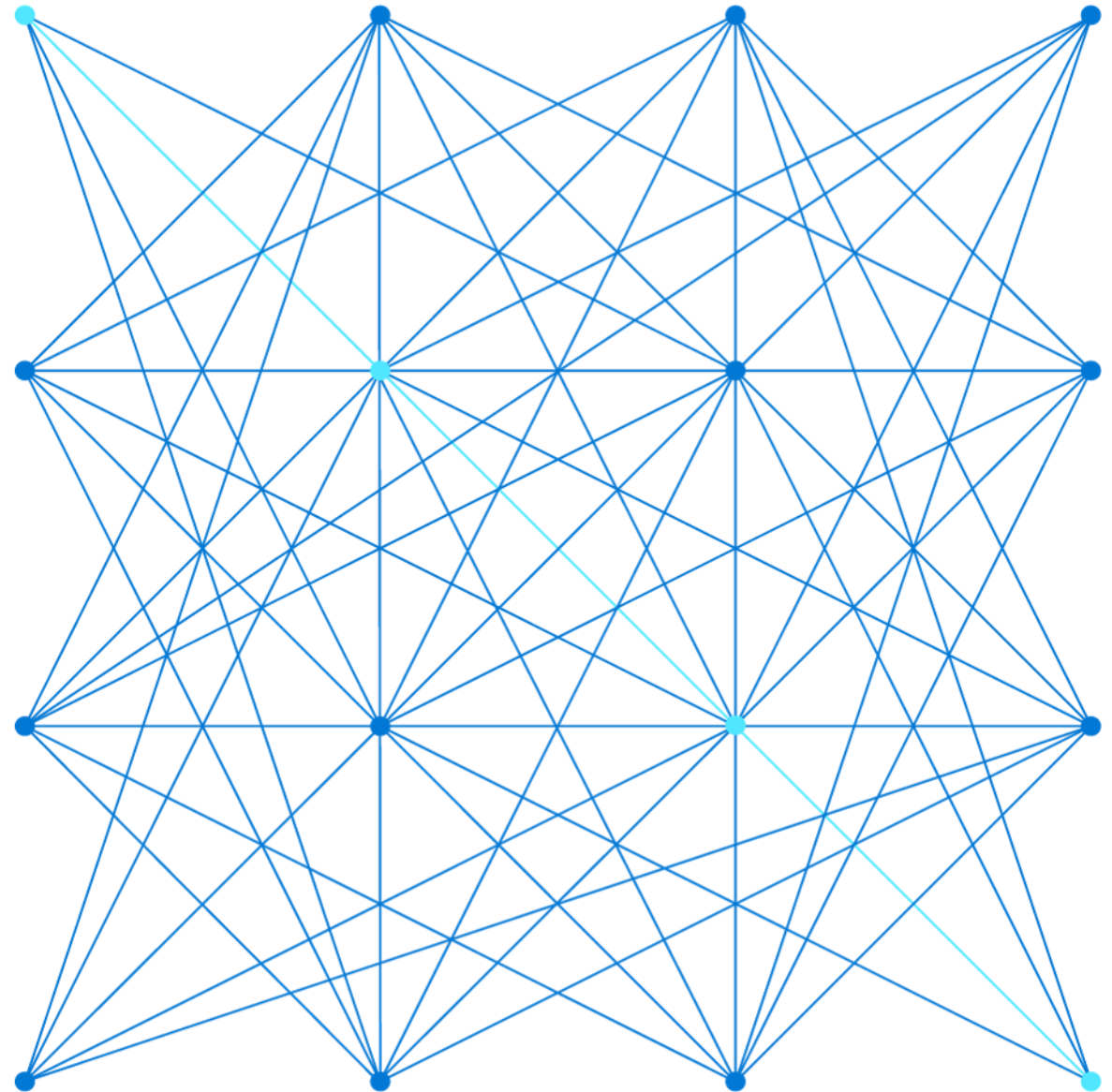


# AZ-104T00A

## Administer Data Protection



# Administer Network Protection Introduction



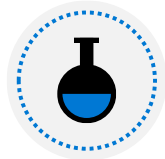
Configure File and Folder Backups

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Configure Virtual Machine Backups

---





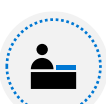
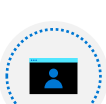




Lab 10 – Implement Data Protection

# 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



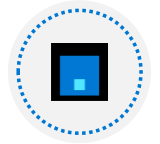
Azure-based service used to back up and restore data in Microsoft cloud

---



Automatic Storage Management

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Multiple storage options

---



Unlimited data transfer

---



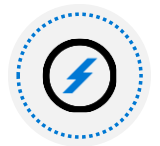
Data encryption

---



Application consistent backup

---



Long-term retention

---

# Implement Azure Backup Center

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

The screenshot displays the Azure Backup Center 'Overview' page for 'Azure Virtual machines'. The interface includes a top navigation bar with 'Backup center' and a search bar. Below the navigation bar, there are tabs for 'Backup', 'Restore', 'Policy', 'Vault', and 'Refresh'. The left sidebar contains a 'Manage' section with links to 'Backup instances', 'Backup policies', and 'Vaults', and a 'Monitoring + reporting' section with links to 'Backup jobs', 'Backup reports', and 'Policy and compliance'. The main content area shows a summary of 'Jobs (last 24 Hours)' and 'Backup instances'. The 'Jobs' table lists 'Scheduled backup', 'On-demand backup', and 'Restore' operations, with counts for 'Failed', 'In progress', and 'Completed' states. The 'Backup instances' section shows a total of 2 instances, with a breakdown of 'Protection configured', 'Protection stopped', and 'Soft deleted' states. 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	Count
Azure Virtual machines	2
Protection configured	2
Protection stopped	0
Soft deleted	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

---



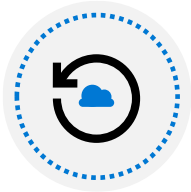
Create a Recovery Services vault

---



Configure file share backup

---



Verify the file share backup



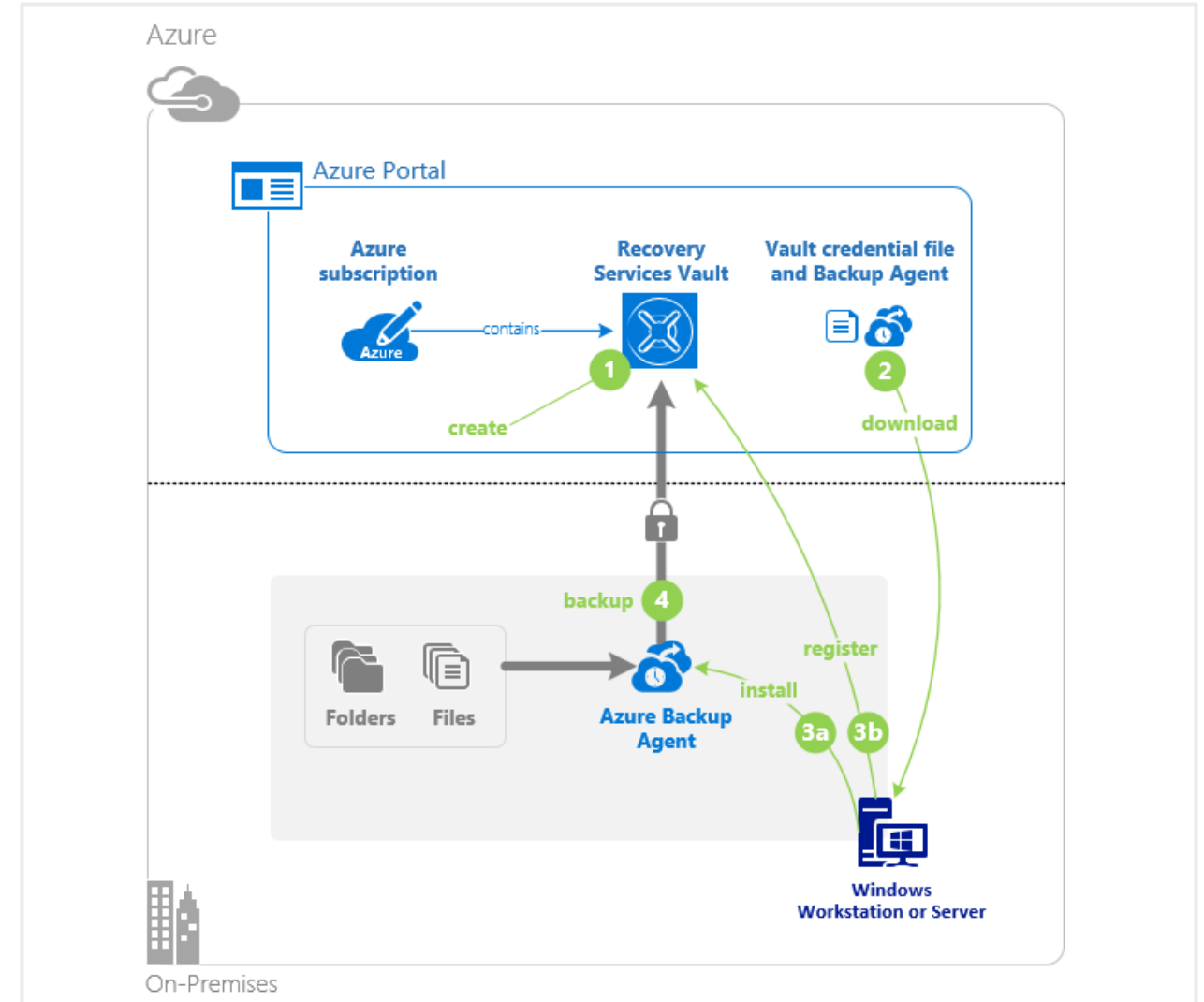
# Configure On-Premises File and Folder Backup

1. Create the recovery services vault

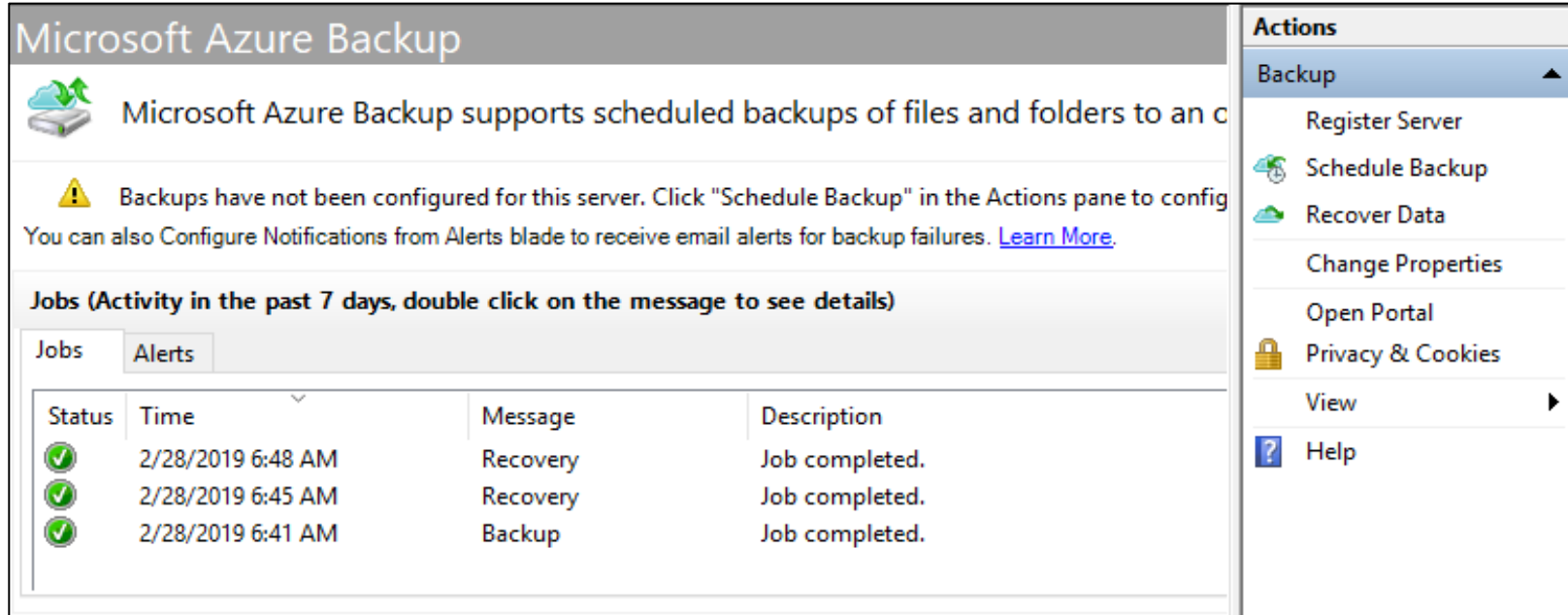
2. Download the agent and credential file

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)**

Jobs Alerts

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



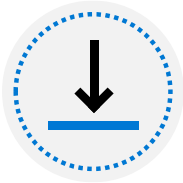
Create a Recovery Services vault

---



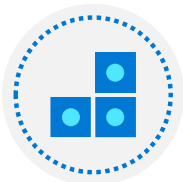
Configure the vault

---



Install and register the agent

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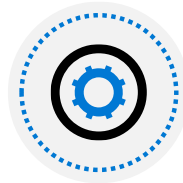


Create the backup policy



Backup files and folders

---



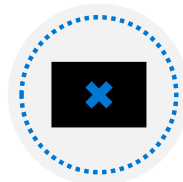
Explore the recover settings

---



Explore the backup properties

---



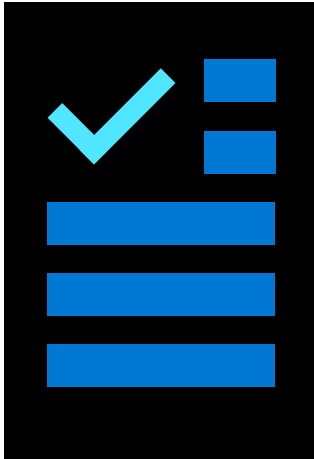
Delete your backup schedule

# Summary and Resources – Configure File and Folder Backups

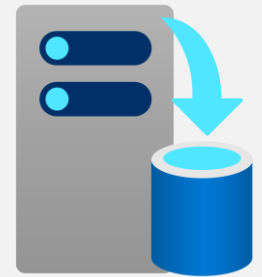
Knowledge Check Questions

Microsoft Learn Modules ([docs.microsoft.com/Learn](https://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**

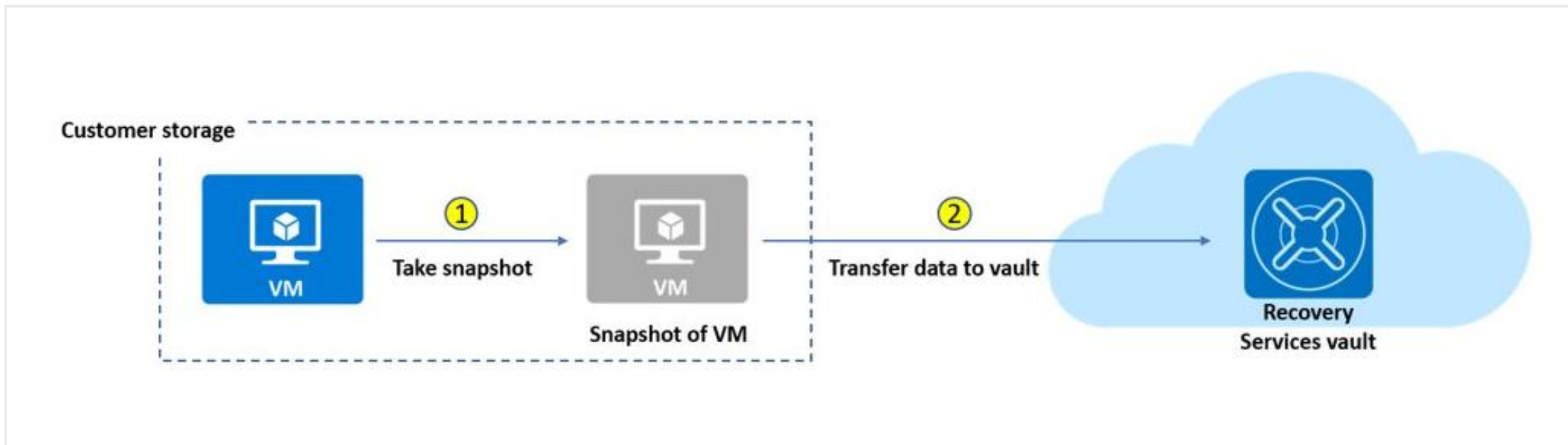
**Azure Site Recovery**

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

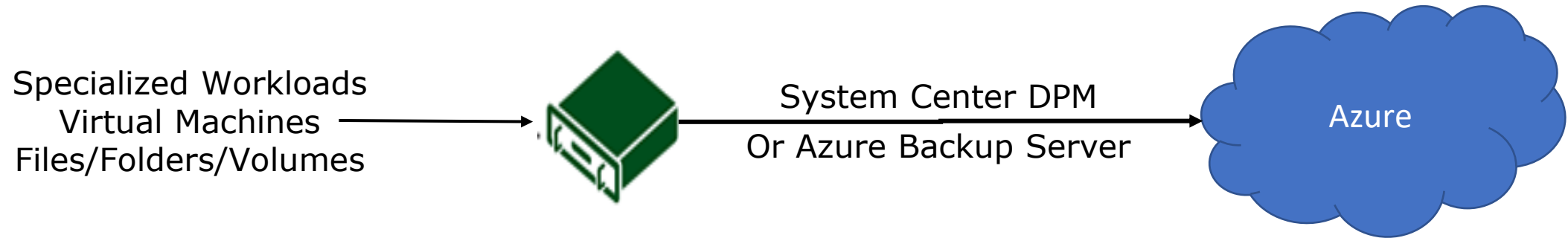
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Start a backup job and monitor the progress

---

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

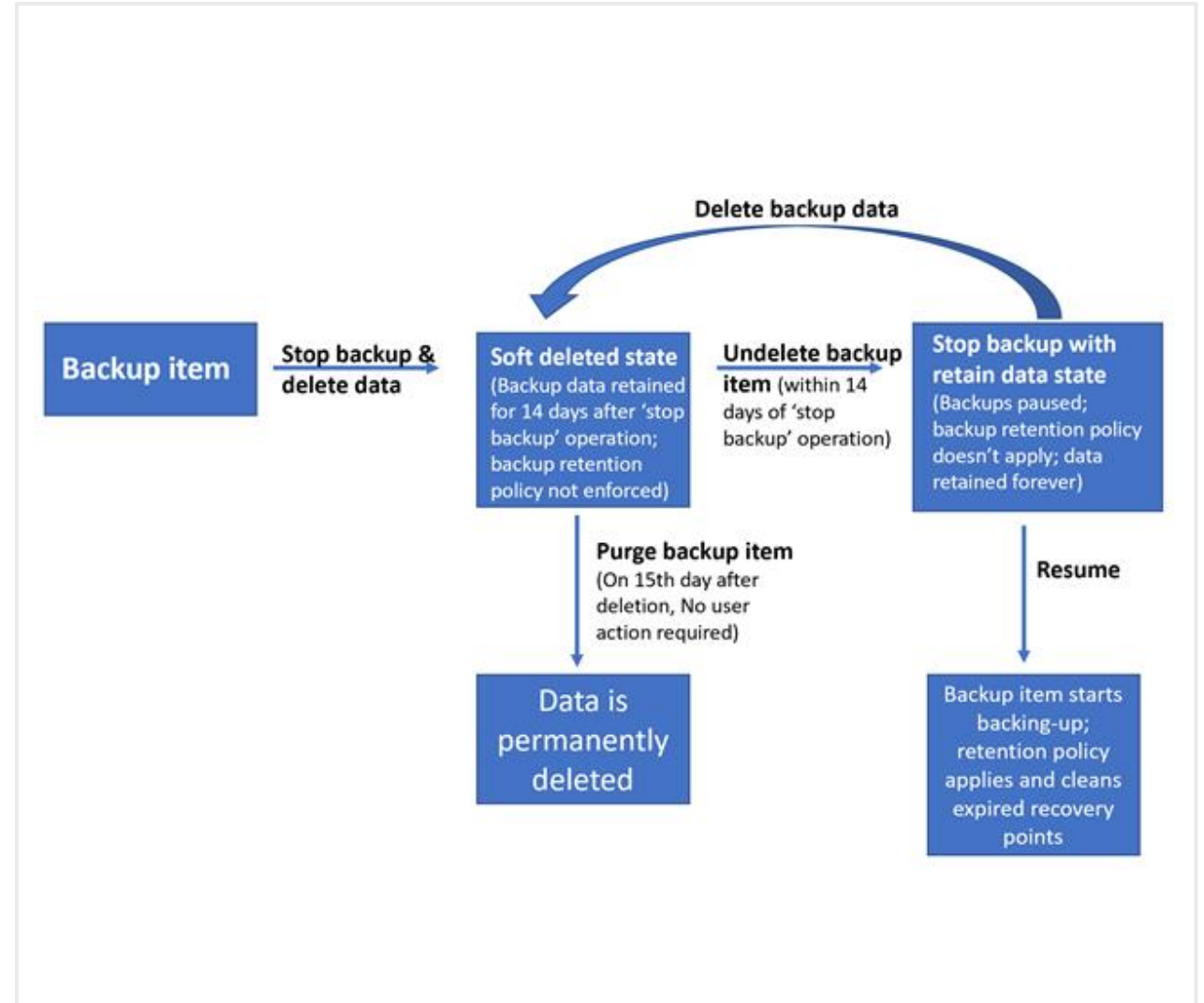
# Manage Soft Delete

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



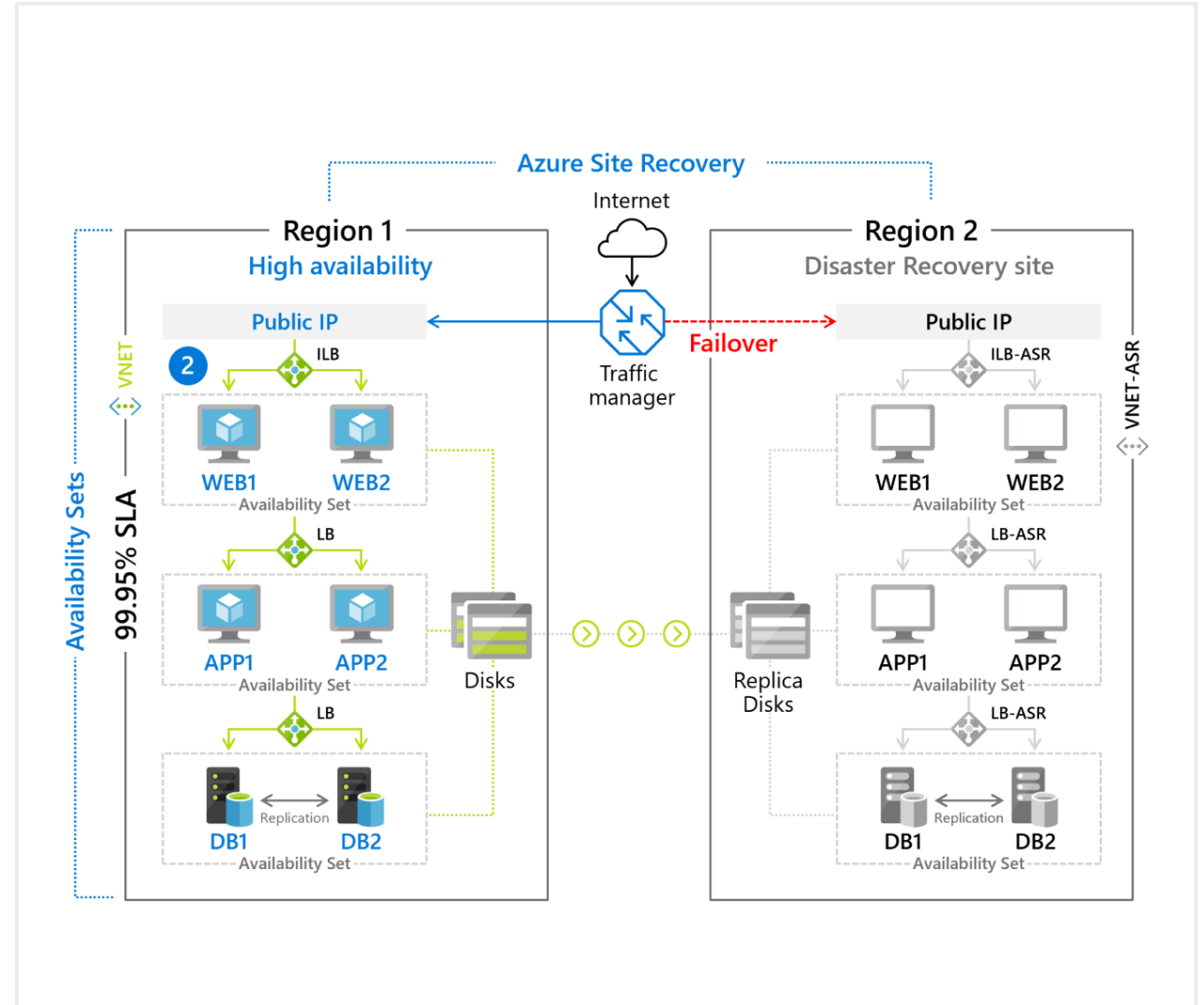
# Implement Azure Site Recovery

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](https://docs.microsoft.com/Learn))

[Introduction to Azure Backup](#)

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

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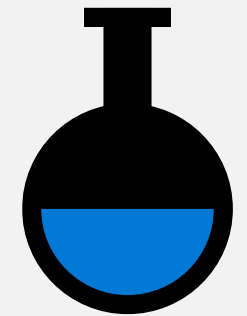
[Implement hybrid backup and recovery with Windows Server IaaS](#)

---

[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:

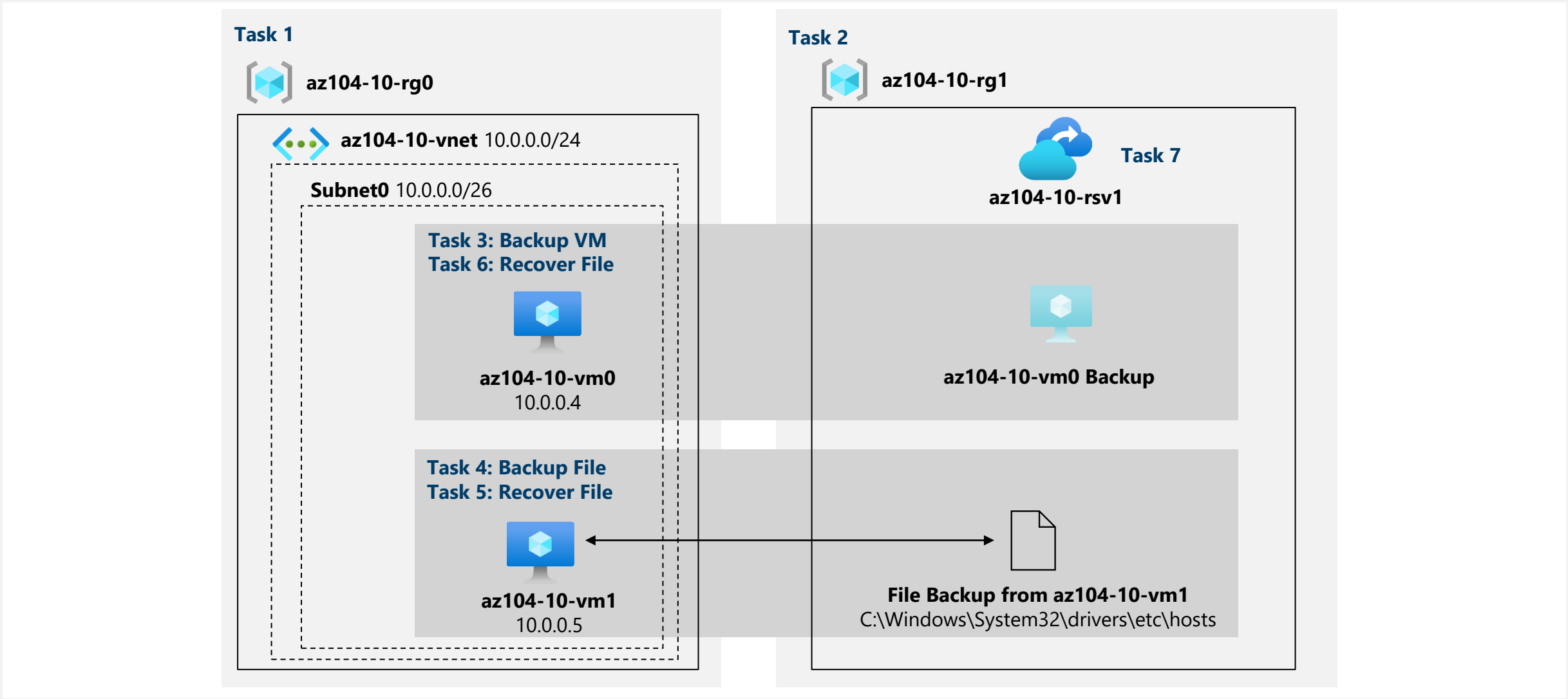
Perform file recovery by using Azure virtual machine snapshots

### Task 7:

Review the Azure Recovery Services soft delete functionality

Next slide for an architecture diagram 

# Lab 10 – Architecture diagram



# End of presentation

