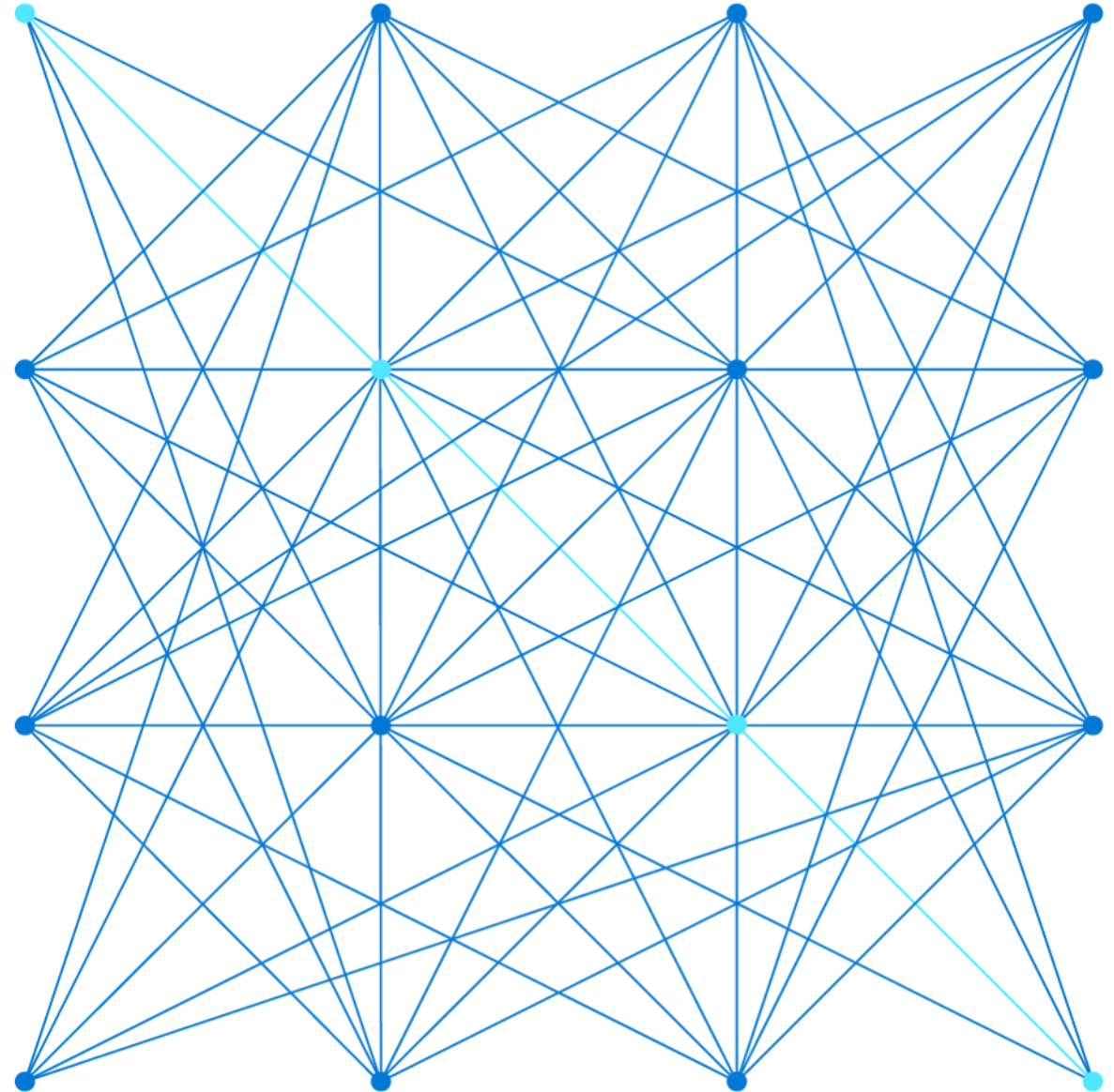


AZ-104

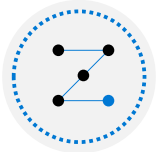
Administer Data Protection



About this course: Course Outline



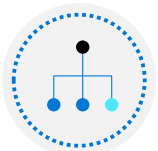
01: Administer Identity



02: Administer Governance and Compliance



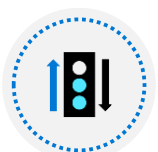
03: Administer Azure Resources



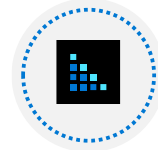
04: Administer Virtual Networking



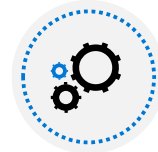
05: Administer Intersite Connectivity



06: Administer Network Traffic Management



07: Administer Azure Storage



08: Administer Azure Virtual Machines

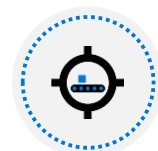


09: Administer PaaS Compute Options



10: Administer Data Protection

Backup



11: Administer Monitoring

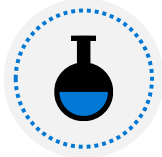
Administer Network Protection Introduction



[Configure File and Folder Backups](#)



[Configure Virtual Machine Backups](#)





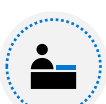
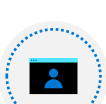




[Lab 10 – Implement Data Protection](#)

Configure File and Folder Backups



Configure File and Folder Backups Introduction

-  Describe Azure Backup Benefits
-  Implement Azure Backup Center
-  Setup Recovery Service Vault Backup Options
-  Demonstration – Backup Azure File Shares
-  Configure On-premises File and Folder Backups
-  Manage the Microsoft Azure Recovery Services Agent
-  Demonstration – Backup Files and Folders
-  Summary and Resources

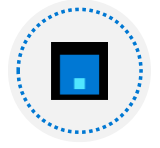
Describe Azure Backup Benefits



Azure-based service used to back up and restore data in Microsoft cloud



Automatic Storage Management



Multiple storage options



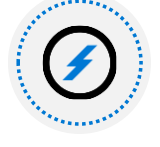
Unlimited data transfer



Data encryption



Application consistent backup



Long-term retention

Implement Azure Backup Center

LRS

Single pane of glass to manage backups across a large and distributed Azure environment

Datasource-centric management focused on what you are backing up

Connected experiences with native integrations that enables management at scale

Backup Vault
Service Recovery Vault
Backup vaults
File
SAP HANA
SQL
ASR

The screenshot displays the Azure Backup Center dashboard. The left sidebar contains navigation links: Overview, Getting started, Community, Manage (Backup instances, Backup policies, Vaults), Monitoring + reporting (Backup jobs, Backup reports), Policy and compliance (Backup compliance, Azure policies for backup, Protectable datasources), and Support + troubleshooting (New support request). The main content area shows the 'Overview' page for 'Azure Virtual machines'. It includes a search bar, action buttons (Backup, Restore, Policy, Vault, Refresh), and a table of jobs (last 24 hours) with columns for Operation, Failed, In progress, and Completed. Below this is a section for 'Backup instances' showing 2 instances with protection configured, 0 stopped, and 0 soft deleted. A note indicates that 0 out of 2 backup instances have the underlying datasource not found.

Operation	Failed	In progress	Completed
Scheduled backup	0	0	2
On-demand backup	0	0	0
Restore	0	0	0

Backup instances	Protection configured	Protection stopped	Soft deleted
2	2	0	0

0 out of 2 Backup instances with the underlying datasource not found

Setup Recovery Services Vault Backup Options - Files

Azure Workloads

Where is your workload running?

Azure

What do you want to backup?

Virtual machine

Virtual machine

Azure FileShare

SQL Server in Azure VM

SAP HANA in Azure VM

On-Premises Workloads

vmbackuptest- Backup
Recovery Services vault

Where is your workload running?

On-Premises

What do you want to backup?

Files and folders

☒ Files and folders

☐ Hyper-V Virtual Machines

☐ VMware Virtual Machines

☐ Microsoft SQL Server

☐ Microsoft SharePoint

☐ Microsoft Exchange

☐ System State

☐ Bare Metal Recovery

Step: Prepare Infrastructure

Prepare Infrastructure

Demonstration – Backup Azure File Shares



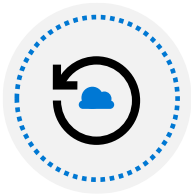
Configure a storage account with file share



Create a Recovery Services vault



Configure file share backup



Verify the file share backup

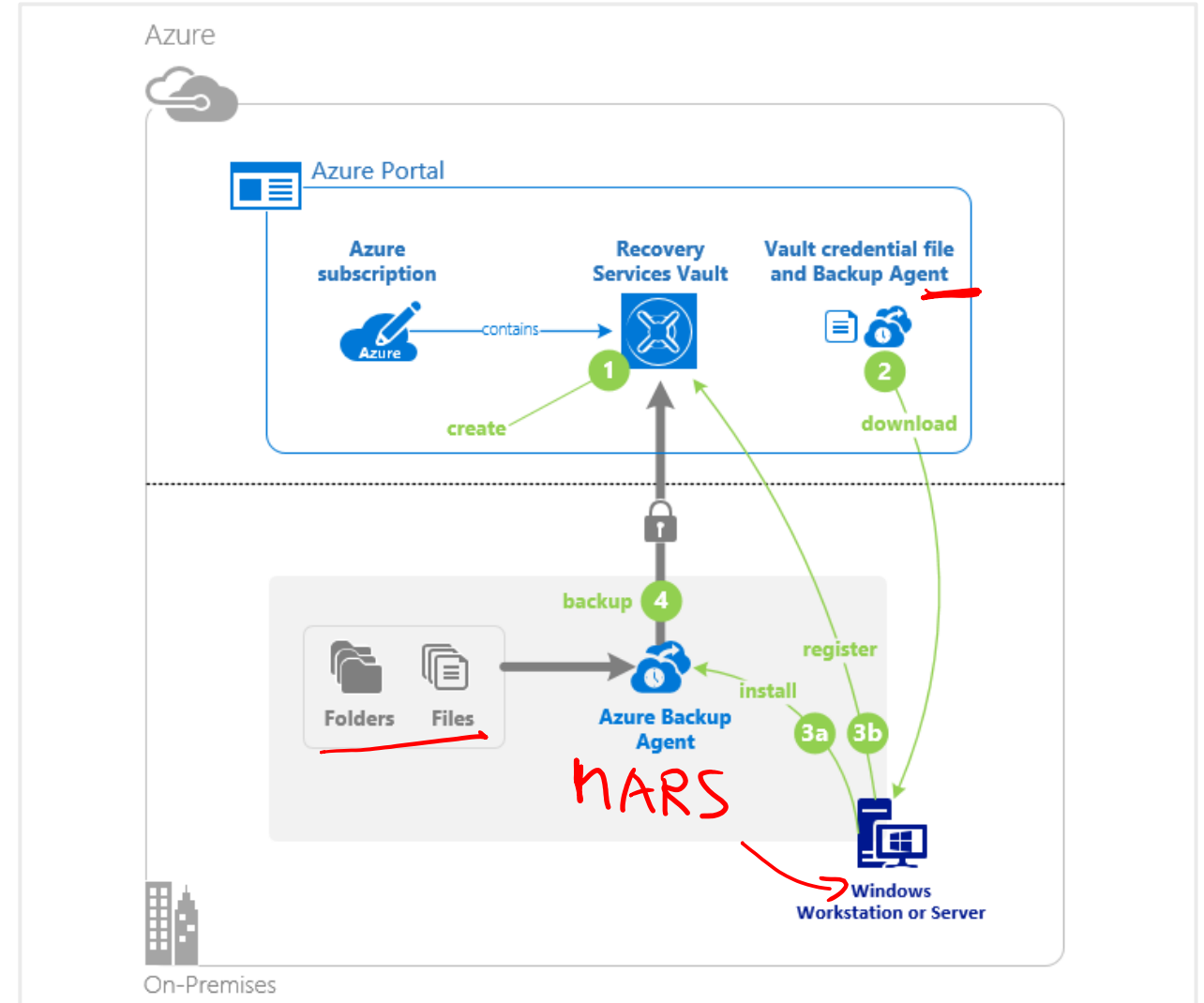
Configure On-Premises File and Folder Backup

1. Create the recovery services vault

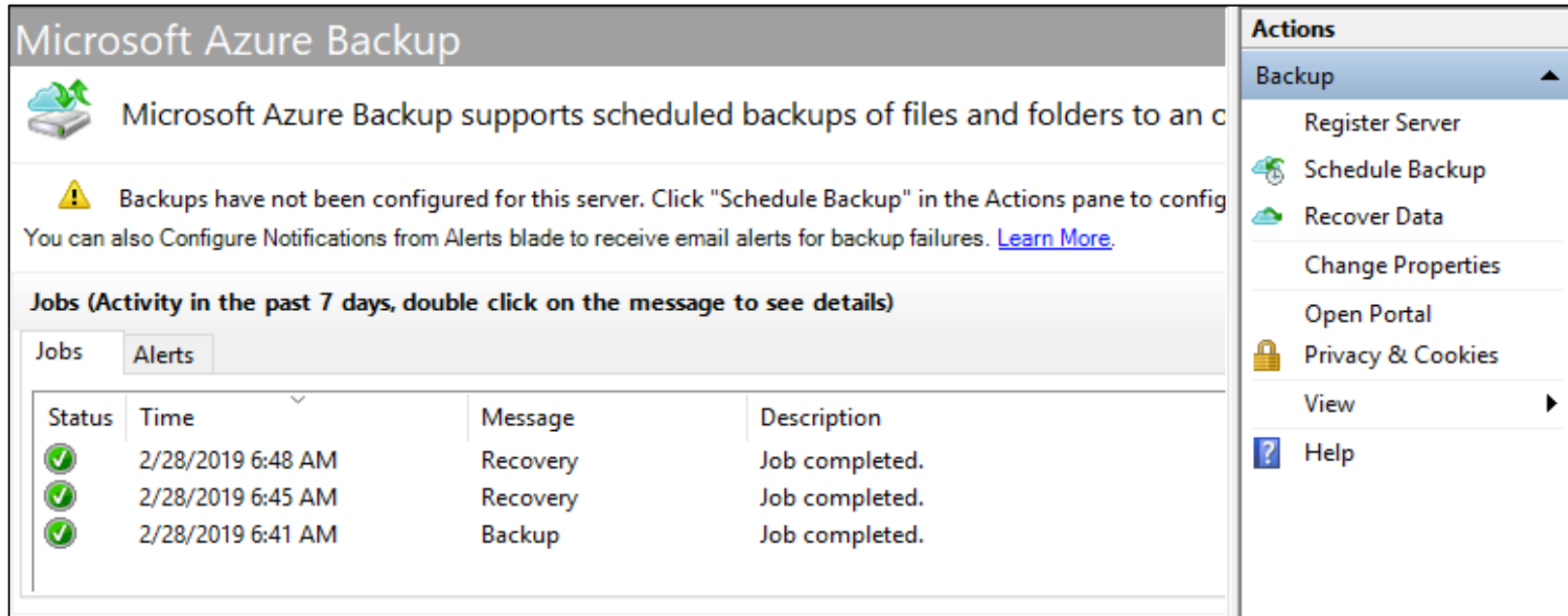
2. Download the agent and credential file

3. Install and register agent

4. Configure the backup



Manage the Microsoft Azure Recovery Services Agent



Microsoft Azure Backup

Microsoft Azure Backup supports scheduled backups of files and folders to an cloud storage account.

Warning: Backups have not been configured for this server. Click "Schedule Backup" in the Actions pane to configure backups. You can also Configure Notifications from Alerts blade to receive email alerts for backup failures. [Learn More.](#)

Jobs (Activity in the past 7 days, double click on the message to see details)

Status	Time	Message	Description
✓	2/28/2019 6:48 AM	Recovery	Job completed.
✓	2/28/2019 6:45 AM	Recovery	Job completed.
✓	2/28/2019 6:41 AM	Backup	Job completed.

Actions

- Backup
 - Register Server
 - Schedule Backup
 - Recover Data
 - Change Properties
 - Open Portal
 - Privacy & Cookies
 - View
 - Help

Backup or recover files and folders on physical or virtual Windows OS (VMs can be on-premises or in Azure)

No separate backup server required

Not application aware; file, folder, and volume-level restore only

No support for Linux

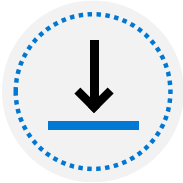
Demonstration – Backup Files and Folders



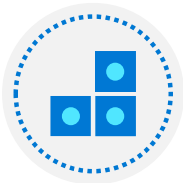
Create a Recovery Services vault



Configure the vault



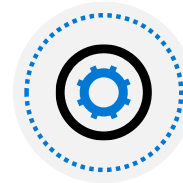
Install and register the agent



Create the backup policy



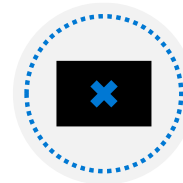
Backup files and folders



Explore the recover settings



Explore the backup properties



Delete your backup schedule

Summary and Resources – Configure File and Folder Backups

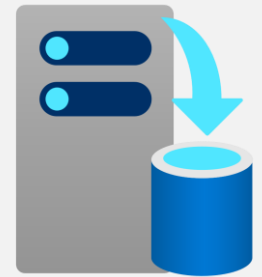
Knowledge Check Questions

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








[Introduction to Azure Backup](#)



Configure Virtual Machine Backups



Configure Virtual Machine Backups Introduction

-  Protect Virtual Machine Data
-  Create Virtual Machine Snapshots
-  Setup Recovery Services Vault Backup Options
-  Backup Virtual Machines
-  Restore Virtual Machines
-  Demonstration – Virtual Machine Backups
-  Implement Azure Backup Server
-  Compare Backup Options
-  Manage Soft Delete
-  Implement Azure Site Recovery
-  Summary and Resources

Protect Virtual Machine Data

Snapshots ✓

Azure backup ✓

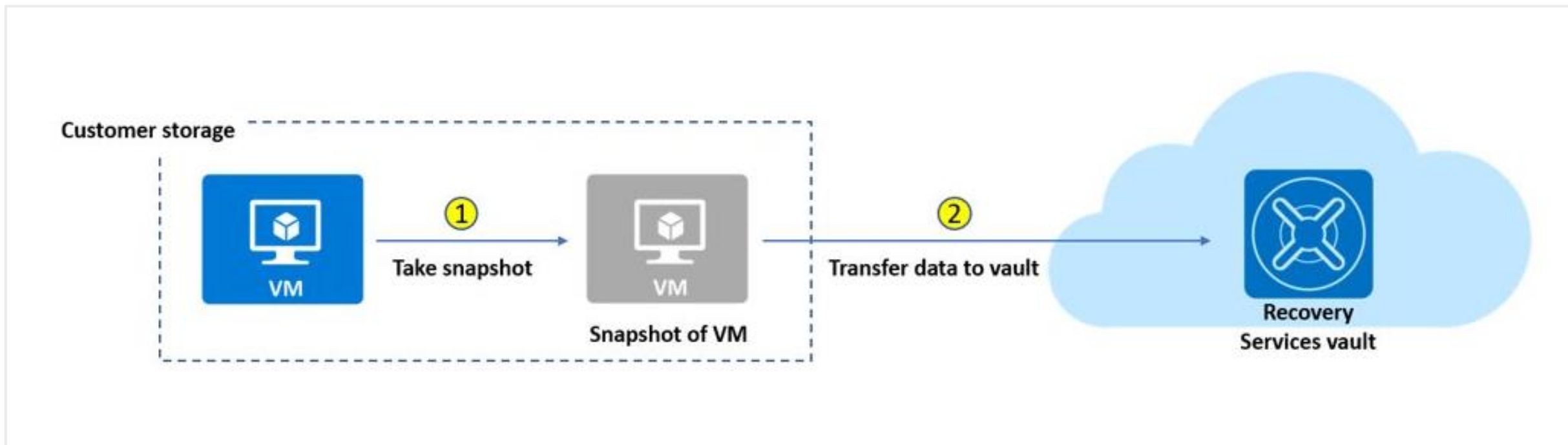
Azure Site Recovery ✓

Managed snapshots provide a quick and simple option for backing up VMs that use Managed Disks

Azure Backup supports application-consistent backups for both Windows and Linux VMs

Azure Site Recovery protects your VMs from a major disaster scenario when a whole region experiences an outage

Create Virtual Machine Snapshots



Use snapshots taken as part of a backup job

Reduces recovery wait times – don't wait for data transfer to the vault to finish

Configure Instant Restore retention (1 to 5 days)

Setup Recovery Services Vault Backup Options - VMs

Azure Workloads

Where is your workload running?

Azure

What do you want to backup?

Virtual machine

Virtual machine

Azure FileShare

SQL Server in Azure VM

SAP HANA in Azure VM

On-Premises Workloads

vmbackuptest - Backup
Recovery Services vault

Where is your workload running?

On-Premises

What do you want to backup?

4 selected

☐ Files and folders

☒ Hyper-V Virtual Machines

☒ VMware Virtual Machines

☐ Microsoft SQL Server

☐ Microsoft SharePoint

☐ Microsoft Exchange

☒ System State

☒ Bare Metal Recovery

Step: Prepare Infrastructure

Prepare Infrastructure



Multiple servers can be protected using the same Recovery Services vault

Backup Virtual Machines

Create a recovery services vault

1

Use the Portal to define the backup

2

Backup the virtual machine

3

1. Use a Recovery Services Vault in the region where you are performing your Virtual Machine backups and choose a replication strategy for Vault


2. Take snapshots (recovery points) of your data at defined intervals. These snapshots are stored in recovery services vaults






3. For the Backup extension to work, the Azure VM Agent must be installed on the Azure virtual machine

Restore Virtual Machines



Once you trigger the restore operation, the Backup service creates a job for tracking the restore operation

The Backup service also creates and temporarily displays notifications, so you monitor how the backup is proceeding

 **ContosoWebFE1**
Backup Item

 Backup now  Restore VM  File Recovery  Stop backup  Resume backup

Alerts and Jobs
[View all Alerts](#) (last 24 hours)
[View all Jobs](#) (last 24 hours)

Backup status
Backup Pre-Check  Passed
Last backup status  Success 3/12/2020, 12:20:38 AM

Restore points (30)

CRASH CONSISTENT
30

APPLICATION CONSISTENT
0

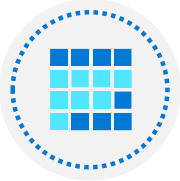
FILE-SYSTEM CONSISTENT
0

Time	Consistency
3/12/2020, 12:20:42 AM	Crash Consistent
3/11/2020, 12:20:59 AM	Crash Consistent

Demonstration – Virtual Machine Backups

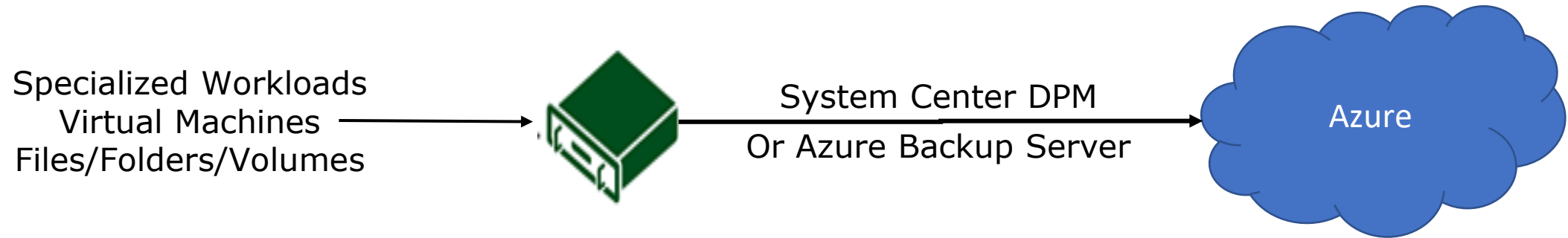


Enable a backup on a virtual machine



Start a backup job and monitor the progress

Implement Azure Backup Server



App-aware backups, file/folder/volume backups, and machine state backups (bare-metal, system state)

Each machine runs the DPM/MABS protection agent, and the MARS agent runs on the MABS/DPM

Flexibility and granular scheduling options

Manage backups for multiple machines in a protection group

Compare Backup Options

Component	Benefits	Limits	Protects	Backup Storage
Azure Backup (MARS) agent	<ul style="list-style-type: none">• Backup files and folders on physical or virtual Windows OS• No separate backup server required	<ul style="list-style-type: none">• Backup 3x per day• Not application aware• File, folder, and volume-level restore only• No support for Linux	<ul style="list-style-type: none">• Files• Folders	<ul style="list-style-type: none">• Recovery services vault
Azure Backup Server (MABS)	<ul style="list-style-type: none">• App aware snapshots• Full flex for when to backups• Recovery granularity• Linux support on Hyper-V and VMware VMs• Backup and restore VMware VMs• Doesn't require a System Center license	<ul style="list-style-type: none">• Cannot backup Oracle workloads• Always requires live Azure subscription• No support for tape backup	<ul style="list-style-type: none">• Files• Folders• Volumes• VMs• Applications• Workloads	<ul style="list-style-type: none">• Recovery services vault• Locally attached disk

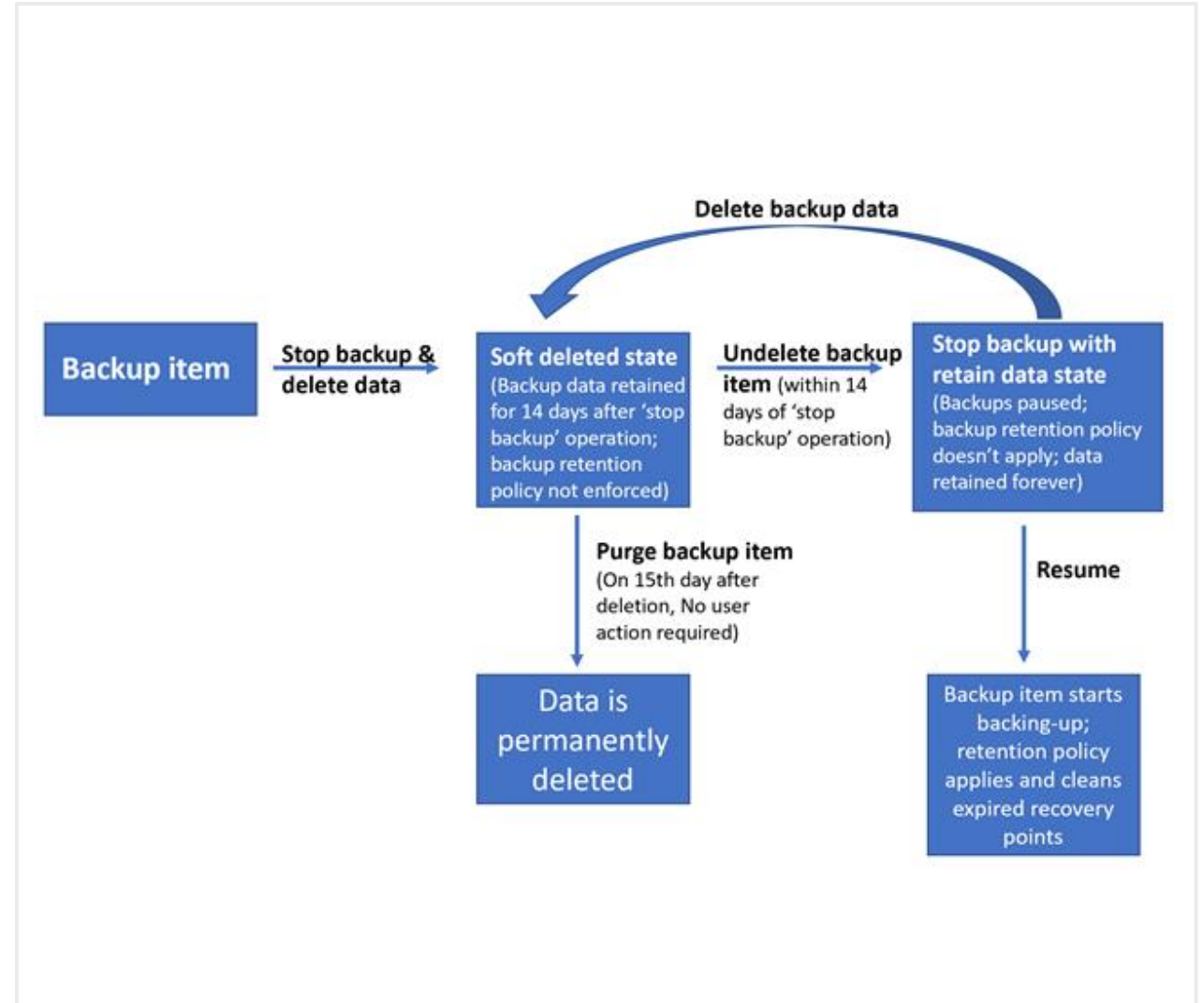
Manage Soft Delete

Backup data is retained for 14 additional days

Recover soft deleted backup items using an 'Undelete' operation

Also available for storage account containers and file shares

Natively built-in for all the recovery services vaults



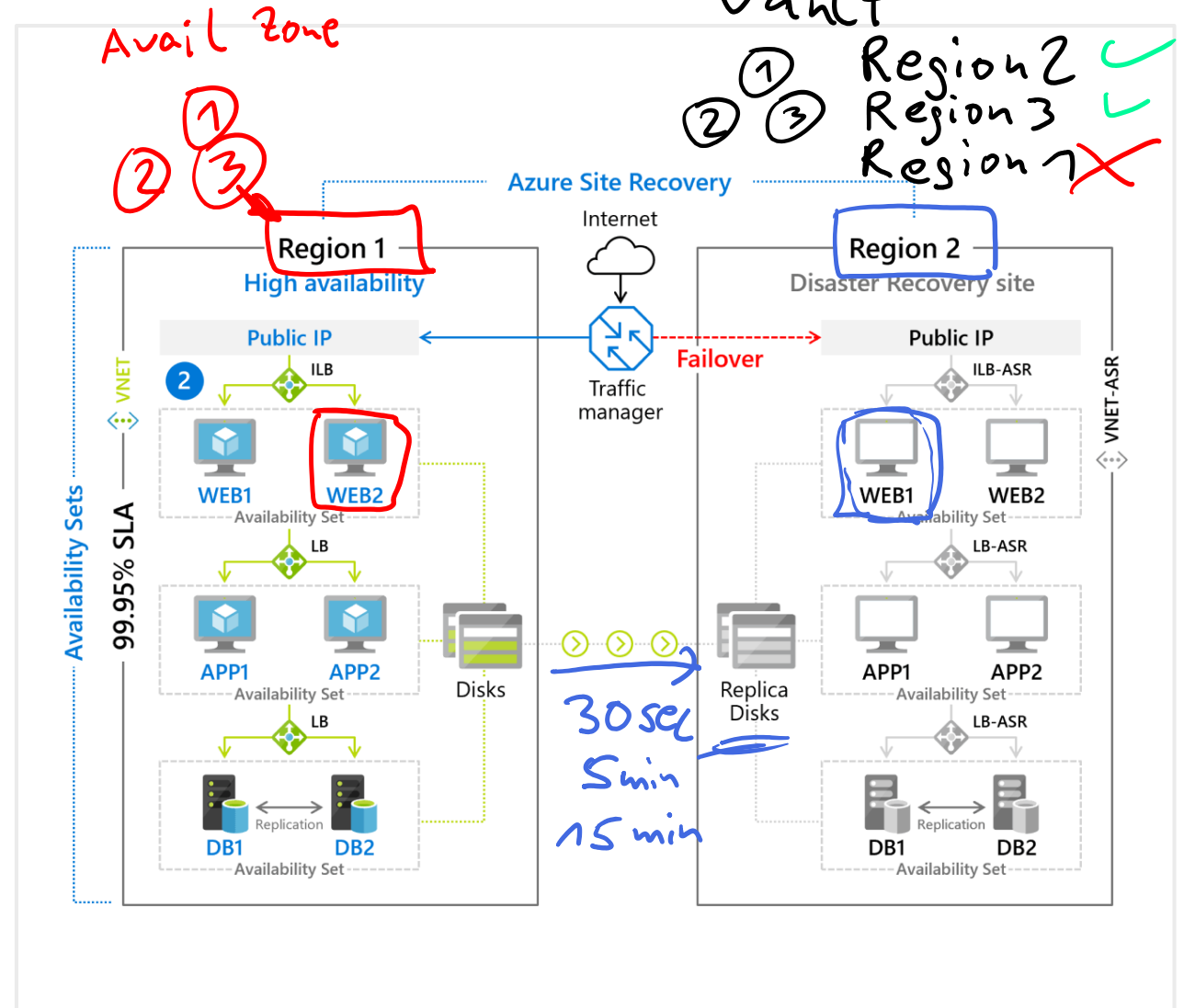
ASR Implement Azure Site Recovery

Replicate Azure VMs from one Azure region to another

Replicate on-premises VMware VMs, Hyper-V VMs, physical servers (Windows and Linux), Azure Stack VMs to Azure

Replicate AWS Windows instances to Azure

Replicate on-premises VMware VMs, Hyper-V VMs managed by System Center VMM, and physical servers to a secondary site



Summary and Resources – Configure Virtual Machine Backups

Knowledge Check Questions



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

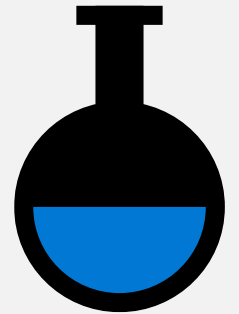
[Introduction to Azure Backup](#)

[Protect your virtual machines by using Azure Backup](#)

[Implement hybrid backup and recovery with Windows Server IaaS](#)

[Protect your Azure infrastructure with Azure Site Recovery](#)

Lab 10 – Implement Data Protection



Lab 10 – Backup virtual machines

Lab scenario

You have been tasked with evaluating the use of Azure Recovery Services for backup and restore of files hosted on Azure virtual machines and on-premises computers. In addition, you want to identify methods of protecting data stored in the Recovery Services vault from accidental or malicious data loss

Objectives

Task 1:

Provision the lab environment

Task 2:

Create a Recovery Services vault

Task 3:

Implement Azure virtual machine-level backup

Task 4:

Implement File and Folder backup

Task 5:

Perform file recovery by using Azure Recovery Services agent

Task 6:

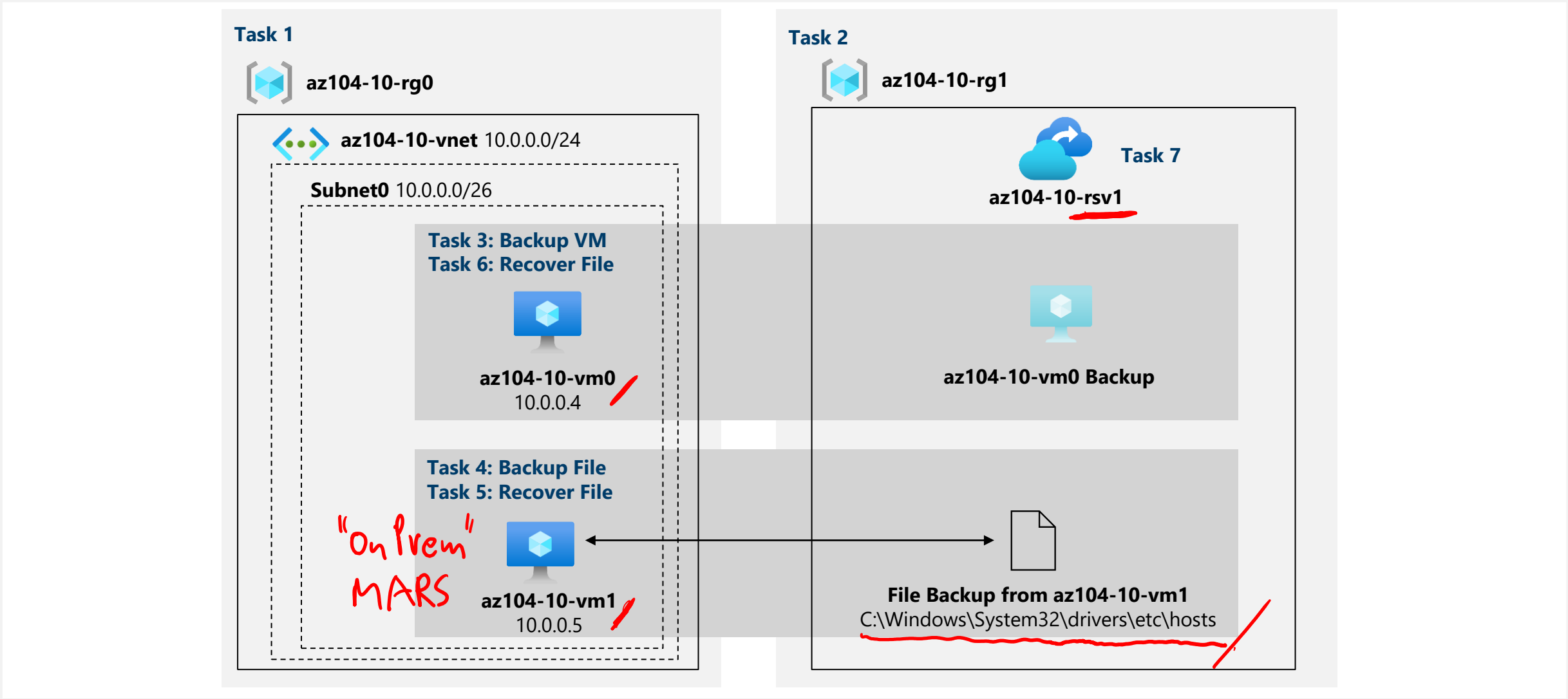
Perform file recovery by using Azure virtual machine snapshots

Task 7:

Review the Azure Recovery Services soft delete functionality

Next slide for an architecture diagram 

Lab 10 – Architecture diagram



End of presentation

