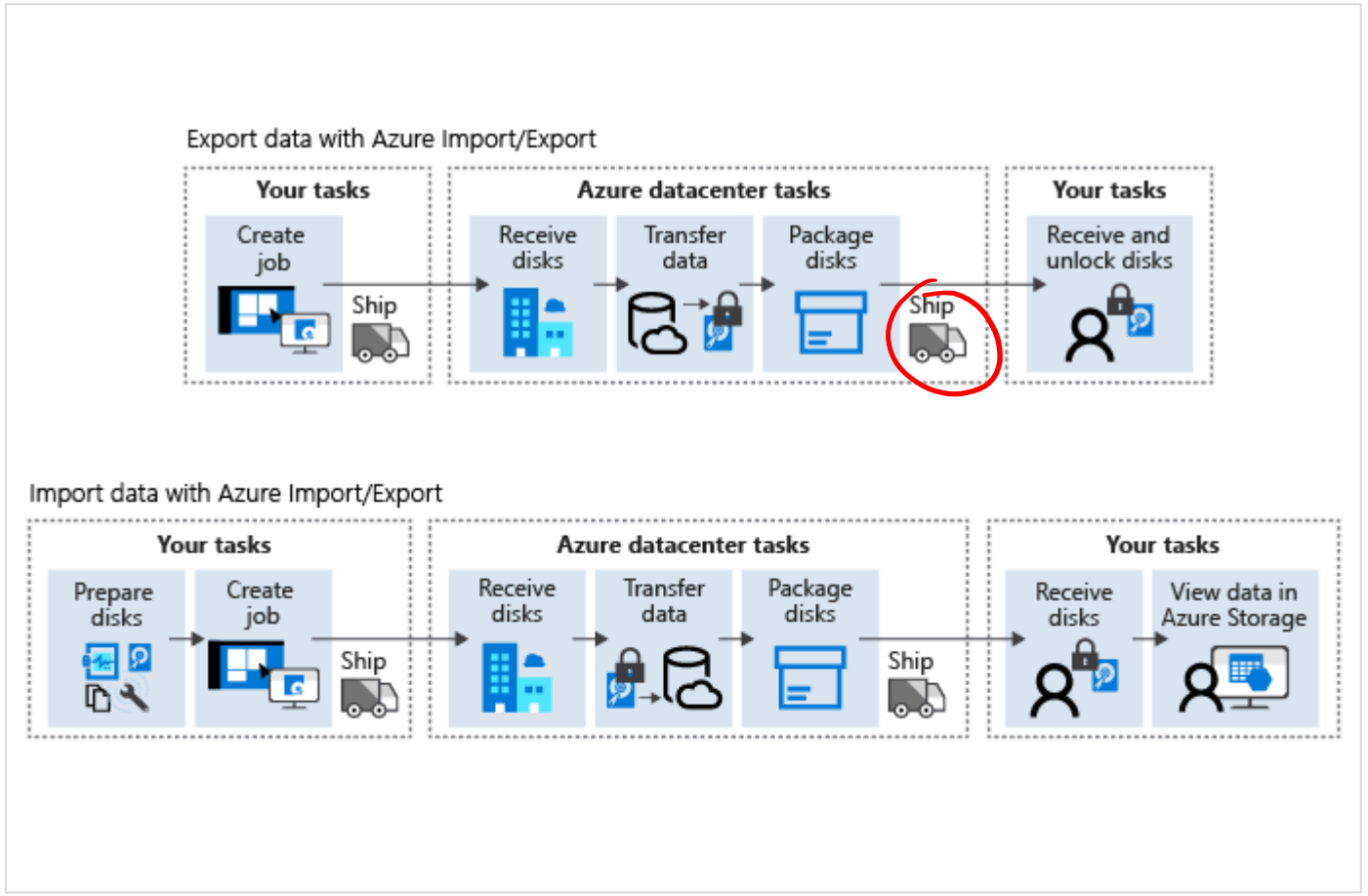
Consider the import/export service

Import/Export migrates on-premises locations and Azure Storage accounts.

- Migrate large amounts of data from on-premises to Azure, as a one-time task
- Back up your data on-premises in Azure Storage
- Recover large amounts of data that you previously stored in Azure Storage
- Distribute data from Azure Storage to customer site



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Consider the Data Box family of products

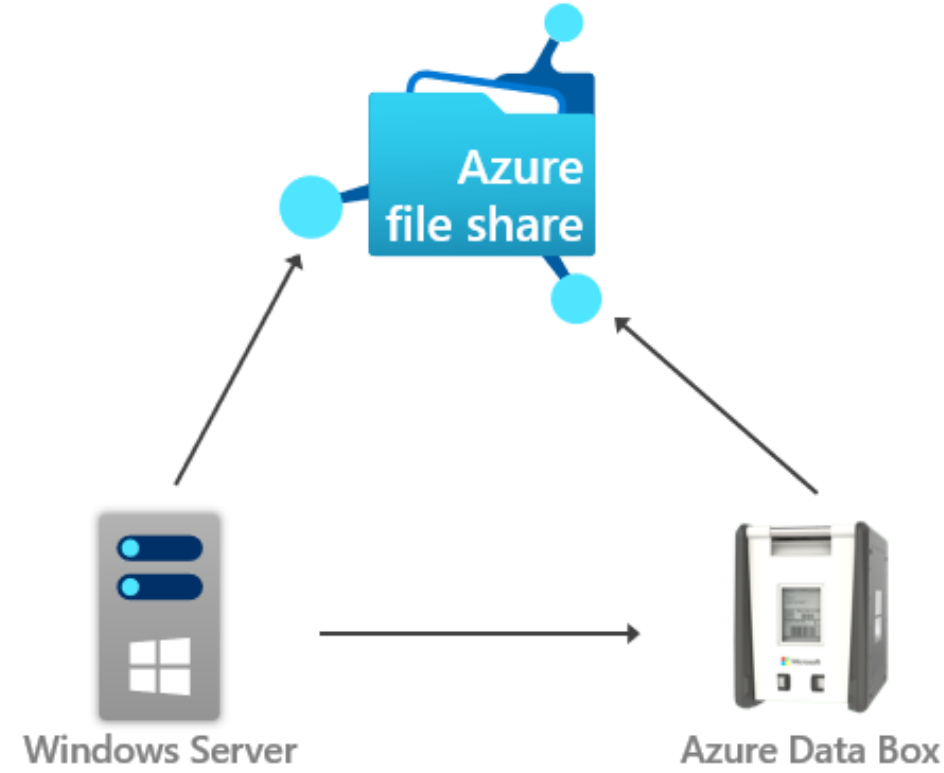
Data Box provides offline and online data transfer.

Scenarios to import data to Azure

- One time migration
- Initial bulk transfer
- Periodic uploads

Scenarios to export data from Azure

- Disaster recovery
- Security requirements
- Migrate back to on-premises or to another cloud service provider



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Compare data migration solutions

Dataset	Network bandwidth	Solution to use
Large dataset	Low-bandwidth network or direct connectivity to on-premises storage is limited by organization policies	Azure Import/Export or Data Box for export; Data Box Disk or Data Box for import where supported; otherwise use Azure Import/Export
Large dataset	High-bandwidth network: 1 gigabit per second (Gbps) - 100 Gbps	AZCopy for online transfers; or to import data, Azure Data Factory, Azure Stack Edge, or Azure Data Box Gateway
Large dataset	Moderate-bandwidth network: 100 megabits per second (Mbps) - 1 Gbps	Azure Import/Export or Azure Data Box family where it is supported
Small dataset: a few GBs to a few TBs	Low to moderate-bandwidth network: up to 1 Gbps	If transferring only a few files, use Azure Storage Explorer, Azure portal, AZCopy, or AZ CLI

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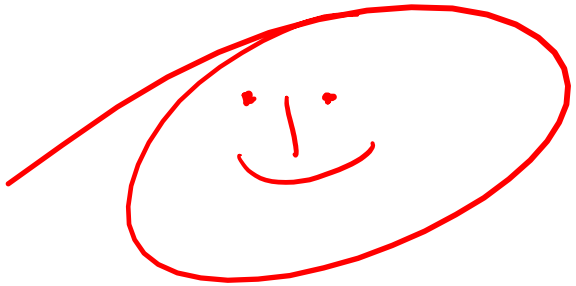

Review

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Discussion (matching)

What strategies or tooling would you suggest for these situations?

- Media and corporate files
- Product catalog that uses a database
- On-premises virtual machines
- On-premises NAS server
- Cloud based blob storage

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Summary and resources

Check your knowledge

Microsoft Learn Modules (docs.microsoft.com/Learn)

- Design your migrations to Azure
- Accelerate your migration journey to Azure
- Applications and infrastructure migration and modernization
- Migrate your relational data stored in SQL Server to Azure SQL Database
- Prepare on-premises workloads for migration to Azure
- Migrate on-premises workloads to Azure
- Export large amounts of data from Azure by using Azure Import/Export
- Move large amounts of data to the cloud by using Azure Data Box family

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End of presentation

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