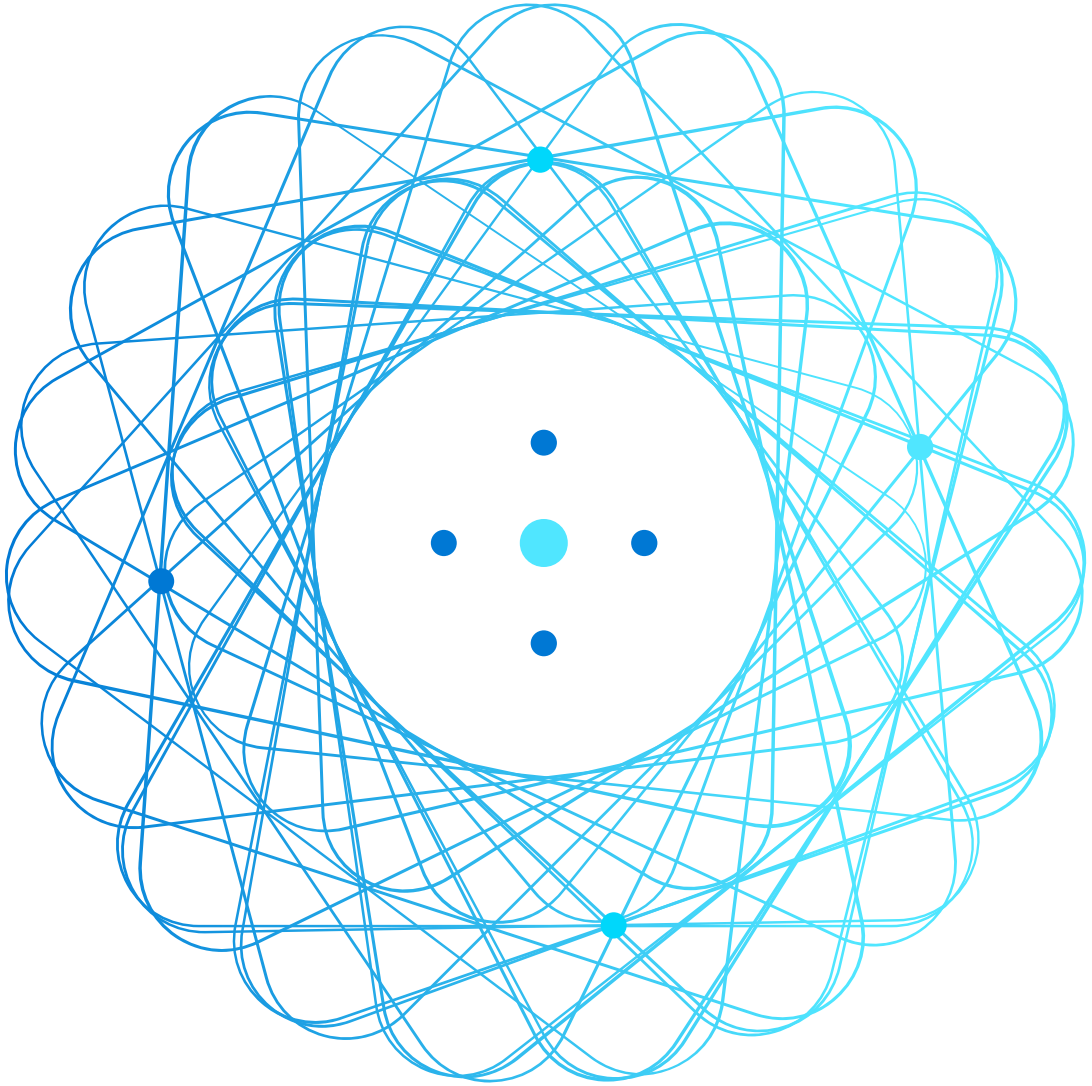
Microsoft Azure

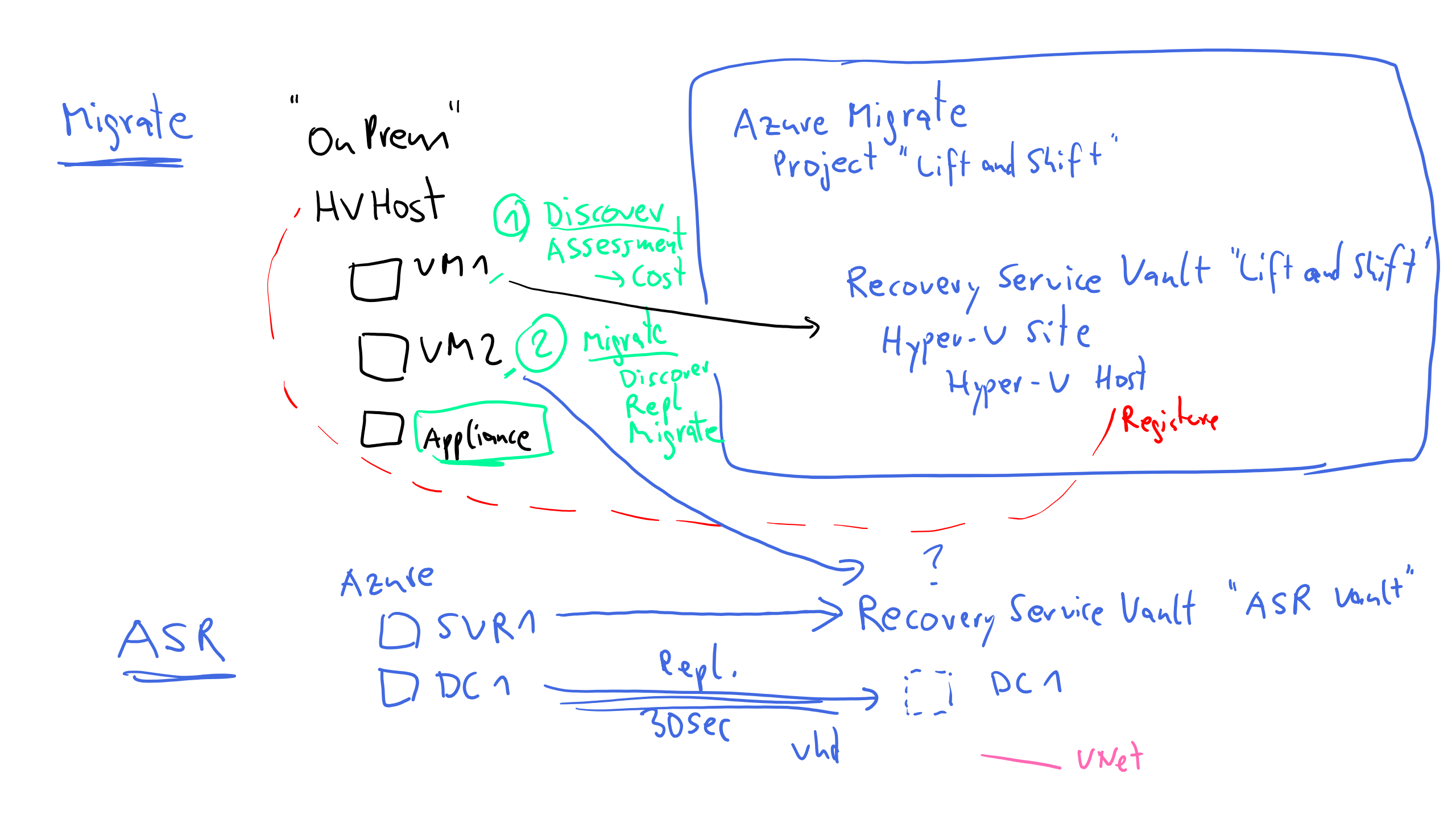
AZ-305

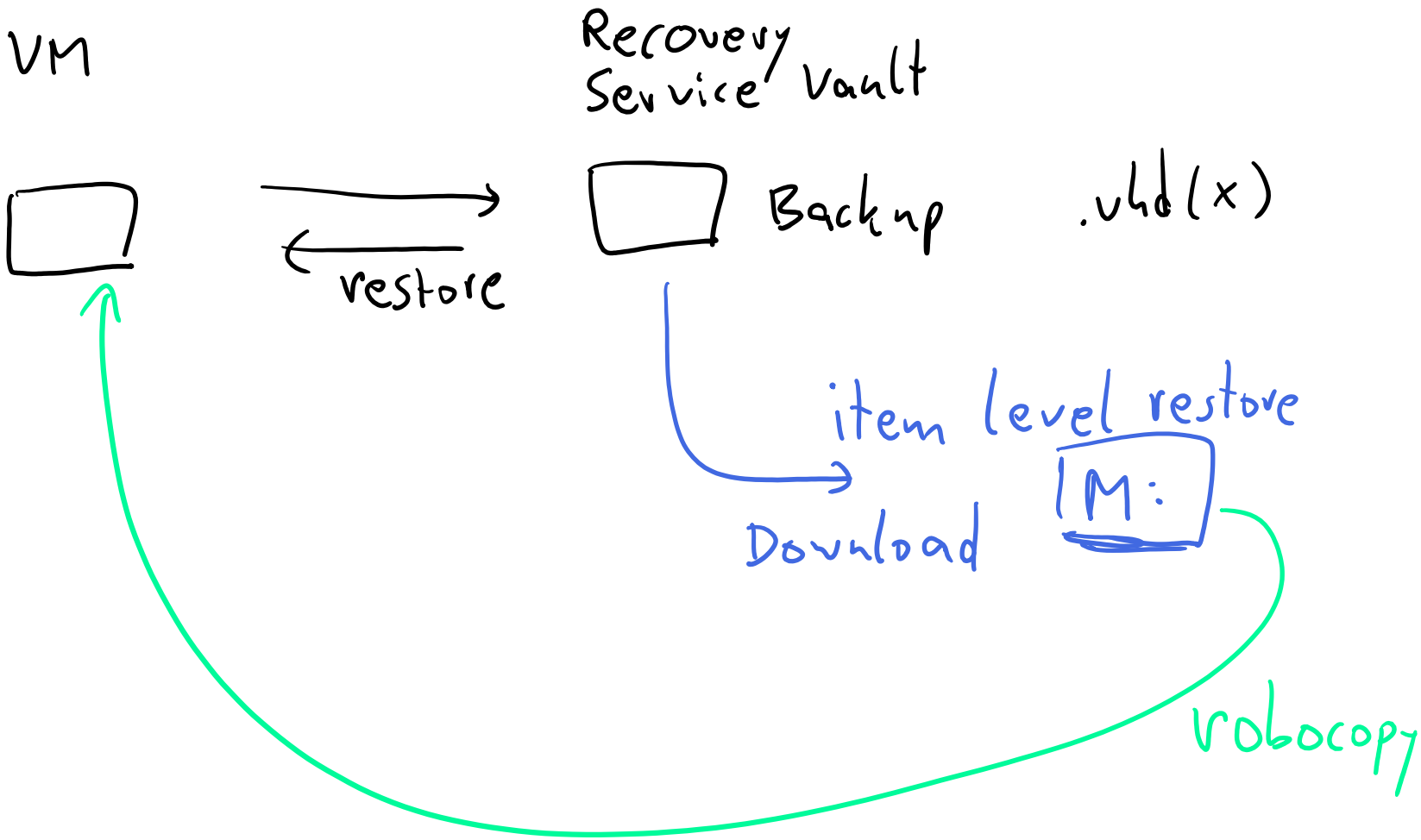
Microsoft Azure Infrastructure Architect



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


Migrate
"On Prem"
HV Host
VM1
VM2
Appliance
1 Discover
Assessment
→ Cost
2 Migrate
Discover
Repl
Migrate
Azure Migrate
Project "Lift and Shift"
Recovery Service Vault "Lift and Shift"
Hyper-V site
Hyper-V Host
Register
?
ASR
Azure
SVR1
DC1
Repl.
30sec
vhd
Recovery Service Vault "ASR Vault"
DC1
VNet


VM
Recovery Service Vault
Backup
.vhd(x)
restore
item level restore
M:
Download
robocopy

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

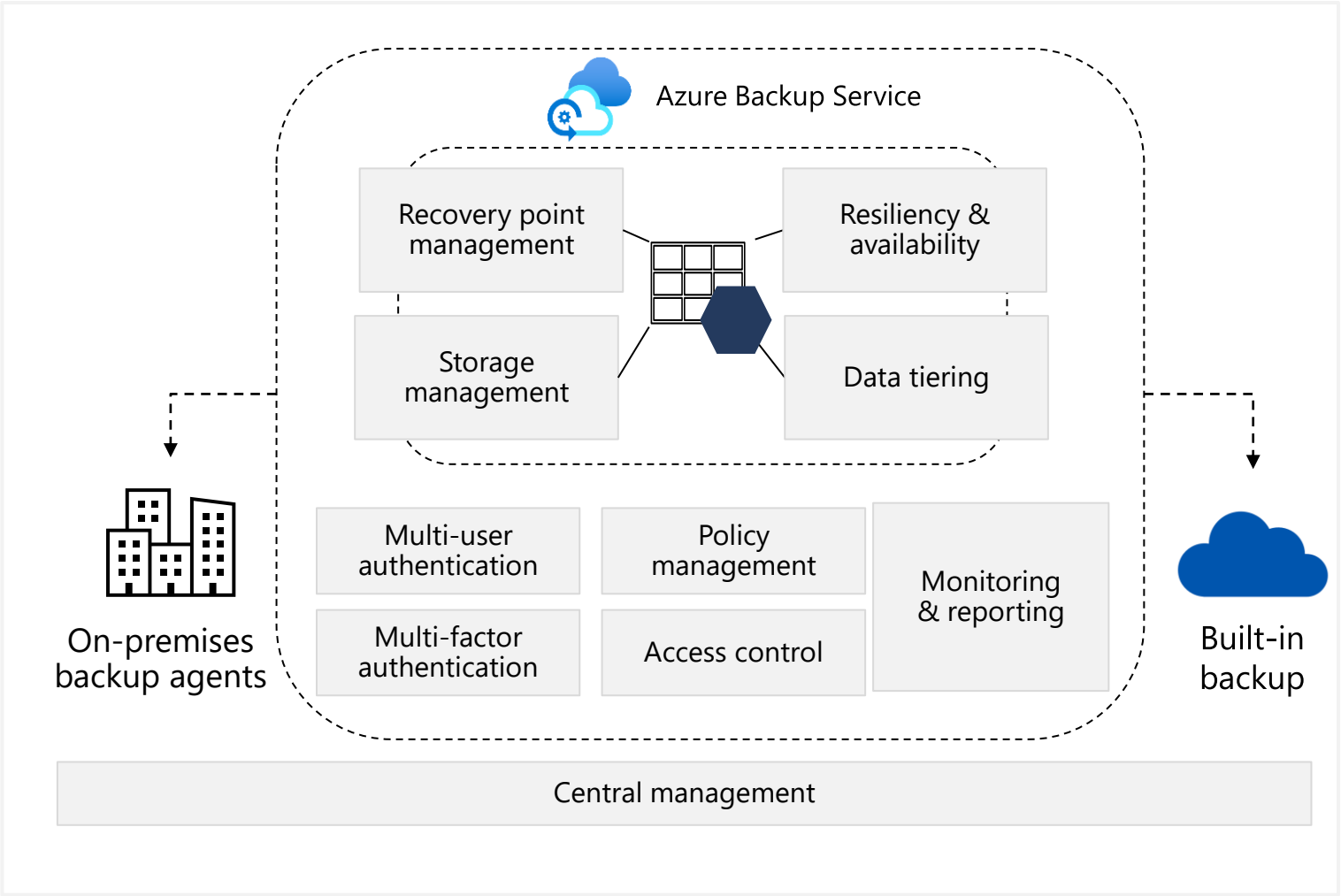
- What are your workloads and their usage?
- What are the usage patterns for your workloads?
- What are the availability metrics (MTTR and MTBF)?
- What are the recovery metrics (RTO and RPO)?
- What are the workload availability targets?
- What are your SLAs?

Design for Azure Backup

When to use Azure Backup

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

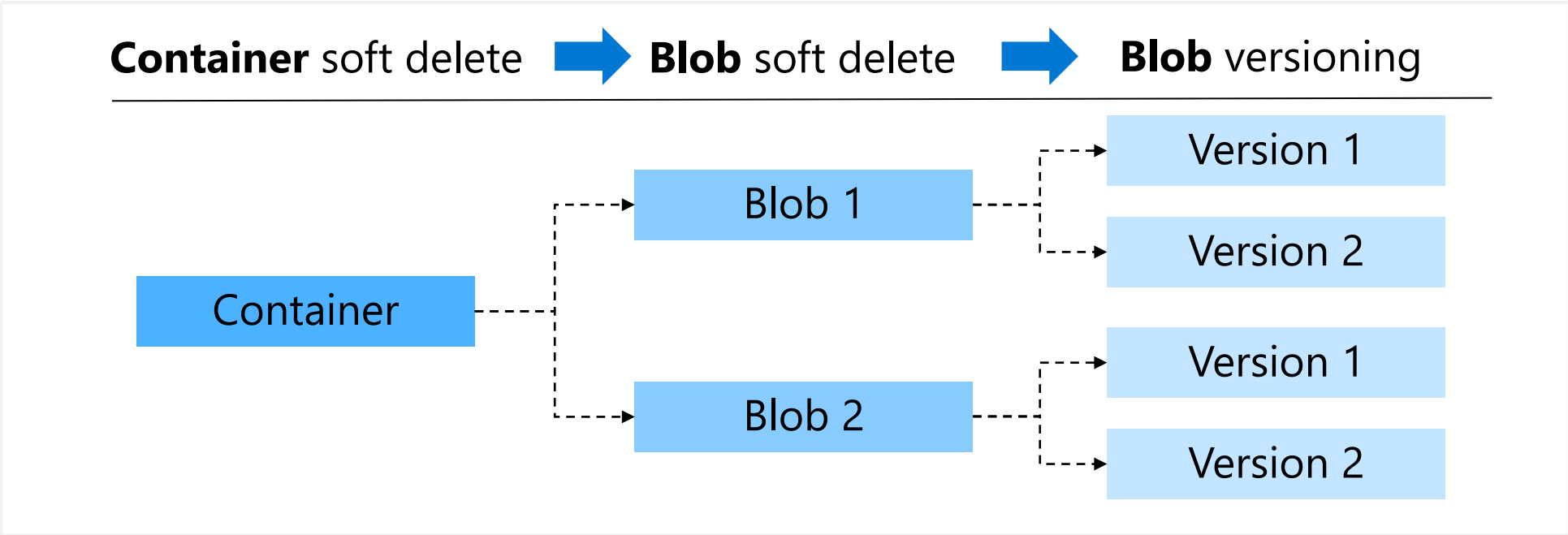
- Unlimited scaling with high availability and unlimited data transfer
- Automatic replication of locally redundant storage and geo-redundant storage using a pay-as-you-use model
- Application-consistent backups with secure transmission and storage of your data in Azure
- No limits on the length of time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

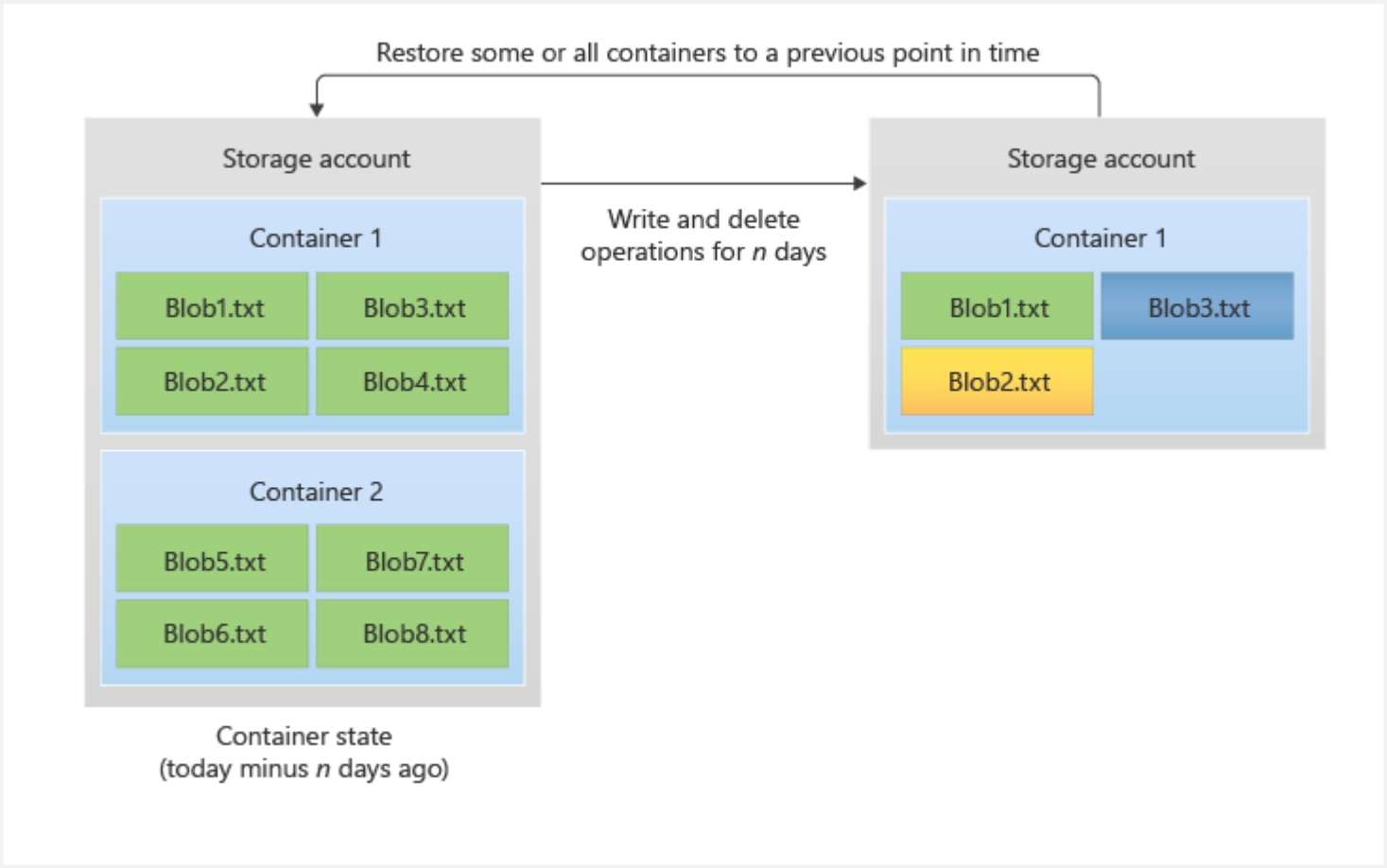


- Maintains the deleted data in the system for a specified retention period
- Soft delete protects blobs, snapshot, containers, or versions from accidental deletes or overwrites

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

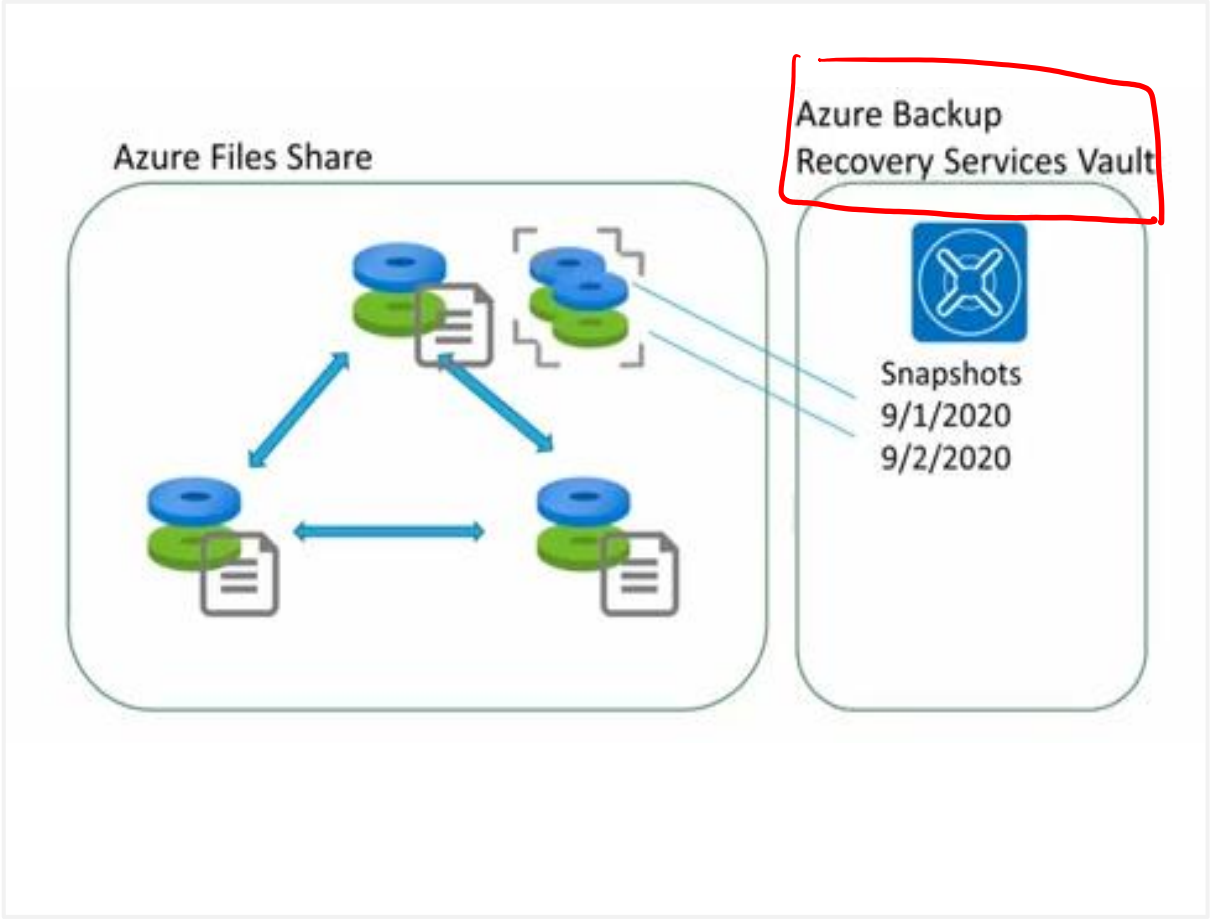


Design for Azure Files backup and recovery

Considerations for Azure Files backup and recovery

Consider snapshots for both blobs and Azure Files

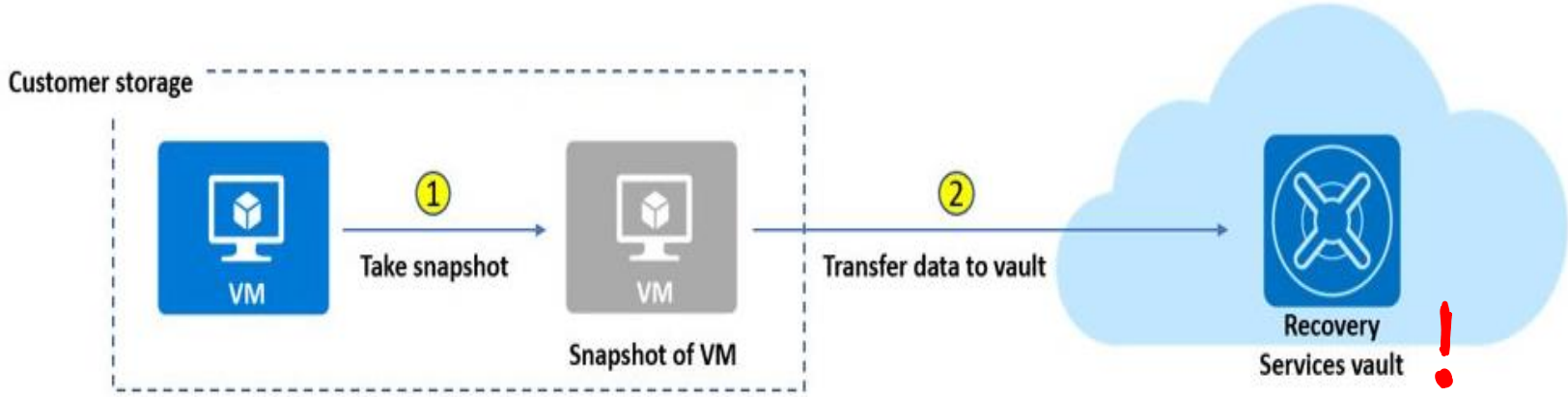
- Organize file shares with backup in mind
- Snapshots can be on-demand or scheduled using Azure Backup and backup policies.
- Snapshots are at the file share root – retrieval is at the file
- Use snapshots to cover the time between daily backups
- Use instant restore – consider self service restore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



- Group VMs into customized backup policies
- Combine short-term (daily), long-term (weekly), and on-demand backups
- Identify needs for app, crash, and file backups – practice the restore
- Consider Cross Region Restore (CRR) for VMs in the paired region
- Periodically review your policies – add monitor and alert

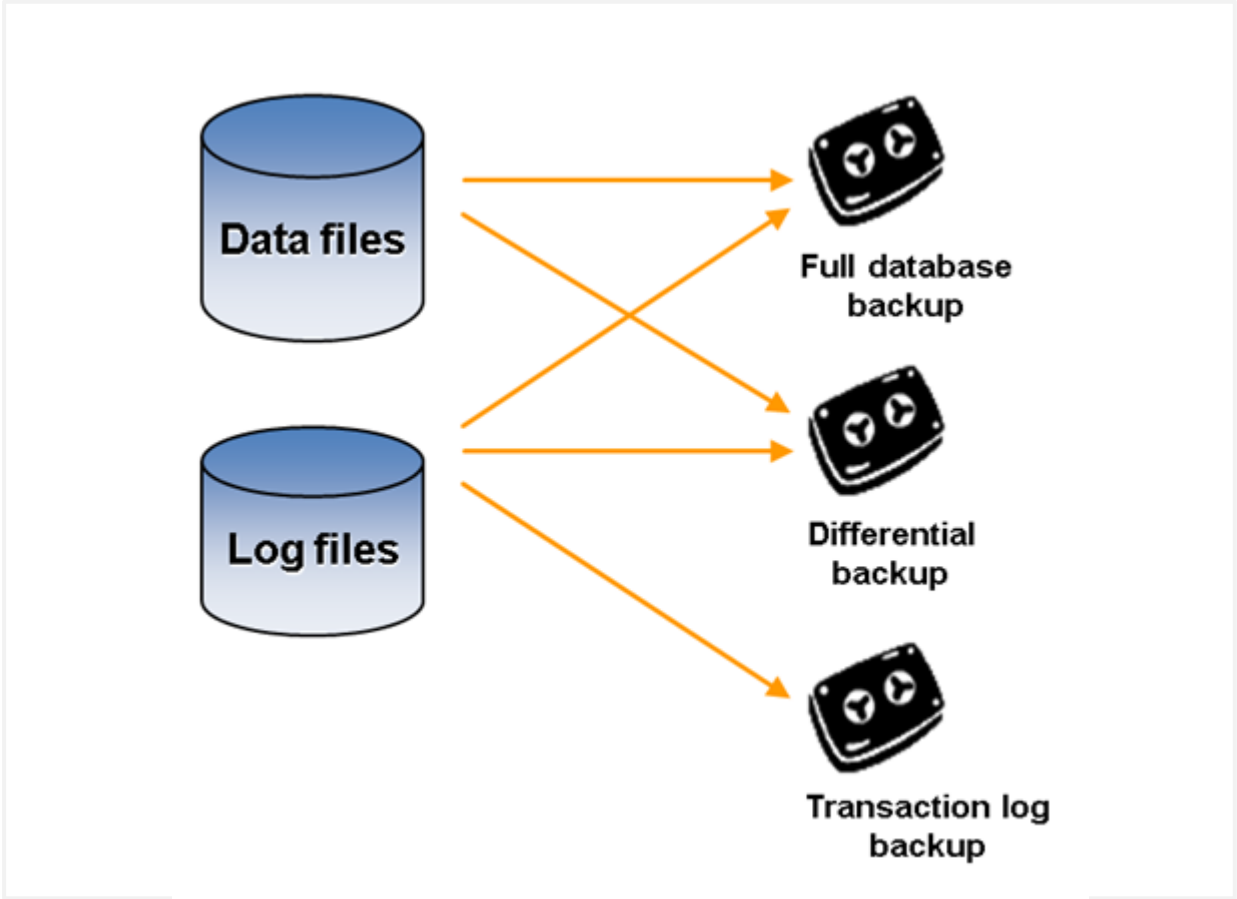
Design for Azure SQL backup and recovery

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

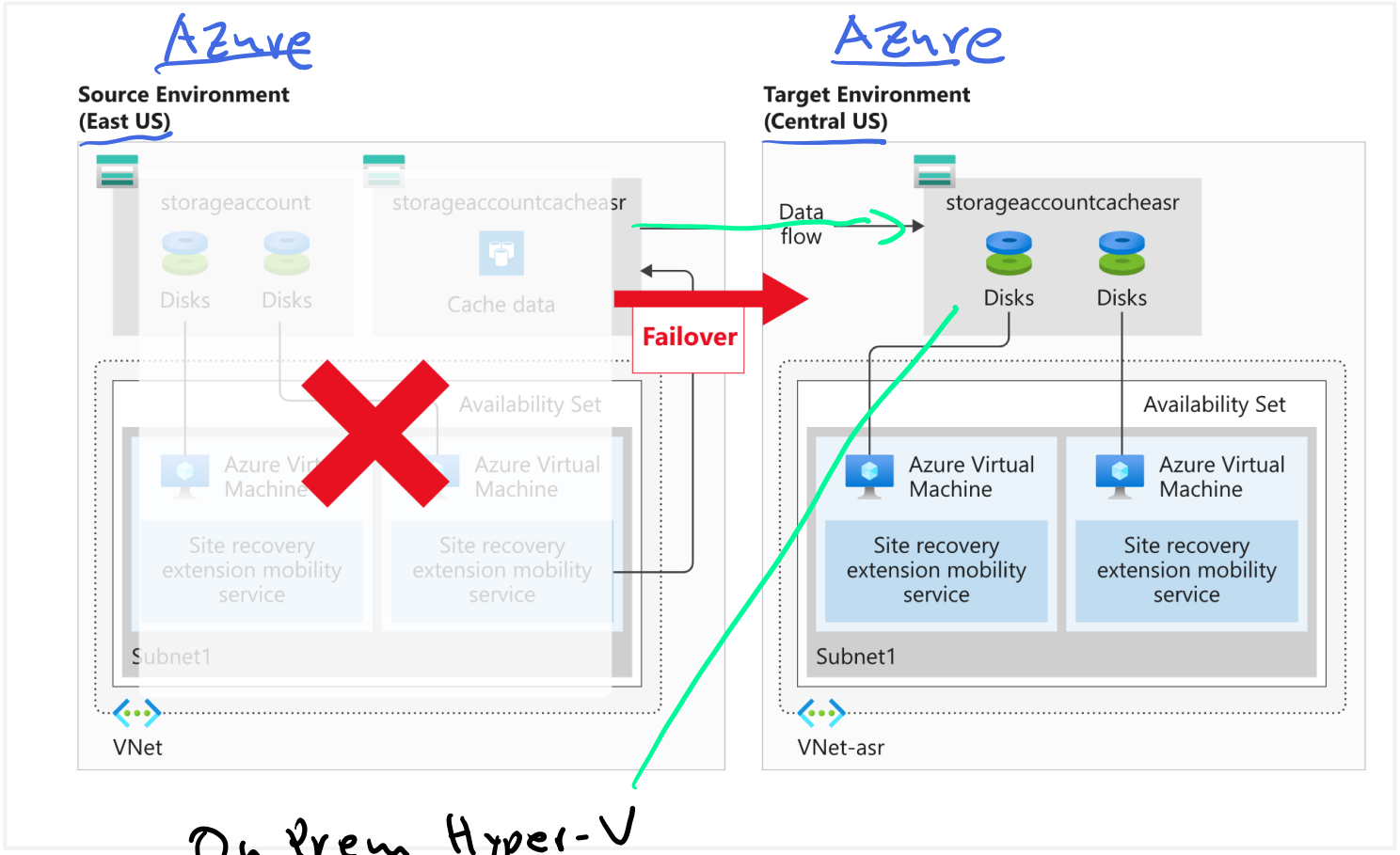
- Restore an existing database to a point in time in the past within the retention period
- Restore a deleted database to the time of deletion or to any point in time within the retention period
- Restore a database to another geographic region
- Restore a database from a specific long-term backup of 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

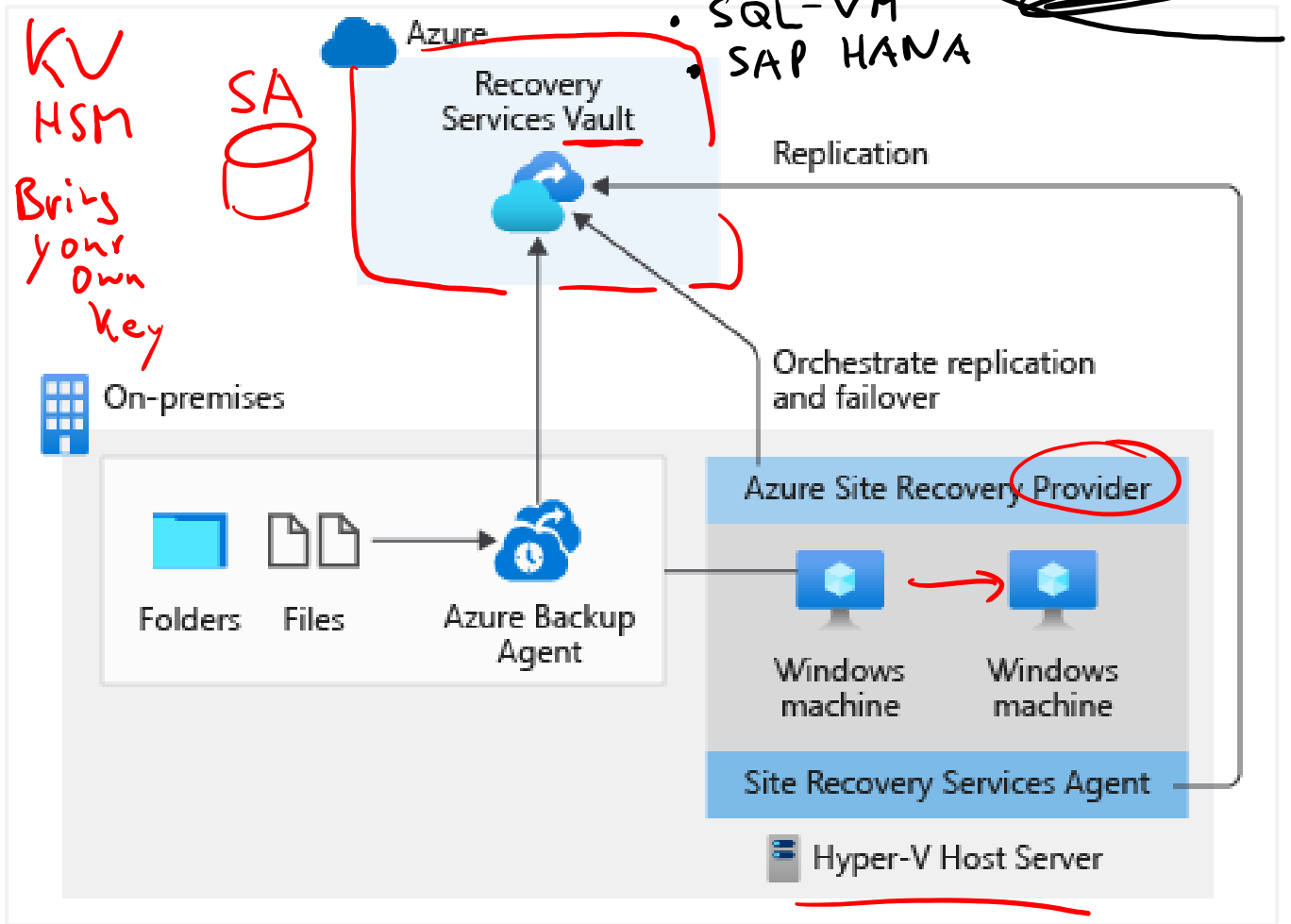
Combine ASR with Azure Backup

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.

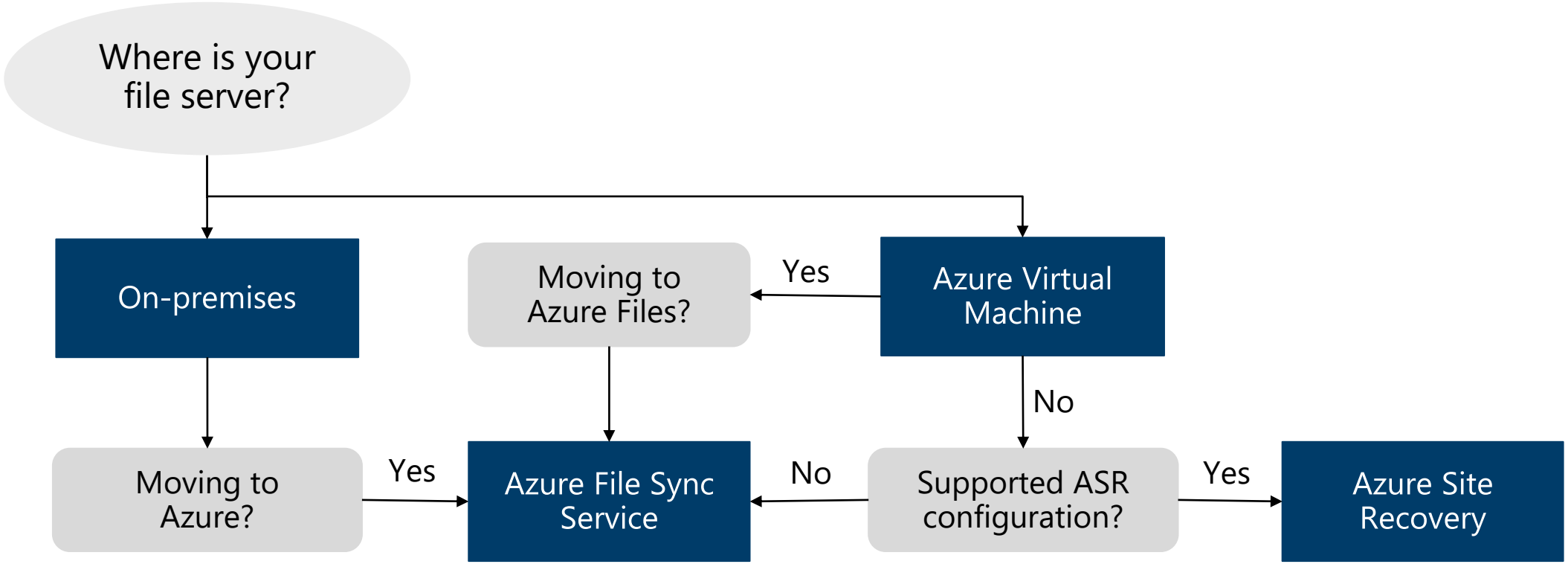
Azure Backup

- 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 (activity)

- 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

Instructor resources (hidden)

End of presentation