

# AZ-104

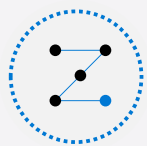
## Administer Data Protection



# Course Outline



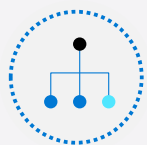
01: Administer Identity



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

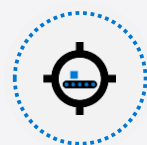


09: Administer PaaS Compute Options



10: Administer Data Protection


*Backup*



11: Administer Monitoring

*Monitor  
LA  
KQL*

# Learning Objectives - Administer Network Protection

- [Configure File and Folder Backups](#)
- [Configure Virtual Machine Backups](#)
- [Lab 10 – Implement Data Protection](#) 

# Configure File and Folder Backups



# 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

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 shows the Azure Backup Center interface. The sidebar on the left contains the following menu items: Overview (selected), 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 has a search bar and navigation links for Backup, Restore, Policy, Vault, and Refresh. Below these, it displays 'Datasource type: Azure Virtual machines' and 'Overview of Jobs and Backup instances'. A table shows 'Jobs (last 24 Hours)' with columns for Operation, Failed, In progress, and Completed. The data shows 0 failed, 0 in progress, and 2 completed jobs. Below this, a section for 'Backup instances' shows 'Azure Virtual machines' with 2 instances: 2 protection configured, 0 protection stopped, and 0 soft deleted. A summary at the bottom indicates 0 out of 2 backup instances with 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       |   |   |
|------------------------|---|---|
| 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

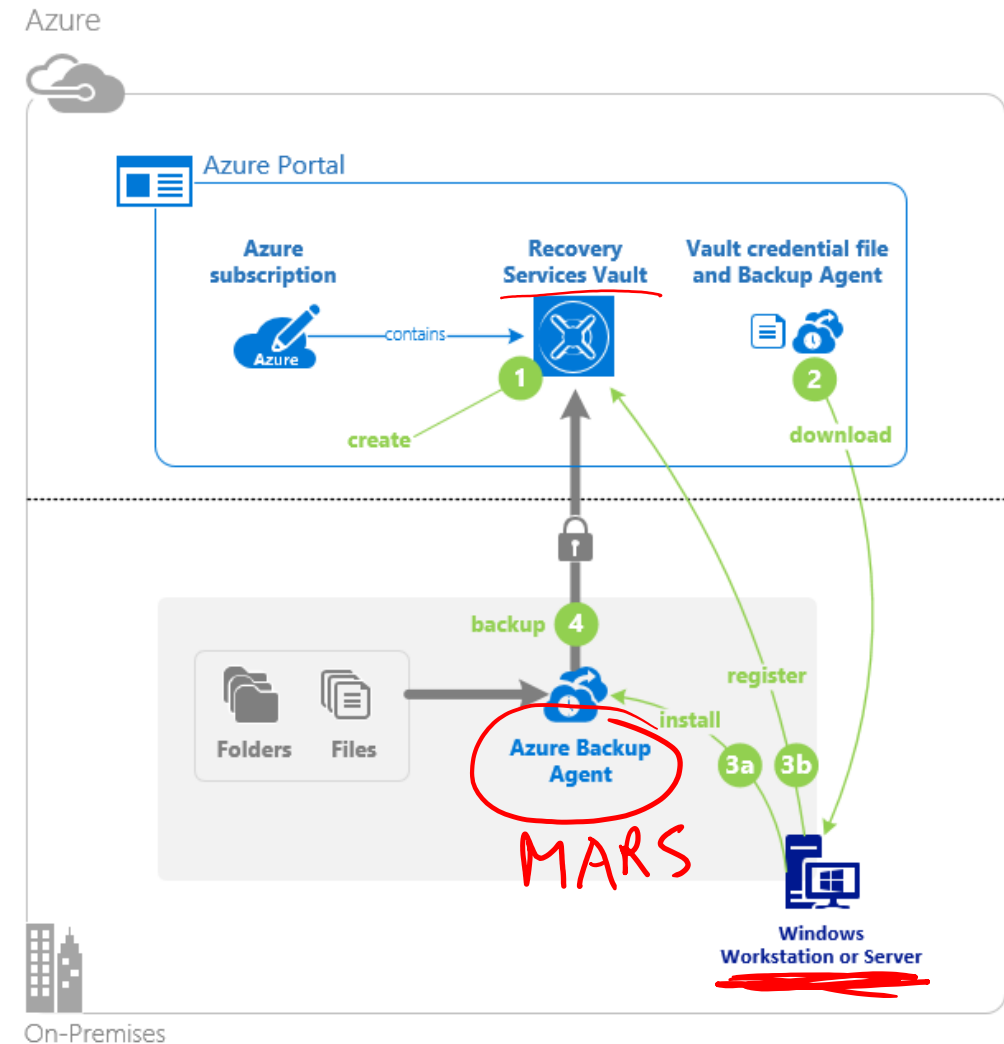
# Configure On-Premises File and Folder Backup

1. Create the recovery services vault

2. Download the agent and credential file

3. Install and register agent

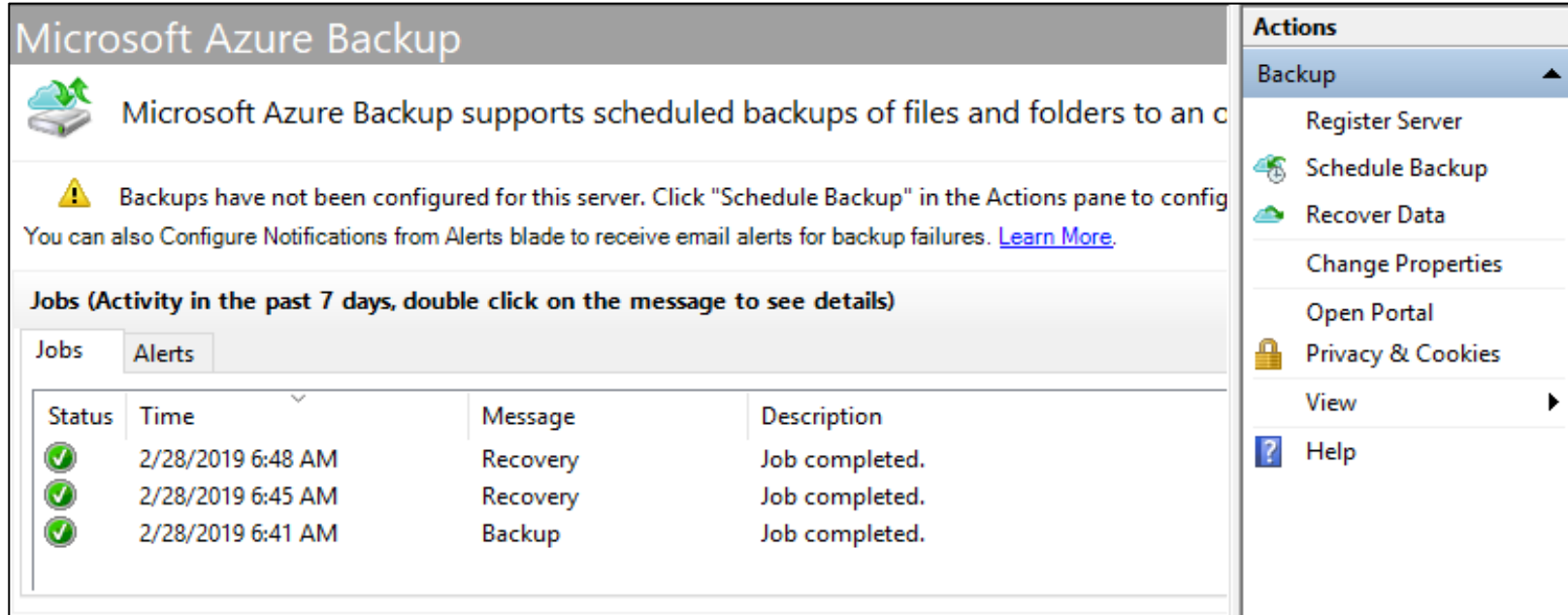
4. Configure the backup






# Manage the Microsoft Azure Recovery Services Agent




### Microsoft Azure Backup

 Microsoft Azure Backup supports scheduled backups of files and folders to an c





 Backups have not been configured for this server. Click "Schedule Backup" in the Actions pane to config  
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

# Configure Virtual Machine Backups



# Protect Virtual Machine Data

vhd  
vhdx

## Snapshots

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

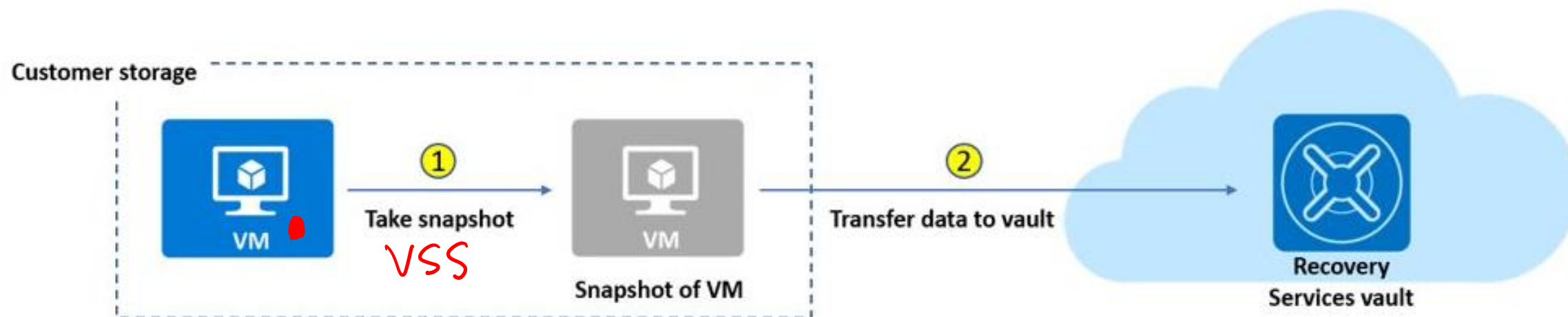
## Azure backup

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

## Azure Site Recovery

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

Multiple servers can be protected using the same Recovery Services vault

## 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

# Backup Virtual Machines

Create a recovery services vault

1

Use the Portal to define the backup

2

Backup the virtual machine

3

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

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

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

Backup

## 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      Backup status

[View all Alerts](#) (last 24 hours)      Backup Pre-Check ✓ Passed

[View all Jobs](#) (last 24 hours)      Last backup status ✓ Success 3/12/2020, 12:20:38 AM

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**Restore points (30)**

| CRASH CONSISTENT | APPLICATION CONSISTENT | FILE-SYSTEM CONSISTENT |
|------------------|------------------------|------------------------|
| 30               | 0                      | 0                      |

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

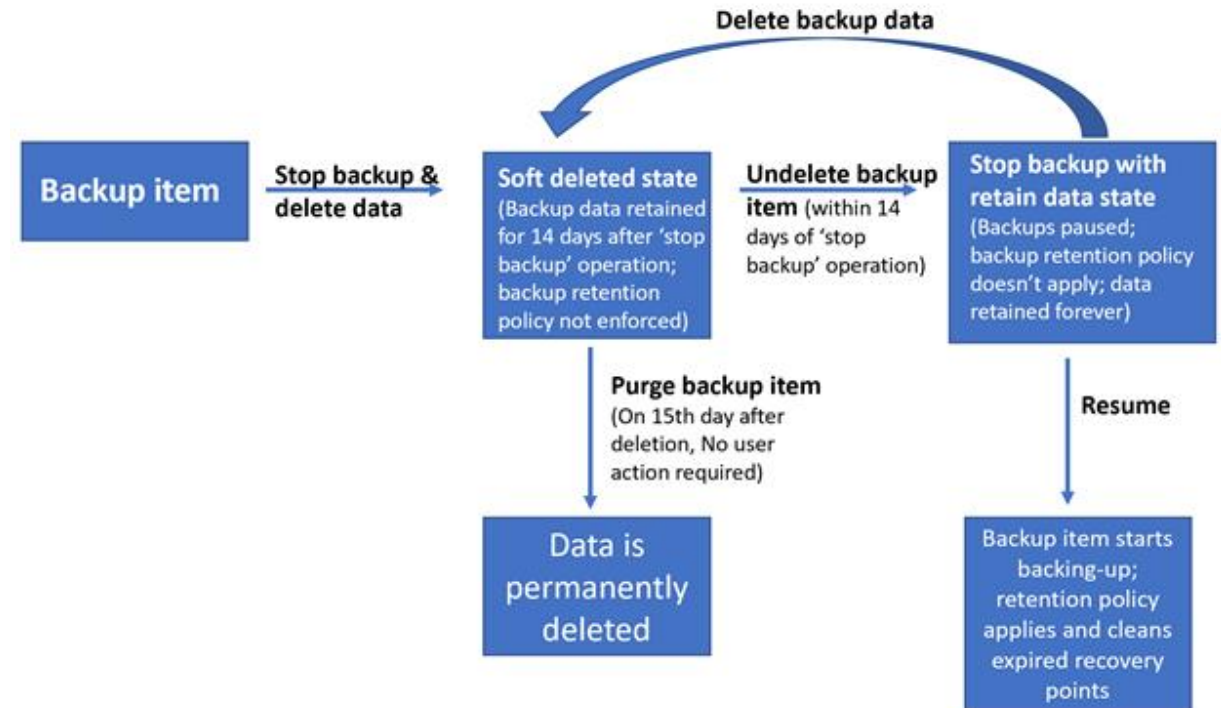
# Manage Soft Delete

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





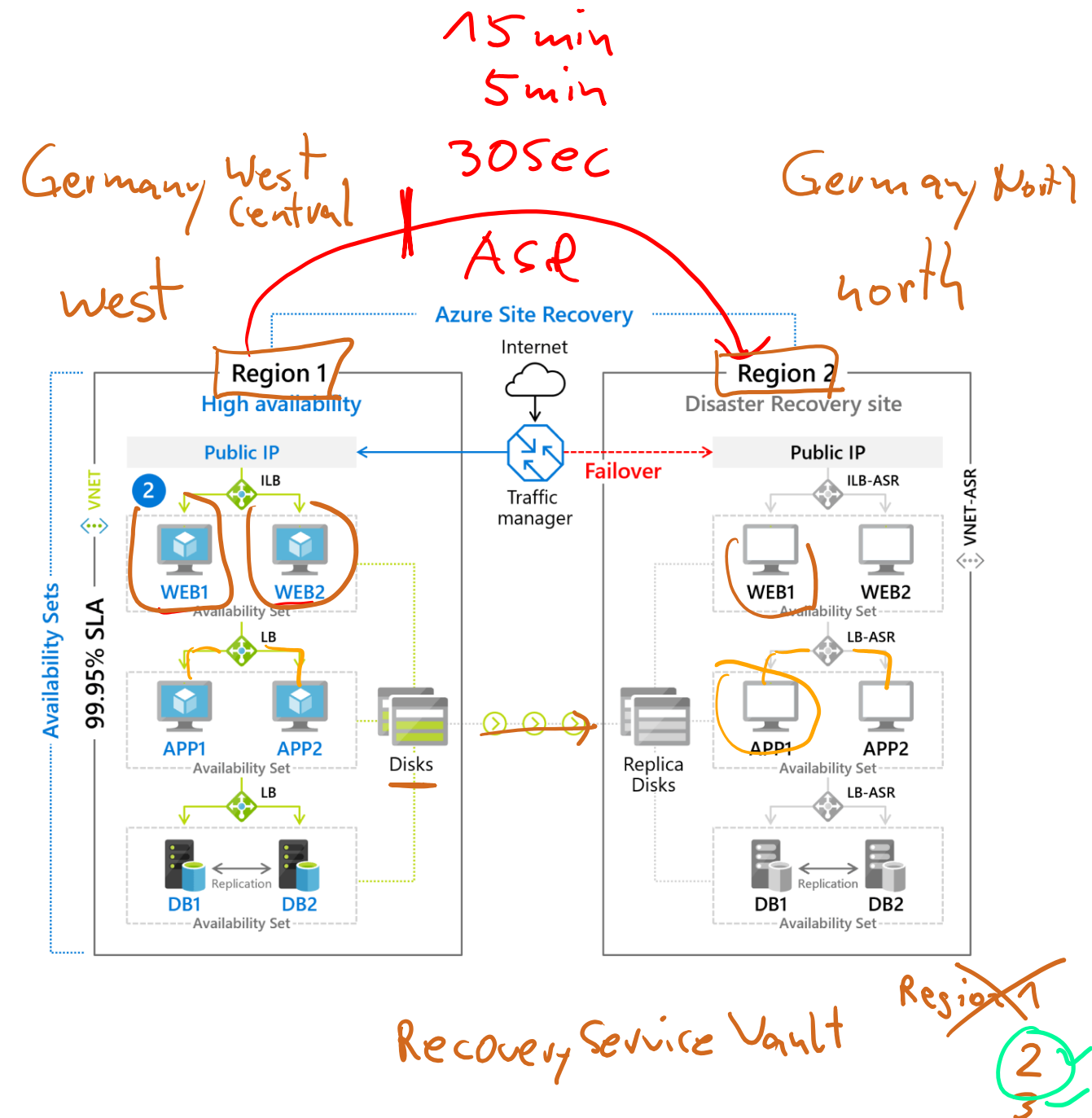
# Implement Azure Site Recovery

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



# Lab 10 – Implement Data Protection



# Lab 10 – Backup virtual machines



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

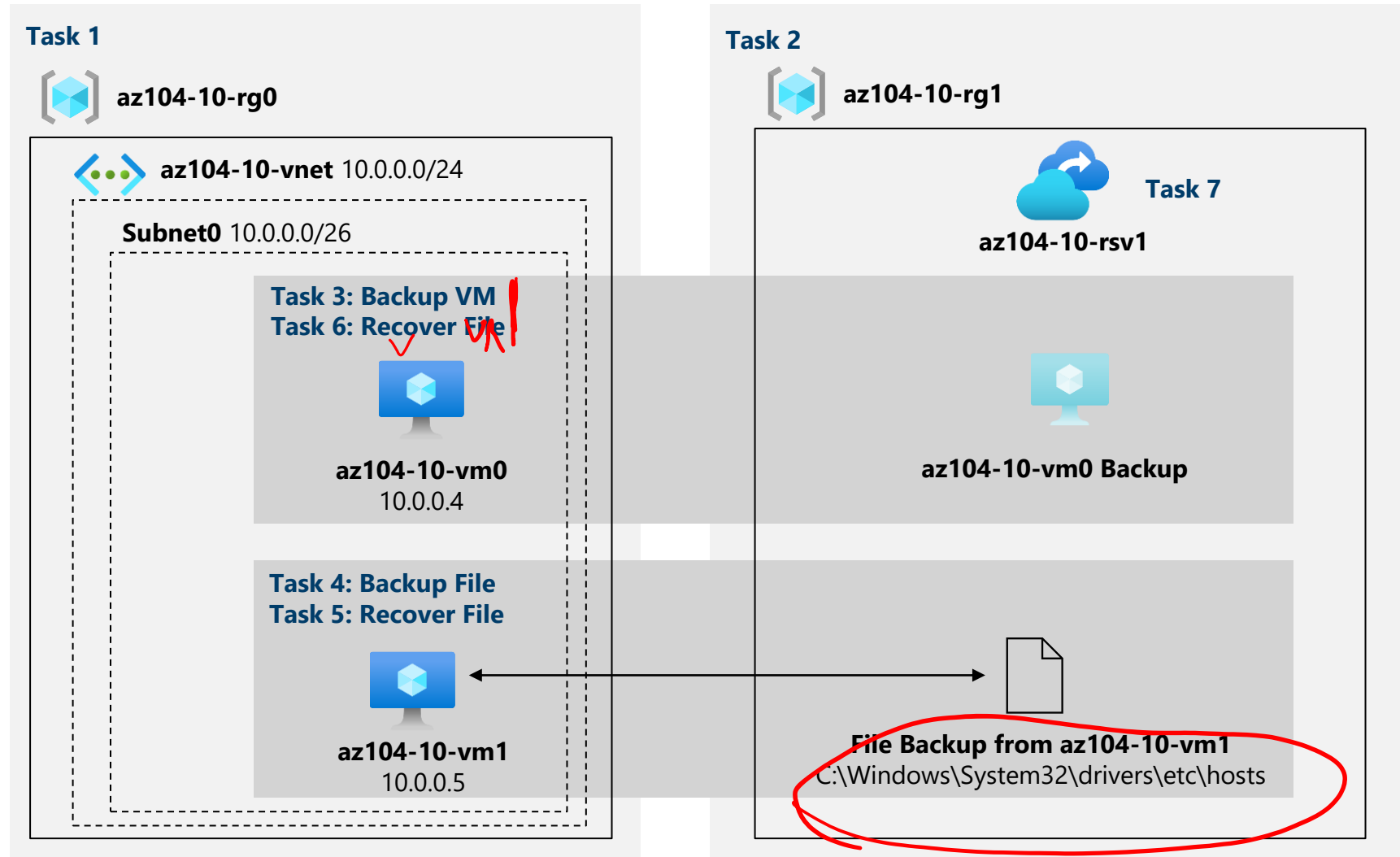
**Task 5:** Perform file recovery by using Azure Recovery Services agent

**Task 6:** Perform file recovery with 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

