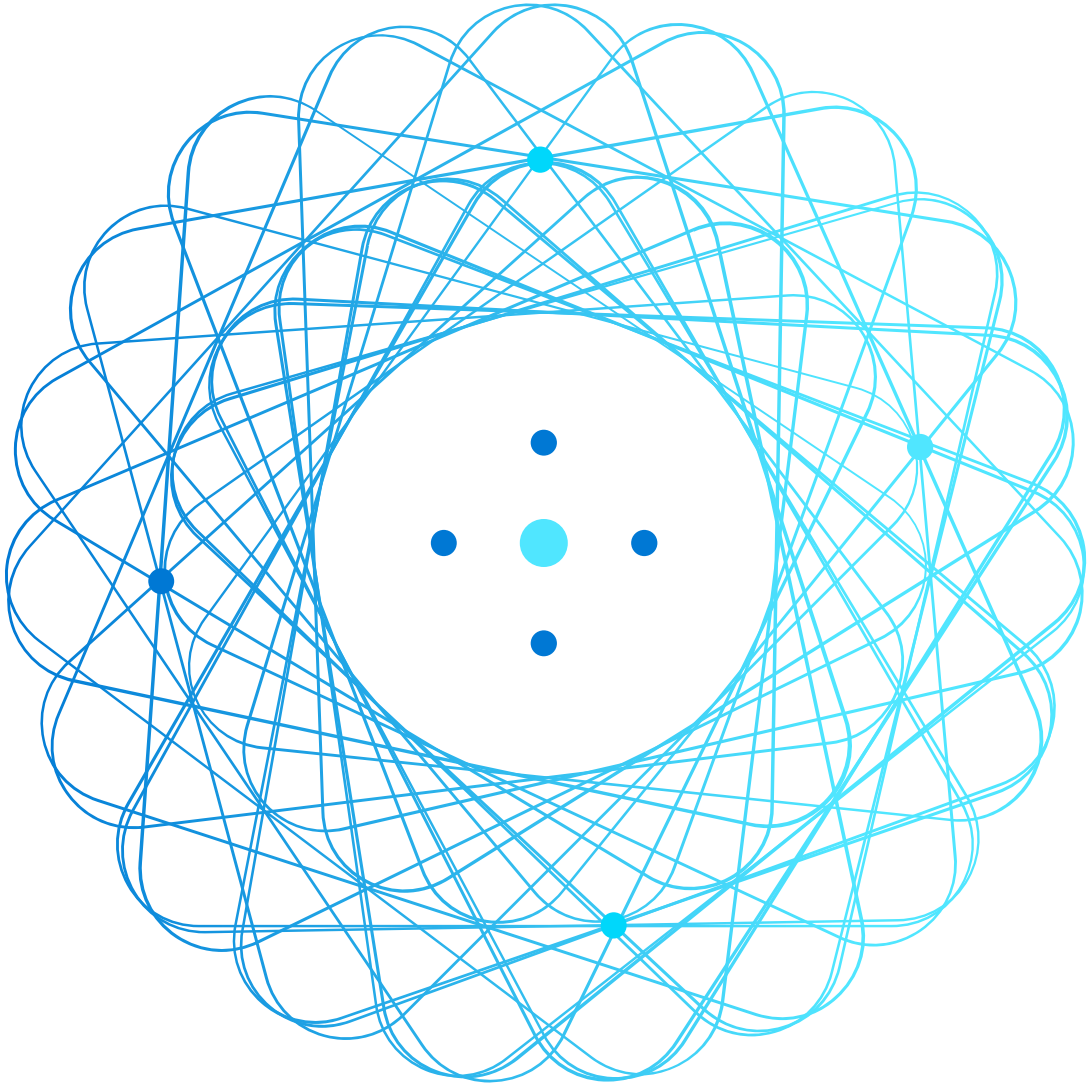
Microsoft Azure

AZ-305

Microsoft Azure Infrastructure Architect



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 10: Design a business continuity solution

Introduction

- Design for backup and recovery
- Design for Azure Backup
- Design for Azure blob backup and recovery
- Design for Azure Files backup and recovery
- Design for Azure virtual machine backup and recovery
- Design for Azure SQL backup and recovery
- Design for Azure Site Recovery
- Summary and resources

AZ-305: Design Business Continuity Solutions (10-15%)

Design a Solution for Backup and Disaster Recovery

- Recommend a recovery solution for Azure, hybrid, and on-premises workloads that meets recovery objectives (RTO, RLO, RPO)
- Understand the recovery solutions for containers
- Recommend a backup and recovery solution for compute
- Recommend a backup and recovery solution for databases
- Recommend a backup and recovery solution for unstructured data

Design for backup and recovery

Plan for backup and recovery

Identify your business needs and create a plan to address those needs

- What are your workloads and their usage?
- What are the usage patterns for your workloads?
- What are the availability metrics (MTTR and MTBF)?
- What are the recovery metrics (RTO and RPO)?
- What are the workload availability targets?
- What are your SLAs?

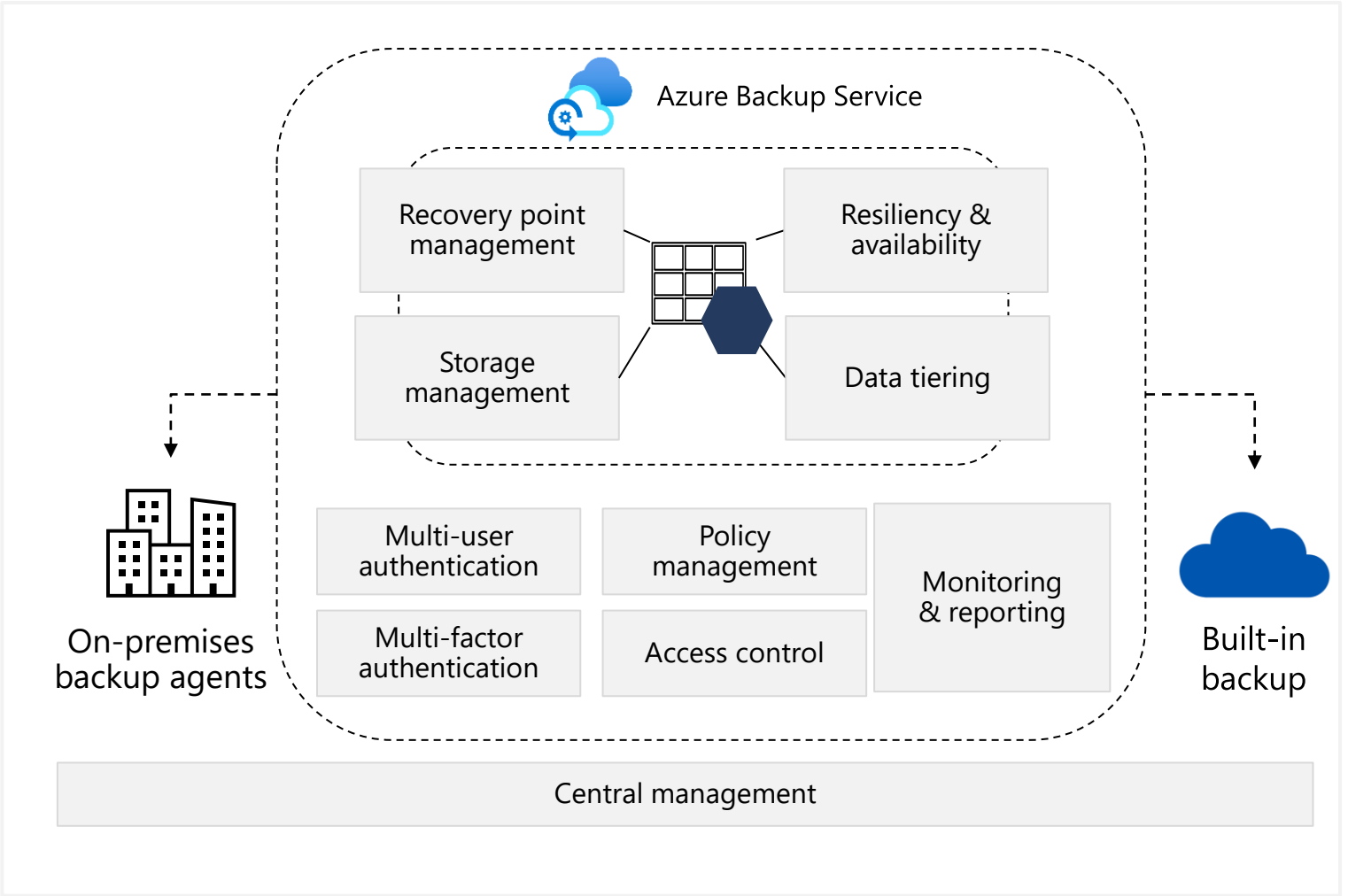
Design for Azure Backup

When to use Azure Backup

Recovery Service Vault
- Backup Items
- Recovery Items

Azure Backup is a full-service backup and recovery solution.

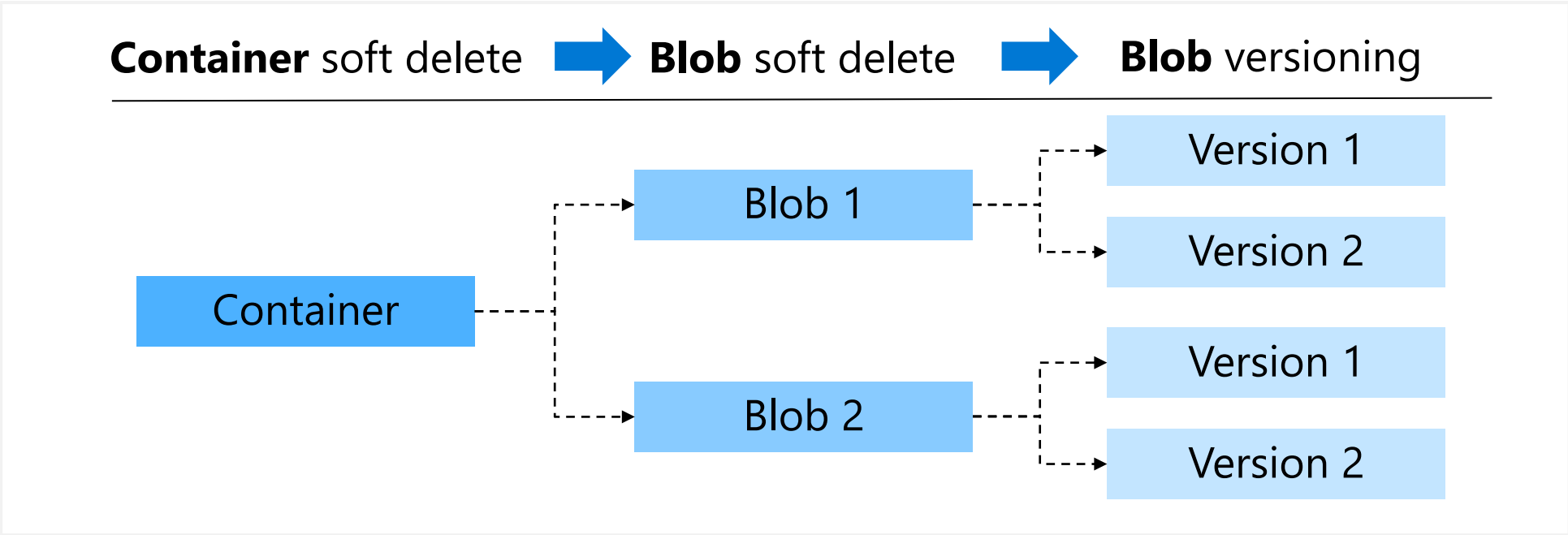
- Unlimited scaling with high availability and unlimited data transfer
- Automatic replication of locally redundant storage and geo-redundant storage using a pay-as-you-use model
- Application-consistent backups with secure transmission and storage of your data in Azure
- No limits on the length of time you can keep the backup data



Design for blob backup and recovery

Considerations for soft delete

Consider soft delete with recovery times from 1 to 365 days

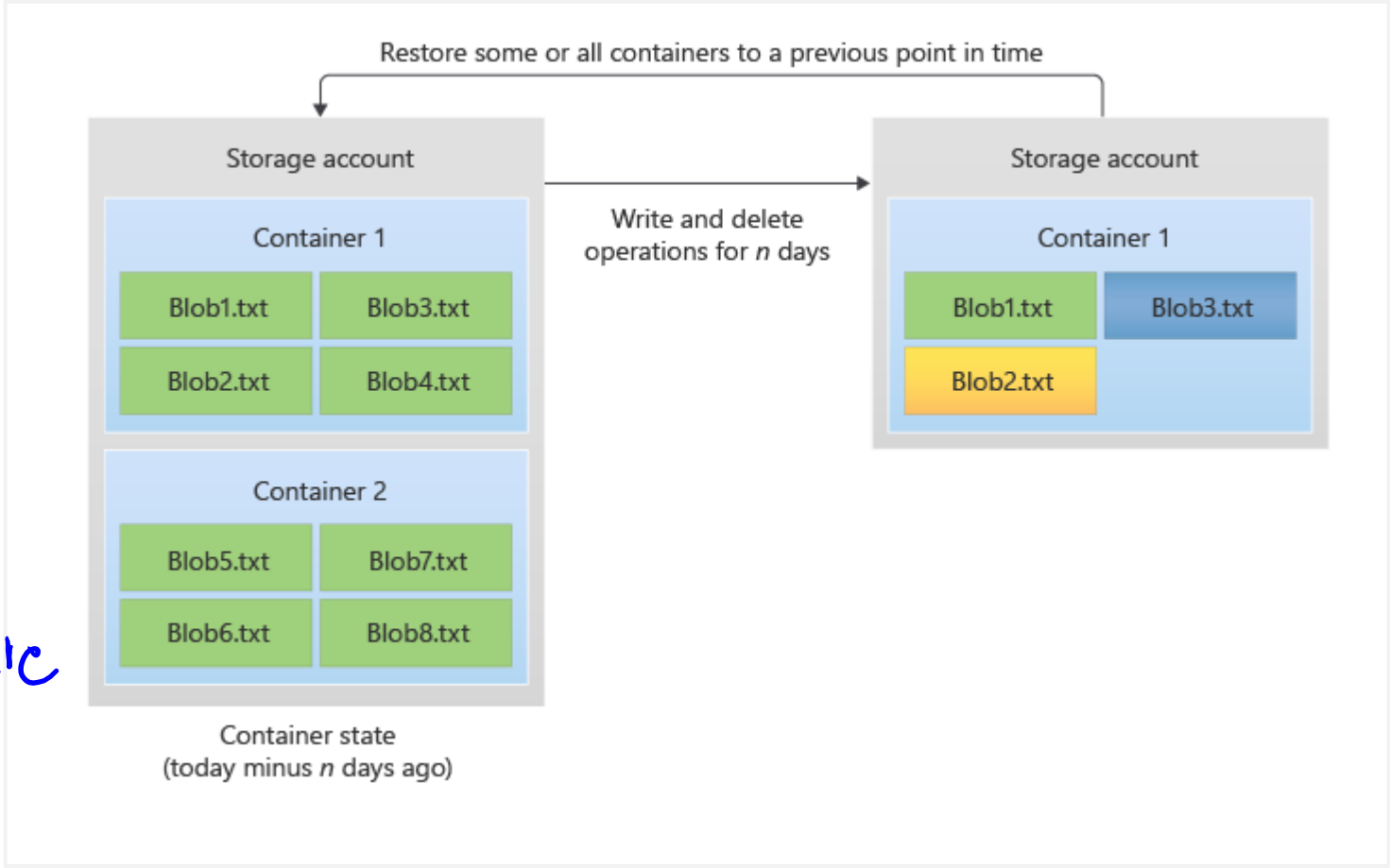


- Maintains the deleted data in the system for a specified retention period
- Soft delete protects blobs, snapshot, containers, or versions from accidental deletes or overwrites

Considerations for point-in-time restore

Consider point-in-time restore for block blobs

- Useful in scenarios where a user or application accidentally deletes data or where an application error corrupts data
- Use policy to specify the retention period

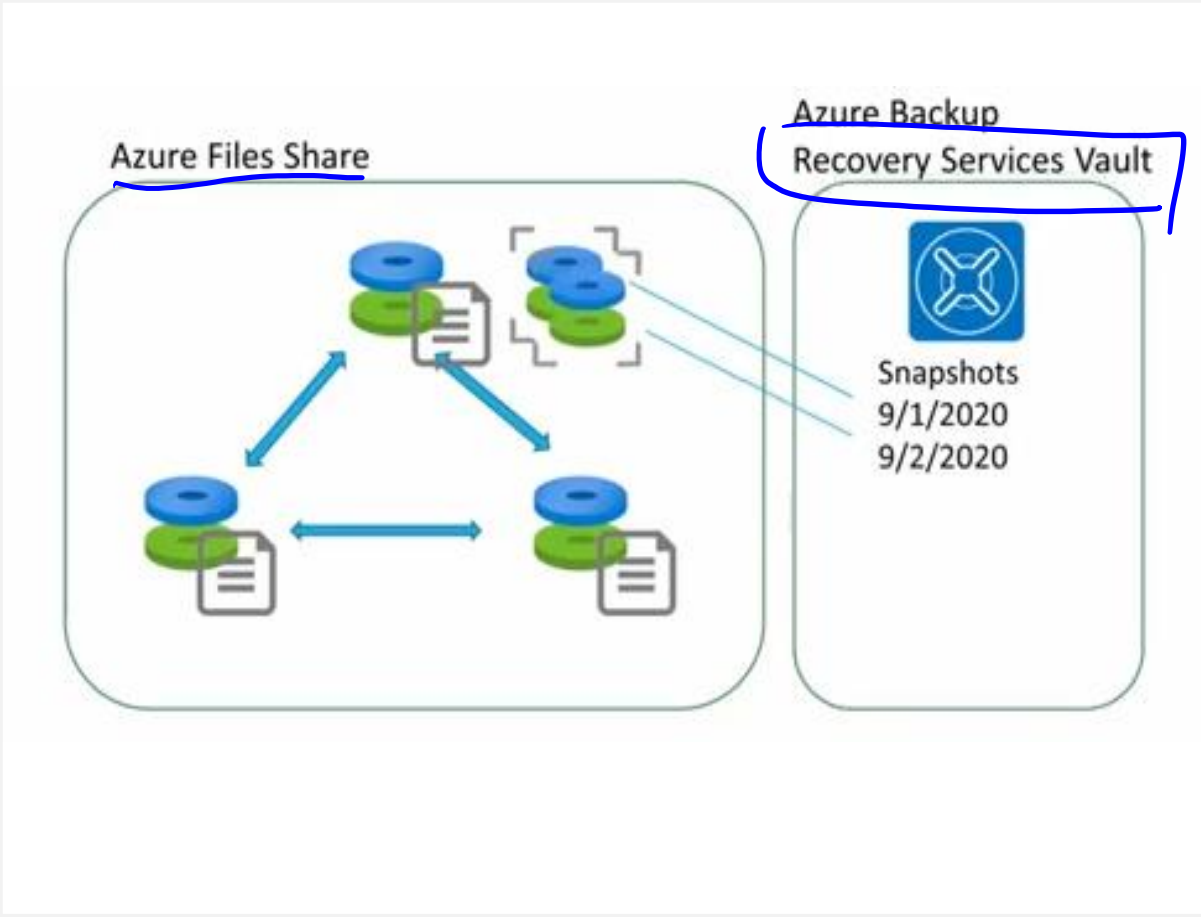


Design for Azure Files backup and recovery

Considerations for Azure Files backup and recovery

Consider snapshots for both blobs and Azure Files

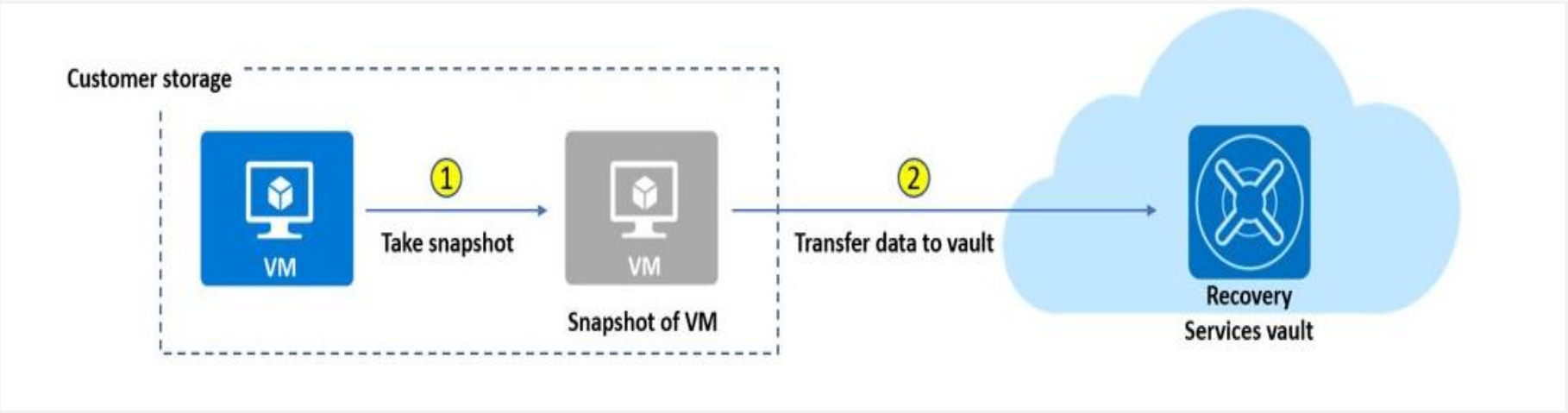
- Organize file shares with backup in mind
- Snapshots can be on-demand or scheduled using Azure Backup and backup policies.
- Snapshots are at the file share root – retrieval is at the file
- Use snapshots to cover the time between daily backups
- Use instant restore – consider self service restore
- Snapshots are incremental - snapshot before code deployments.



Design for virtual machine backup and recovery

Considerations for Azure virtual machines

Guard against unintended destruction of the data on your VMs.



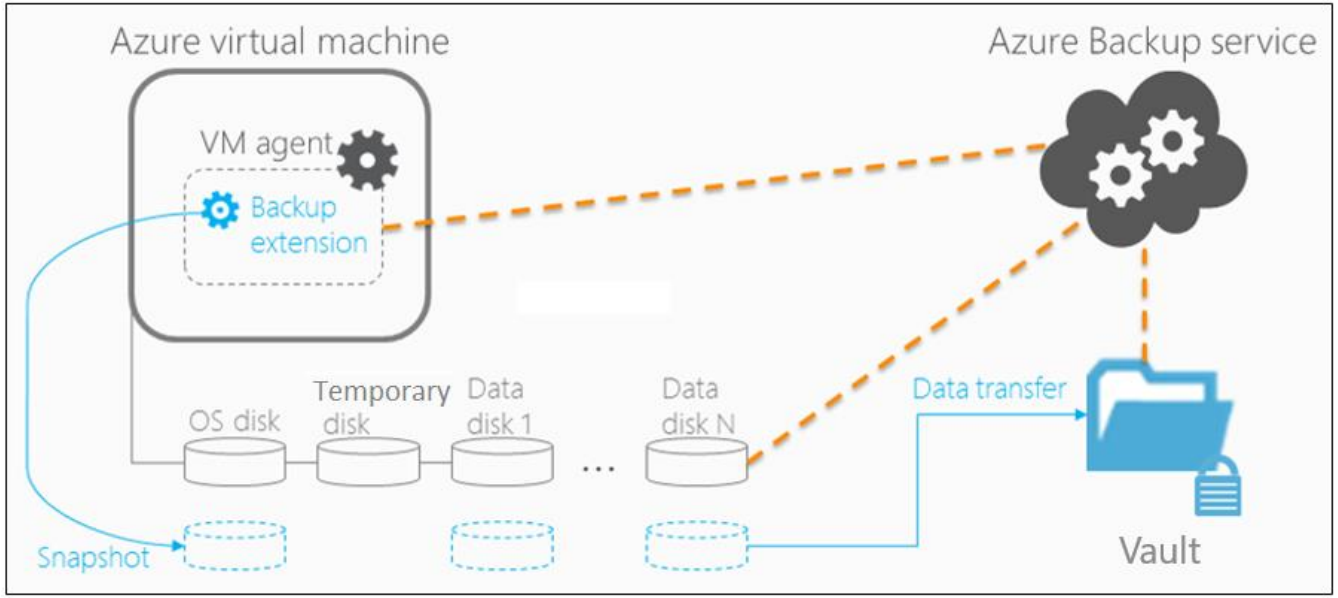
- Consider grouping VMs within a single backup policy
- Implement both short-term (daily) and long-term (weekly) backups
- Determine your needs for app, crash, and file snapshot consistency
- Consider Cross Region Restore for VMs in the paired region
- Periodically review your policies – monitor and alert

Veeam

Considerations for on-premises virtual machines

Backup on-premises machines to Azure.

- Back up at the machine level with system-state or bare-metal backup
- Back up specific volumes, shares, folders, and files
- Back up specific apps using optimized app-aware settings



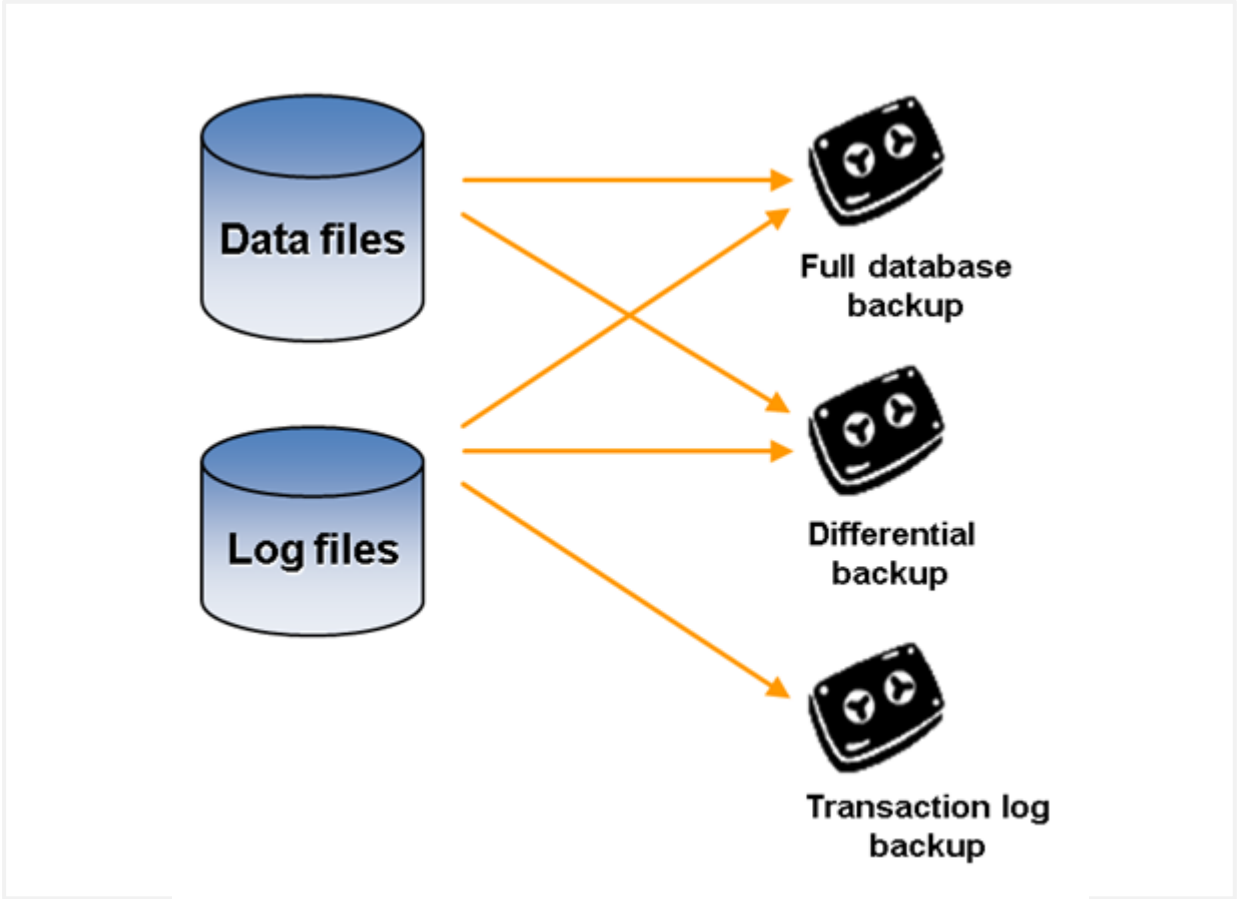
Design for Azure SQL backup and recovery

How Azure SQL backup works

SQL Database and SQL Managed Instances automatically backup.

For fully consistent backups, the following are taken:

- Full backups once a week
- Differential backups every 12-24 hours
- Transactional log backups every 5-10 minutes



Considerations for Azure SQL backup

Restore in the retention period or use a long-term retention policy

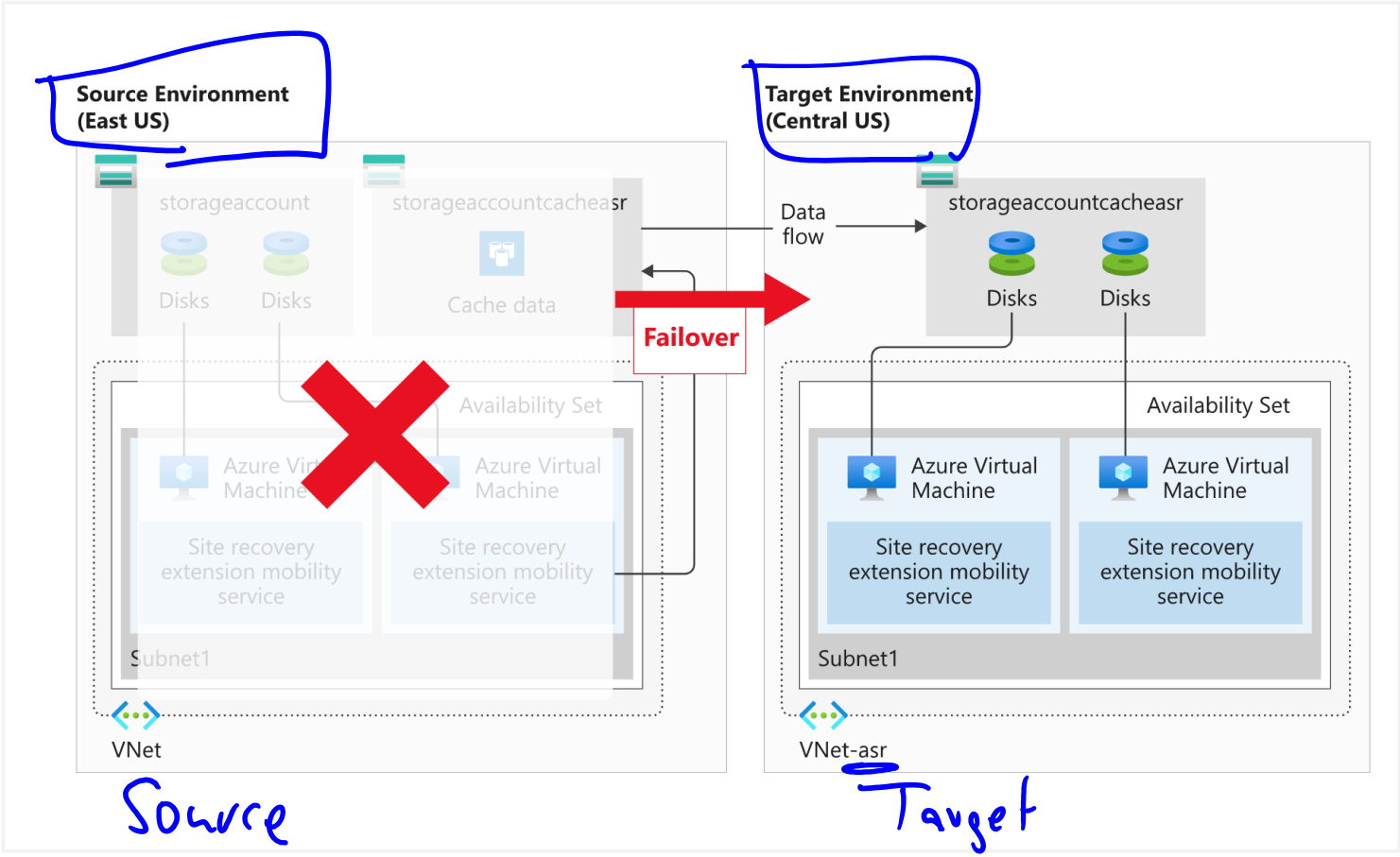
- Restore an existing database to a point in time in the past within the retention period
- Restore a deleted database to the time of deletion or to any point in time within the retention period
- Restore a database to another geographic region
- Restore a database from a specific long-term backup of a single database or pooled database
- Long term retention uses read-access geo-redundant storage (RA-GRS)

Design for Azure Site Recovery

When to use Azure Site Recovery

Failover for Azure, on-premises, other cloud provider resources

- Perform disaster recovery and validate the replication strategy
- Migrate on-premises VMs and physical servers to Azure
- Replicate virtual machines between regions
- Define retention history and frequency of snapshots



Combine Azure Site Recovery with Azure Backup

MARS - Agent
Windows

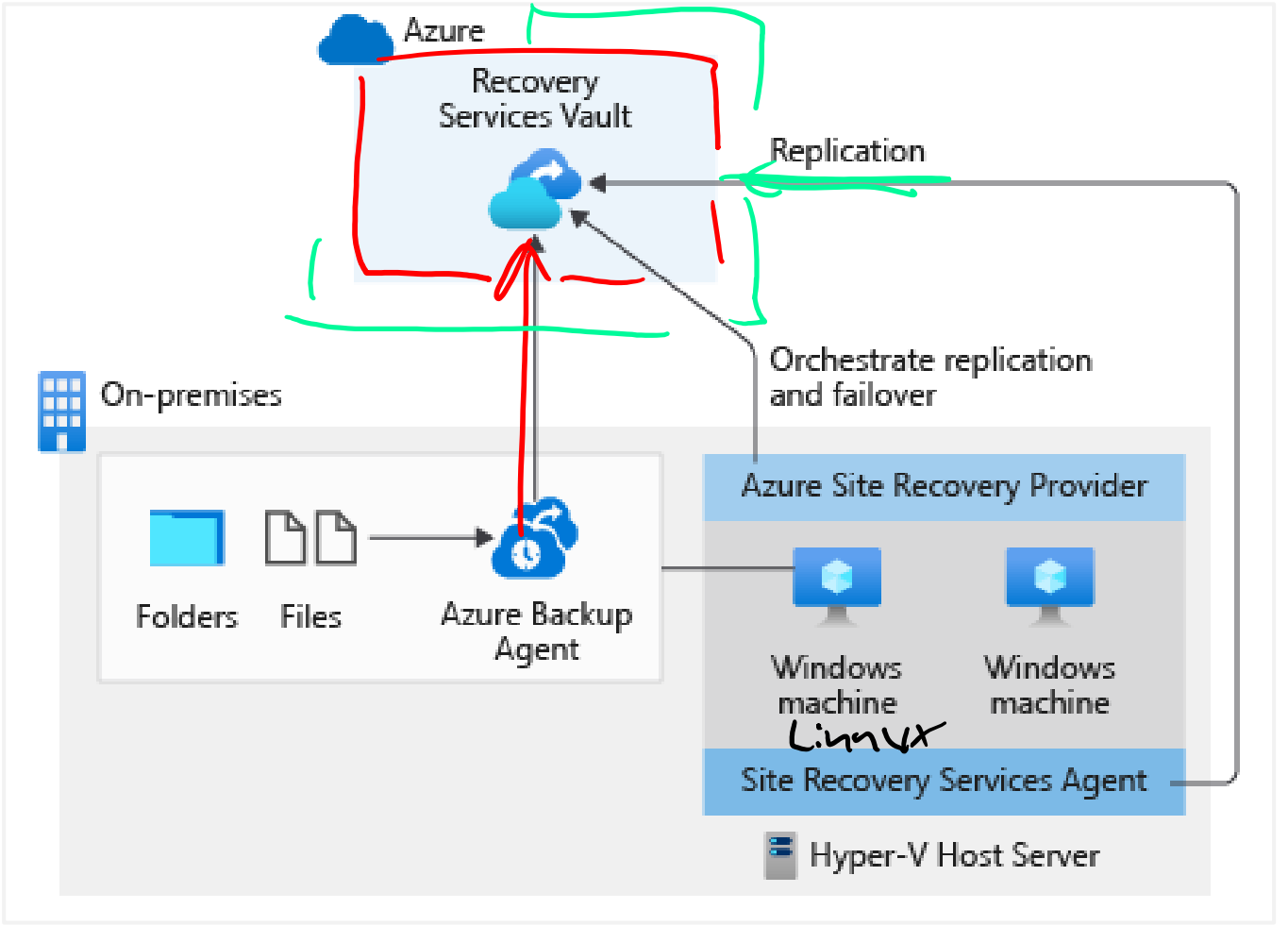
Combine ASR with Azure Backup

Requirement

- Backup all the files and folders in this virtual machine to Azure.
- Protect any workloads running on the virtual machine and keep running them even if the virtual machine fails.

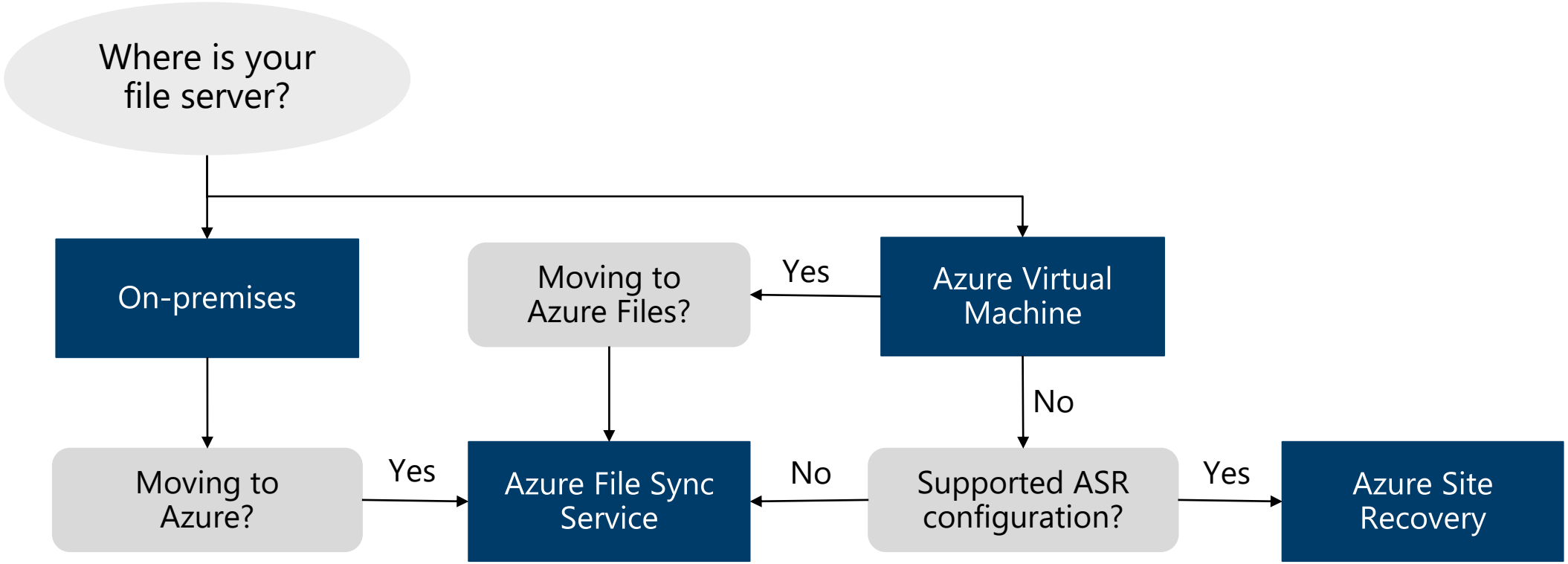
Azure Backup

- Azure Backup periodically backs up the files and folders on the Windows machine to Azure.
- This process ensures they are secure and retrievable even if the whole on-premises environment stops functioning.



Review

Review file server backup and recovery options



Recommend a disaster recovery method (matching)

- Azure Backup
- Azure Site Recovery
- VM Snapshot
- MABS

You need to back up on-premises machines and workloads	You need to back up your managed disks at any point in time
You have Azure VMs running production workloads	You need a read-only full copy of a managed disk
You need application-consistent backups for Linux virtual machines	You need to cover disaster scenarios like an entire regional outage

Summary and resources

Check your knowledge

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

- Protect your virtual machines by using Azure Backup
- Disaster recovery and backup
- Back up and restore your Azure SQL database
- Protect your Azure infrastructure with Azure Site Recovery
- Protect your on-premises infrastructure from disasters with Azure Site Recovery
- Design your site recovery solution in Azure
- Configure file and folder backups

Optional hands-on lab - Backup and restore your Azure SQL database - Learn | Microsoft Docs

End of presentation