

Tag 4

Azure Implement & Manage (Applied Skills)

Guten Morgen!



Azure - Implement & Manage (Applied Skills)

AZ-1002

Configure secure access to your workloads using Azure virtual networking

AZ-1003

Secure storage for Azure Files and Azure Blob Storage

AZ-1004

Deploy and configure Azure Monitor

Change Tracking?

AZ-1007

Deploy and administer Linux virtual machines on Azure

Assessment retired!

(UnWave on Azure)

VM

Hyper-V

Hyper-V

AZ-1007

Deploy and administer Linux virtual machines on Azure



Course Outline

Configure (Lab 01)	Monitor (Lab 02)	Storage (Lab 03)	Backup (Lab 04)
<ul style="list-style-type: none">• Create a Linux virtual machine (VM)• Configure a Linux VM• Configure SSH access• Update Linux VM operating systems• Install and run a workload dependency	<ul style="list-style-type: none">• Configure VM Insights• Create an alert• Identify performance issues• Resize a virtual machine	<ul style="list-style-type: none">• Add data disks and configure partitions• Assign a managed identity on a Linux VM• Mount an SMB Azure file share on a Linux VM• Assign Azure roles• Transfer data to and from a Linux VM by using AzCopy	<ul style="list-style-type: none">• Configure Azure Backup

Backup Agent

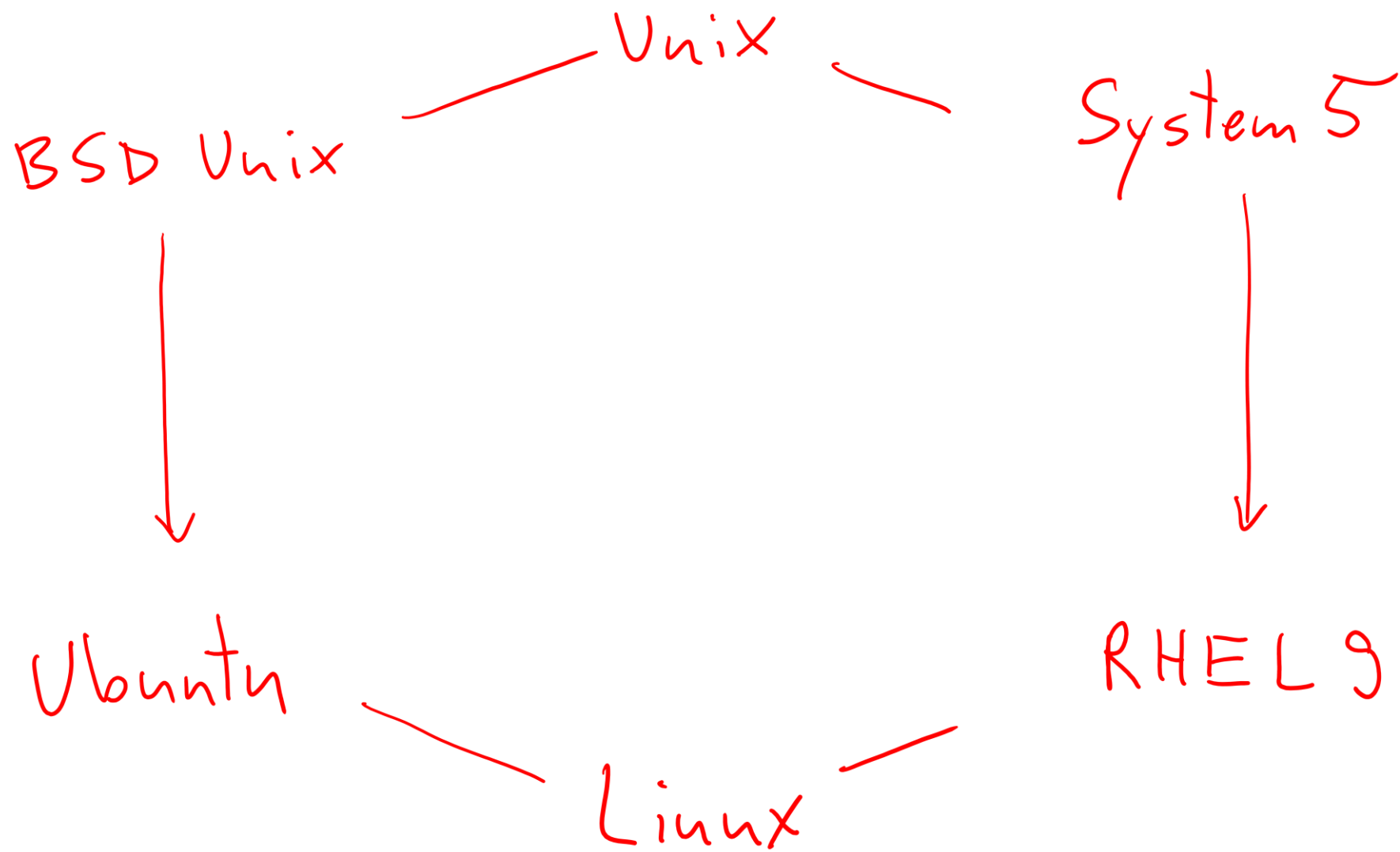
Assoc.



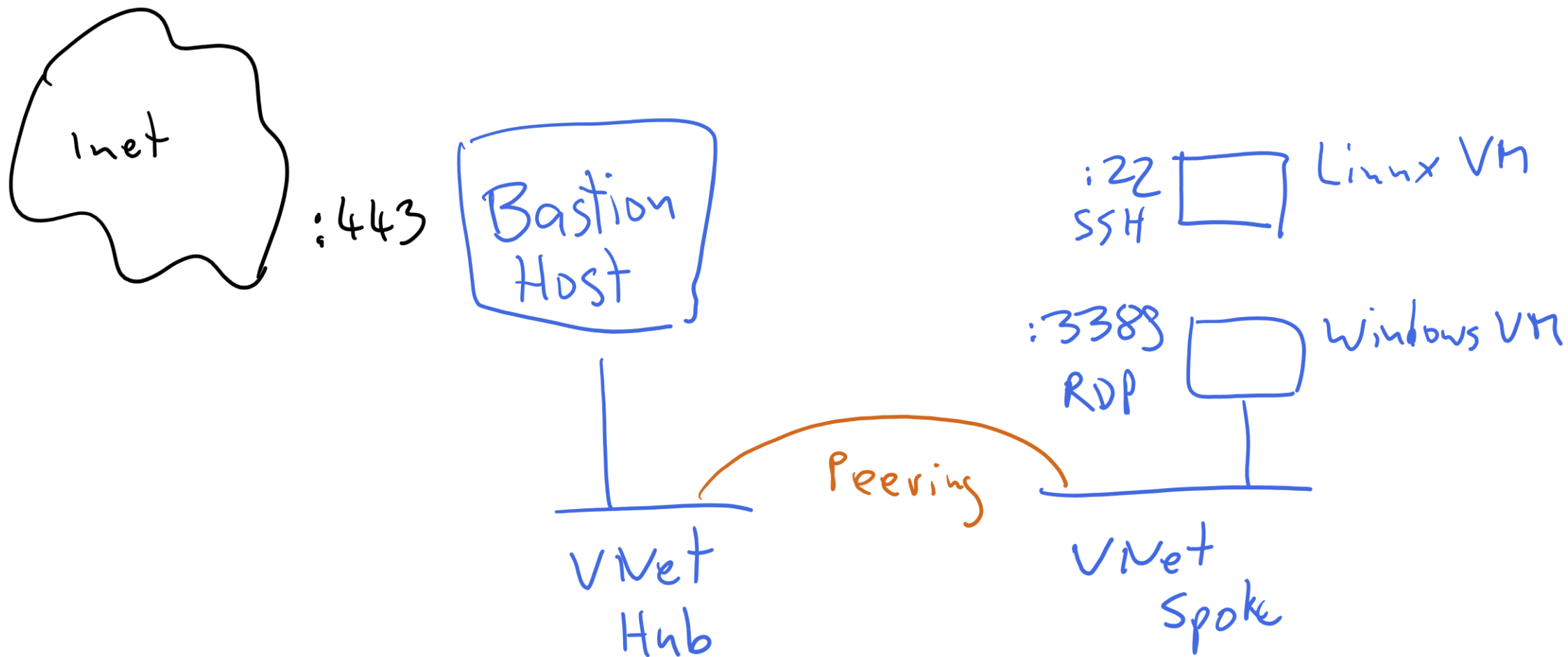
svc dst

GUI Storage Explorer

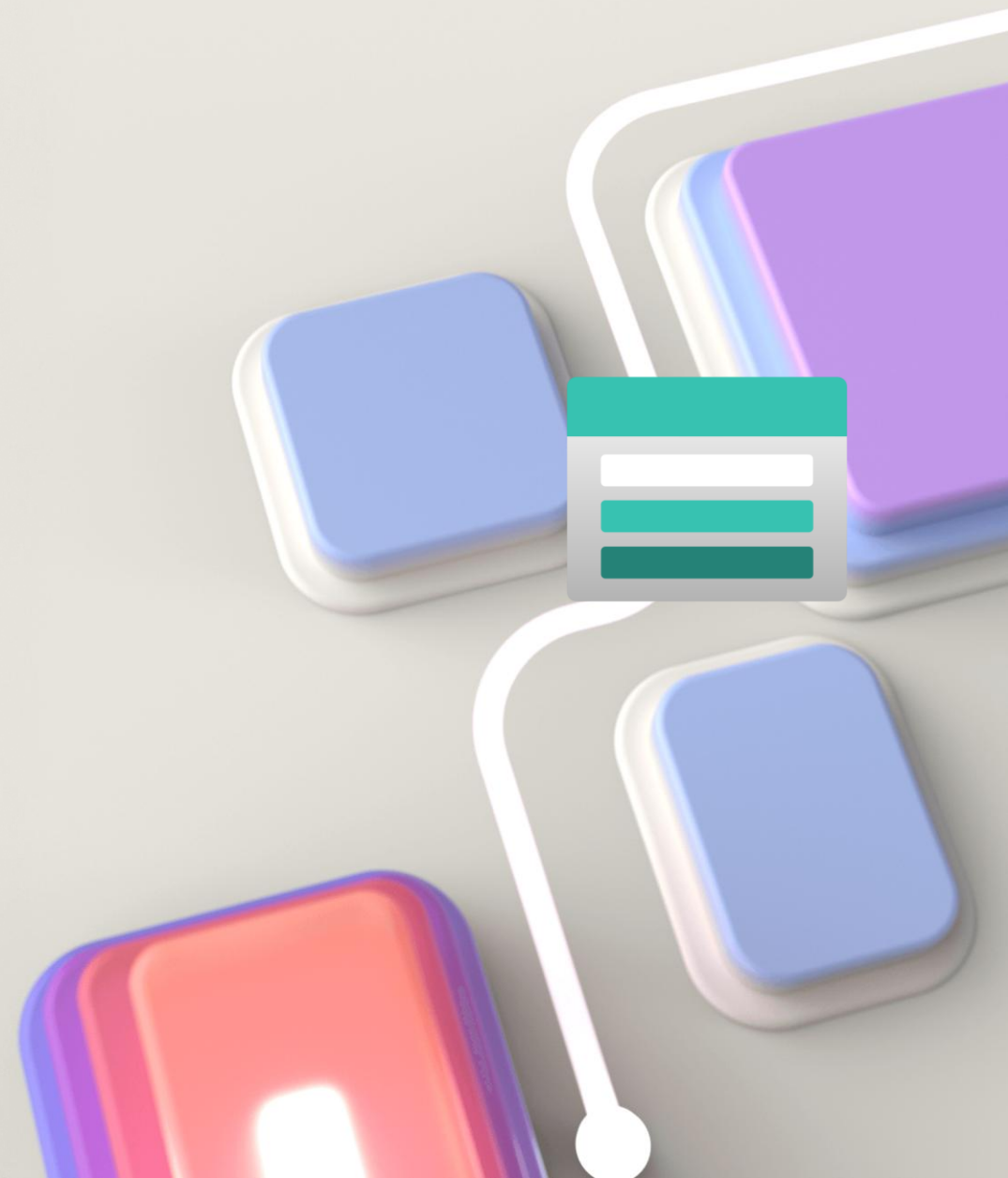
Policy 16:00
Recovery Service Vault
Backup Blob



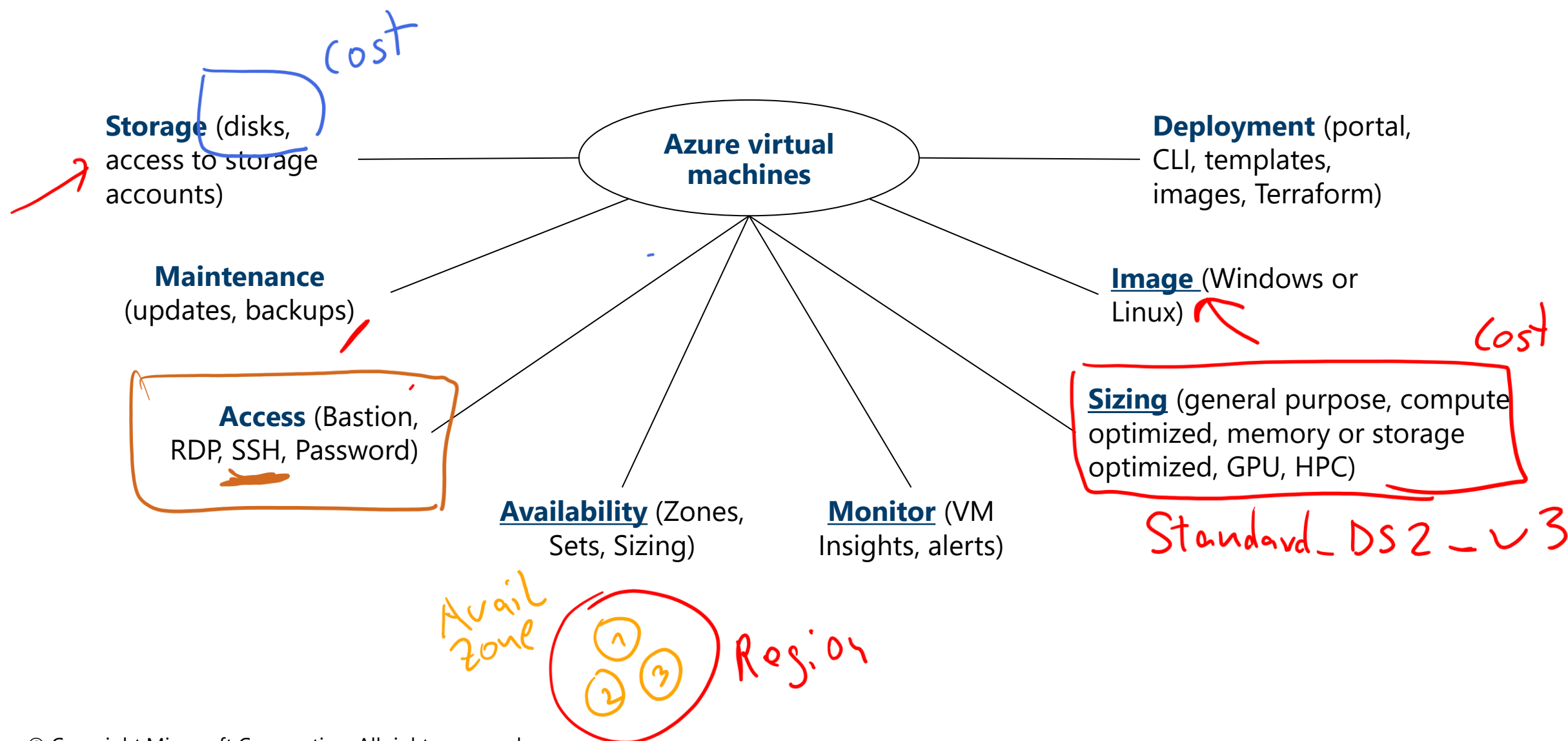
IBM
Hashicorp
Packer TF
Compute Gallery
Custom Image



Configure virtual machines



Plan for virtual machines



Supported Linux distributions

Marketplace

Packer
Custom Image


- Ubuntu
- CentOS (OpenLogic)
- Oracle Linux
- SUSE Linux Enterprise Server (SLES)
- OpenSUSE
- CoreOS
- Red Hat
- Debian GNU/Linux

LEARNING PATH

Linux on Azure

🕒 3 hr 20 min

Azure • Solution Architect • Beginner




MODULE

Customize a SUSE Linux Enterprise Server virtual machine on Azure

🕒 37 min

Azure • Administrator • Beginner




MODULE

Introduction to Red Hat on Azure

🕒 26 min

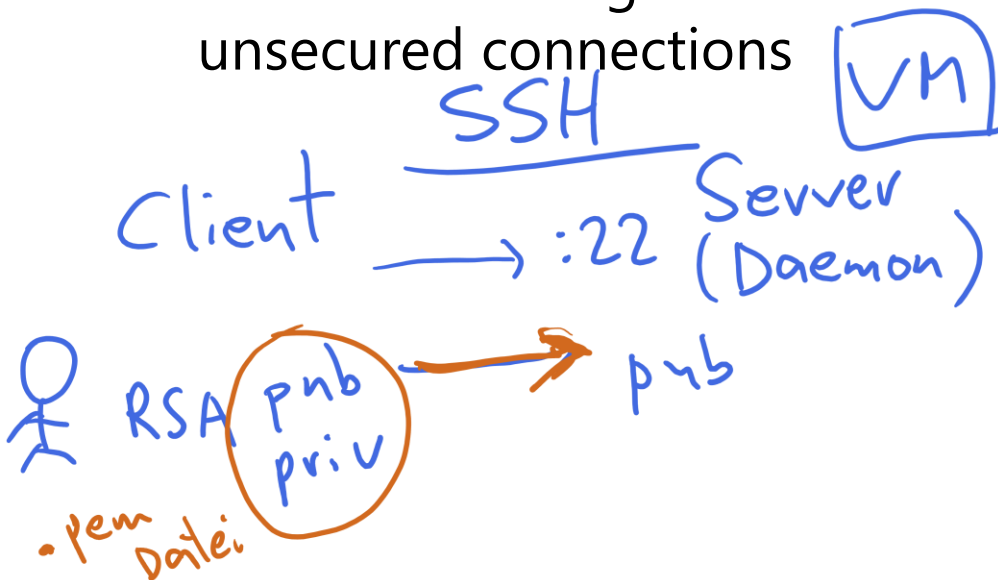
Azure • Developer • Beginner



Linux Virtual machines connections

Proto	Windows	Linux
	RDP yes :3389	SSH no, möglich :22
GUI		
Port		

- Authenticate with a SSH public key or Password
- SSH is an encrypted connection protocol that allows secure logins over unsecured connections



Administrator account

Authentication type ⓘ ☒ SSH public key ← RSA key pair
☐ Password

i Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username * ⓘ ✓

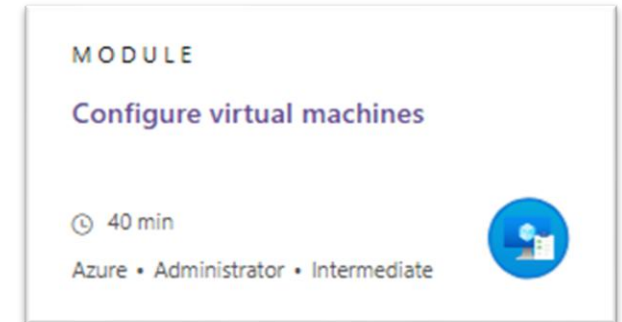
SSH public key source ▼

SSH Key Type
☒ RSA SSH Format
☐ Ed25519 SSH Format
i Ed25519 offers better performance and security with a smaller key size, while RSA is still widely used particularly for legacy systems and applications.

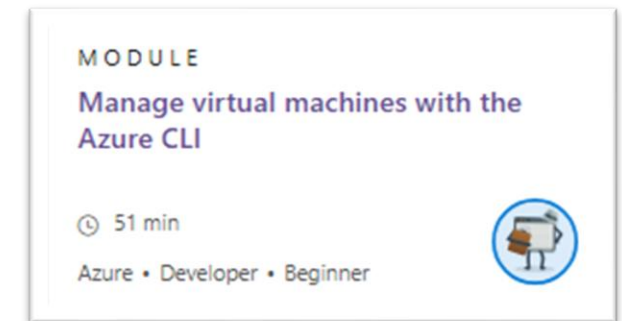
Key pair name *

Review and reference (Configure)

1. What are the different Linux distributions that Azure supports?
2. How would you select the virtual machine based on performance measures like CPU and memory?
3. What are the different ways you can connect to a Linux virtual machine?

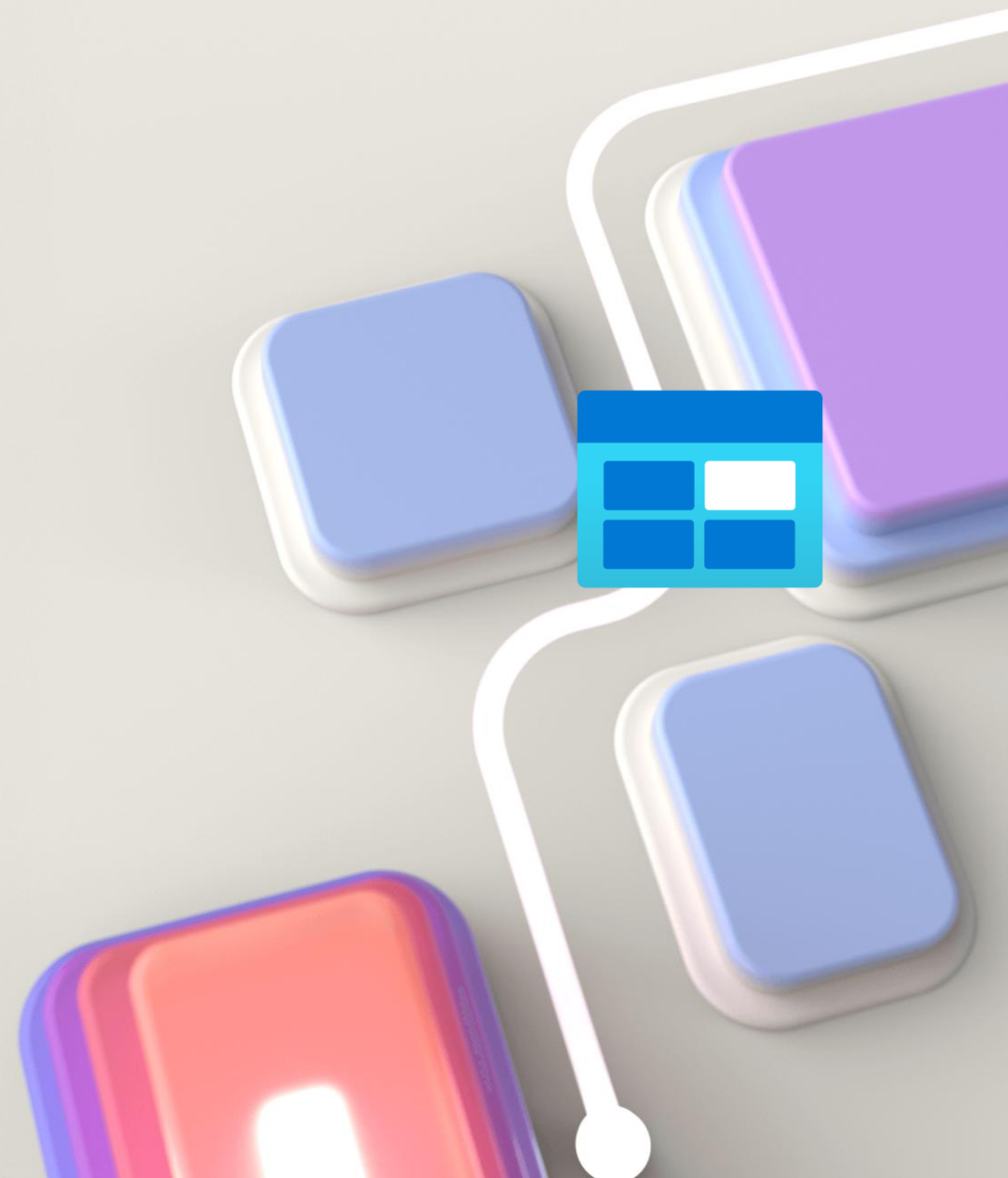


[Configure virtual machines](#)



[Manage virtual machines with the Azure CLI](#)

Monitor virtual machines



Azure Monitor Key Capabilities



Monitor & Visualize Metrics

Metrics are numerical values available from Azure Resources helping you understand the health, operation & performance of your systems.

Explore Metrics



Query & Analyze Logs

Logs are activity logs, diagnostic logs and telemetry from monitoring solutions; Analytics queries help with troubleshooting & visualizations.

Search Logs



Setup Alert & Actions

Alerts notify you of critical conditions and potentially take corrective automated actions based on triggers from metrics or logs.

Create Alert



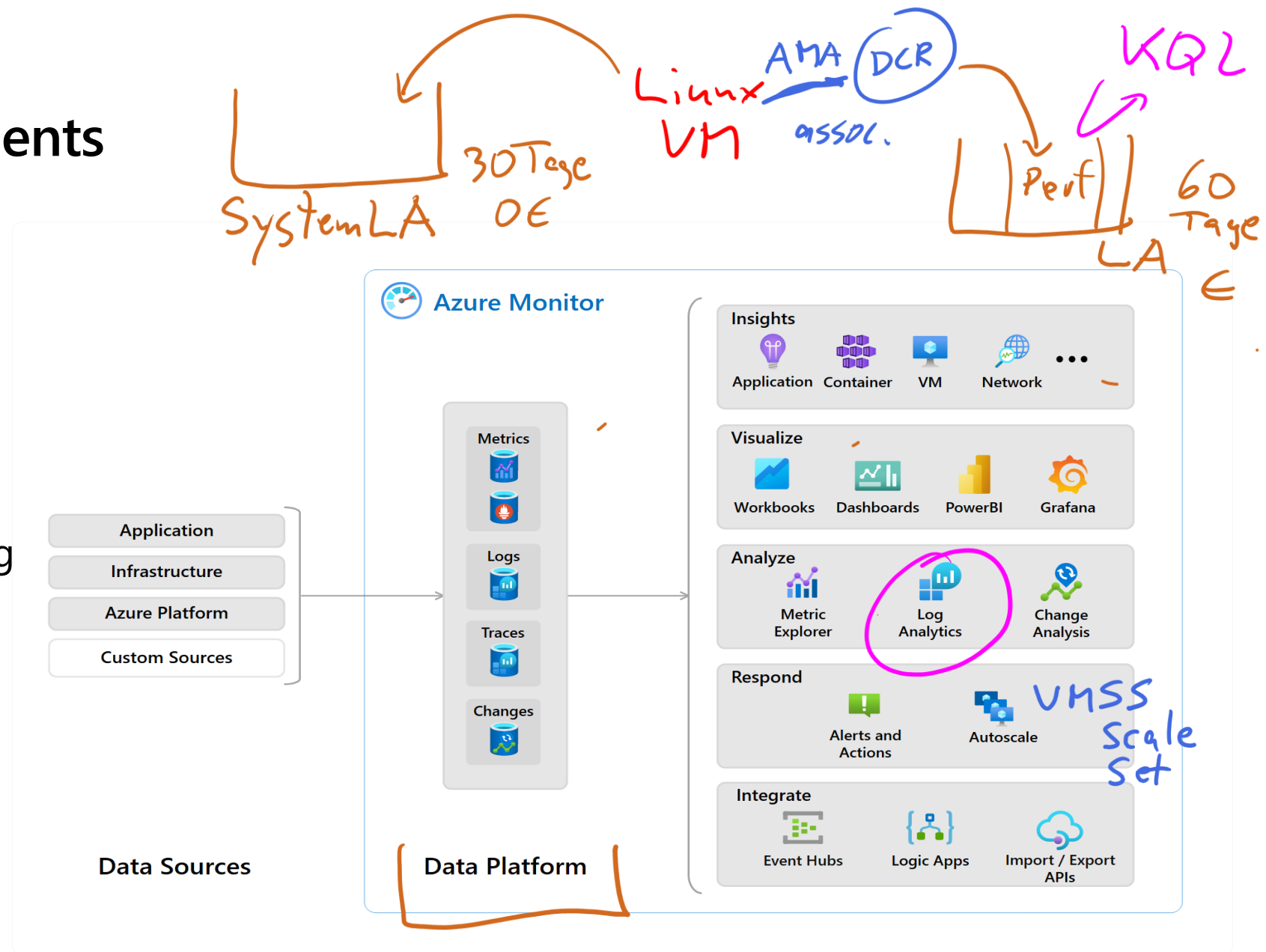
Core monitoring for
Azure services

Collects metrics, activity
logs, and diagnostic logs

Use for time critical alerts
- and notifications

Azure Monitor Components

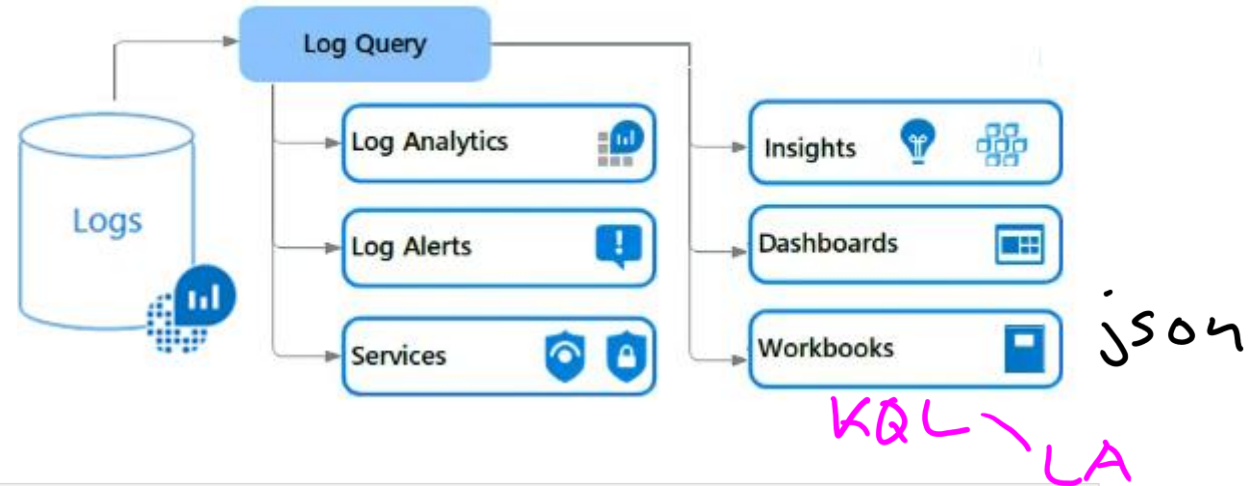
- Application monitoring data
- Guest OS monitoring
- Azure resource monitoring
- Azure subscription monitoring
- Azure tenant monitoring



Metrics and Logs



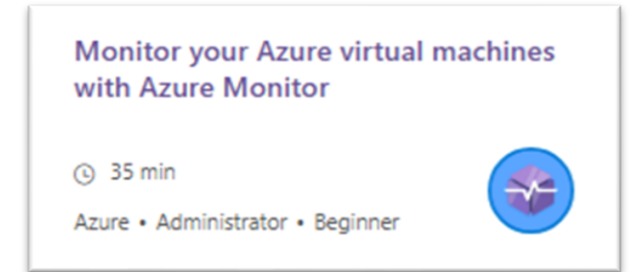
- Metrics are numerical values that describe some aspect of a system at a point in time
- They are lightweight and capable of supporting near real-time scenarios



- Logs contain different kinds of data organized into records with different sets of properties for each type
- Telemetry (events, traces) and performance data can be combined for analysis

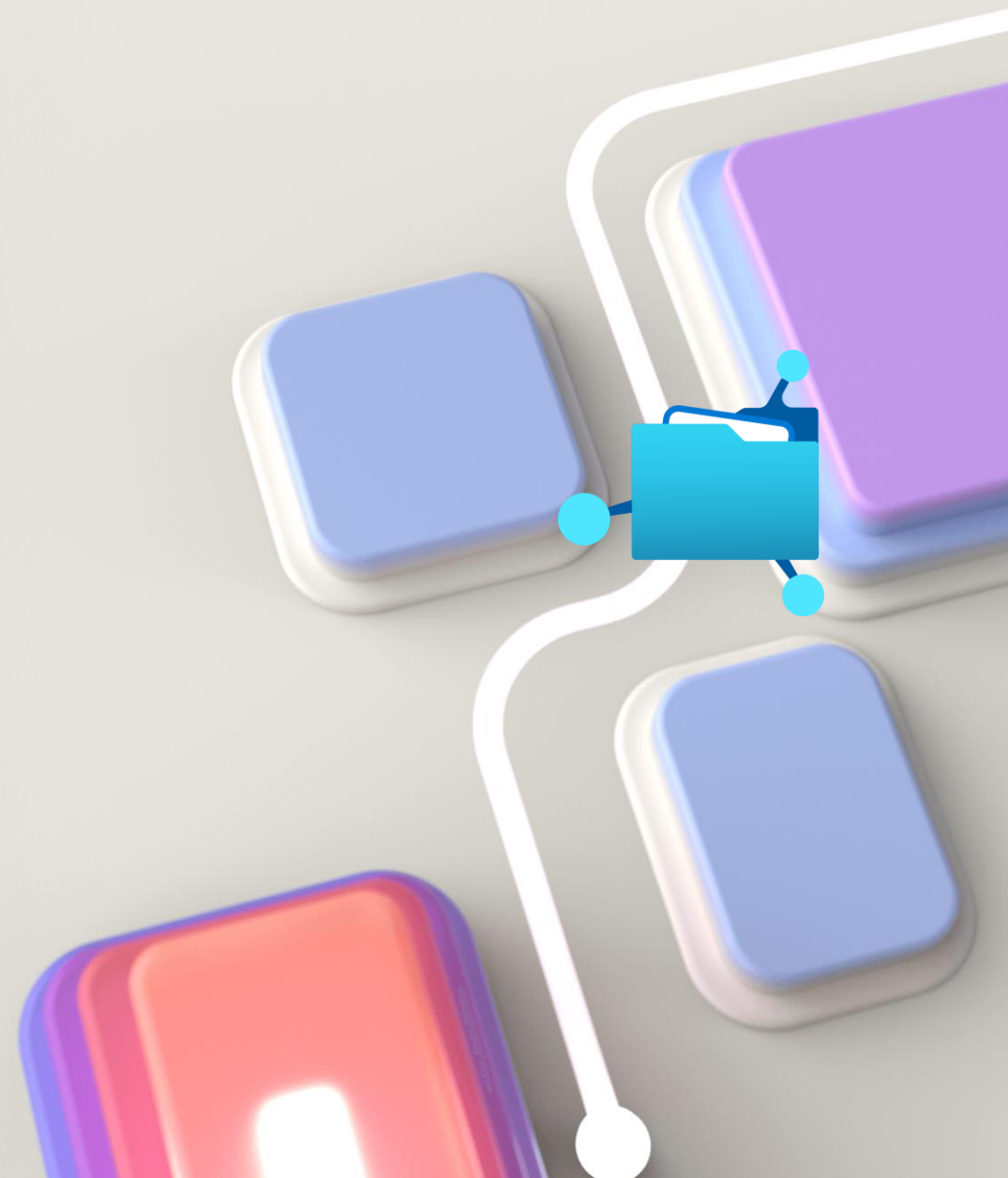
Review and Reference (Monitor)

1. What is the primary monitoring tool for virtual machine performance?
2. An alert can use data from which two sources?



[Monitor your Azure virtual machines with Azure Monitor](#)

Storage for virtual machines



Storage options for virtual machines

Feature	Description	Common Usage
Azure Disks	Data is persisted and accessed from an attached virtual hard disk.	<ul style="list-style-type: none">• Lift and shift applications.• Virtual machine only data.
Azure Files	Cloud file shares you can access from anywhere (SMB, kernel-mode SMB, NFS, REST API) or mount from cloud or on-premises (Windows, Linux, and macOS).	<ul style="list-style-type: none">• Replace or supplement on-premises file servers or NAS devices.• Share information across multiple locations or users.
Azure Blobs	Unstructured data storage at scale.	<ul style="list-style-type: none">• Serve images or documents directly to a browser• Store files for distributed access• Stream video and audio

Virtual machine disks

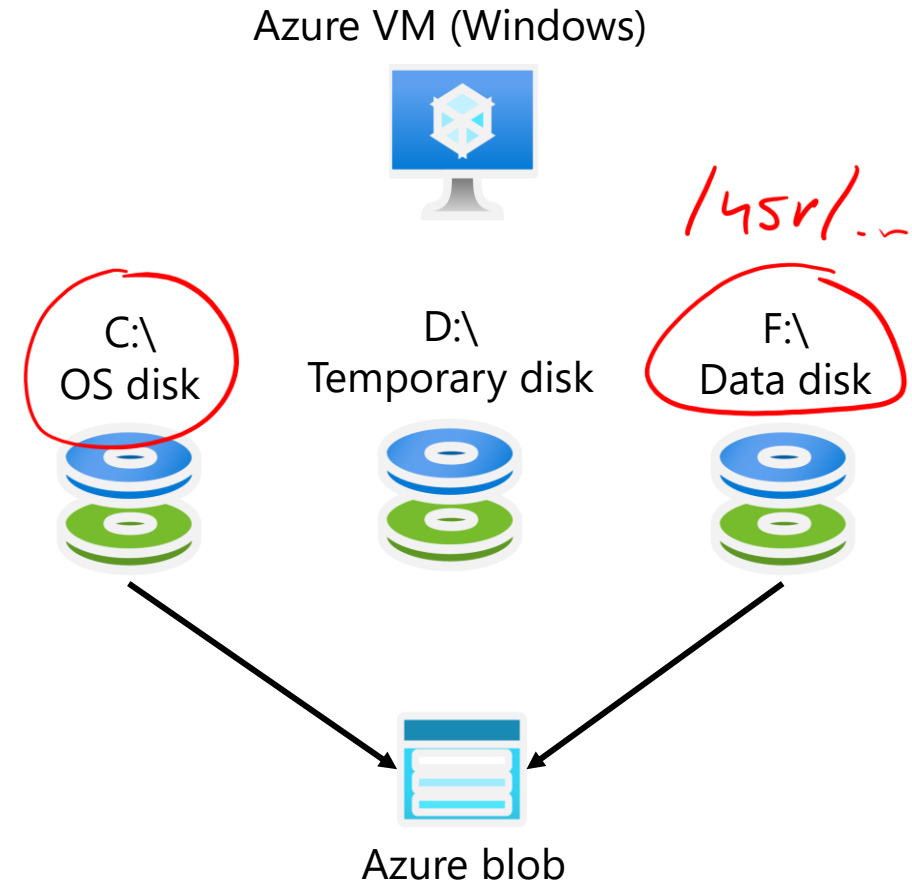
Azure VMs use managed disks

Each Azure VM has two or more disks:

- OS disk
- Temporary disk (not all SKUs have one, content can be lost)
- Data disks (optional)

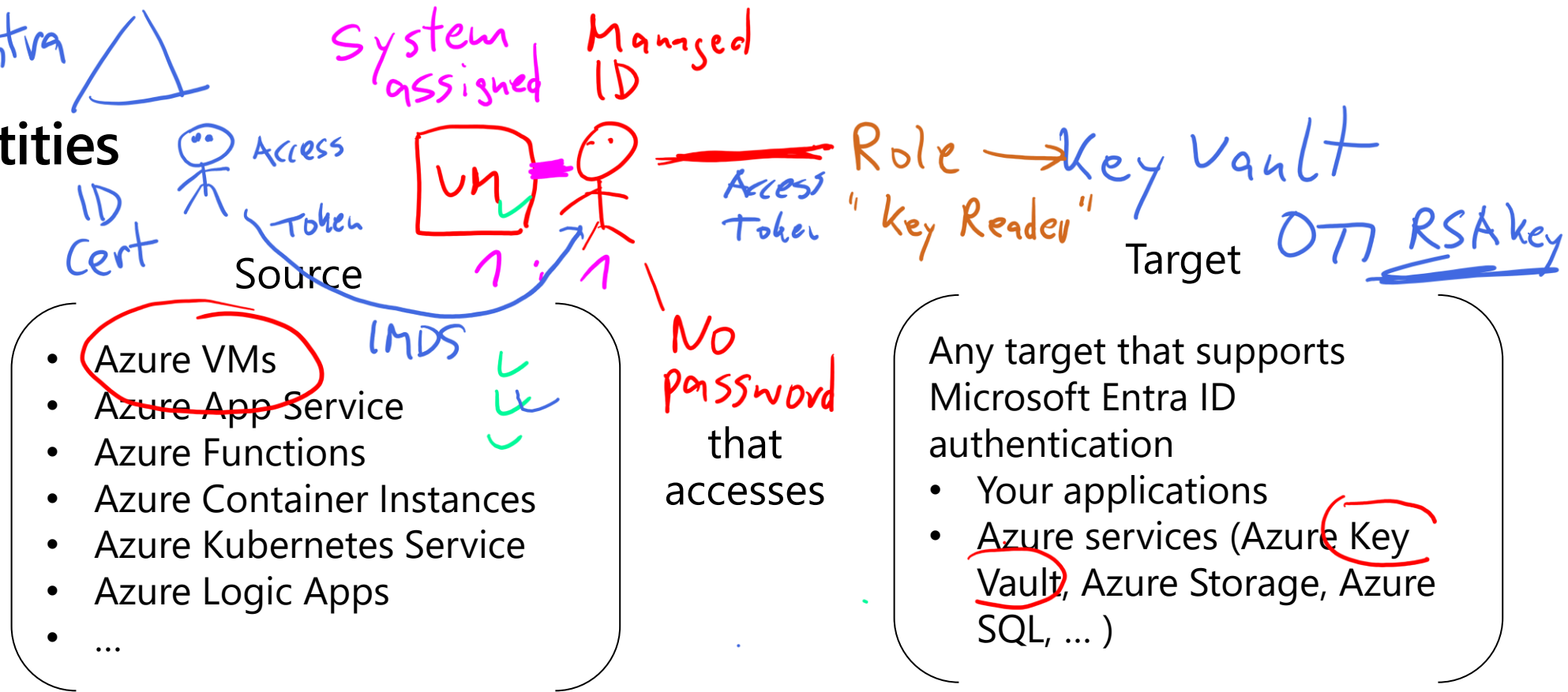
OS and data disks reside in Azure Storage accounts:

- Azure-based storage service
- Standard (HDD, SSD) or Premium (SSD), or Ultra (SSD)



Managed identities

I want to build an application using



- The source is an Azure resource
- The target supports Microsoft Entra ID authentication and Azure RBAC
- No credential rotation or certificate management

user assigned ID

Managed ID

N : 1

Role-based access control

- Only grant resources the access they need
- Assign at the highest scope level that meets the requirements
- Assign roles to groups, not users
- Know when to create a custom role
- Consider what happens if you have overlapping role assignments

Built-in Roles	Description
Storage Blob Data Owner	Allows for full access to blob containers
Storage Blob Data Contributor	Allows for read, write and delete access to blob containers and data
Storage Blob Data Reader	Allows for read access to blob containers and data

Review and Reference (Storage)

1. What Azure roles are provided for storage?
2. What are the steps to adding a data disk to a Linux virtual machine?
3. You are accessing Azure storage from a virtual machine, and it isn't working. What could be wrong?

MODULE

Configure Azure Files and Azure File Sync

🕒 36 min

Azure • Administrator • Intermediate



[Configure Azure Files and Azure File Sync](#)

MODULE

Copy and move blobs from one container or storage account to another using the AzCopy command

🕒 17 min

Azure • Administrator • Beginner



[Copy and move blobs using the AzCopy command](#)

MODULE

Implement access management for Azure resources

🕒 33 min

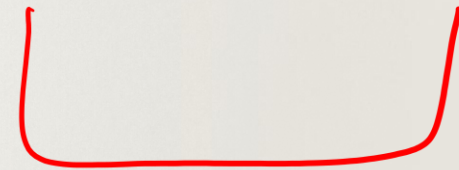
Azure • Administrator • Advanced



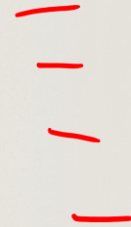
[Implement access manager for Azure resource](#)

Backup virtual machines

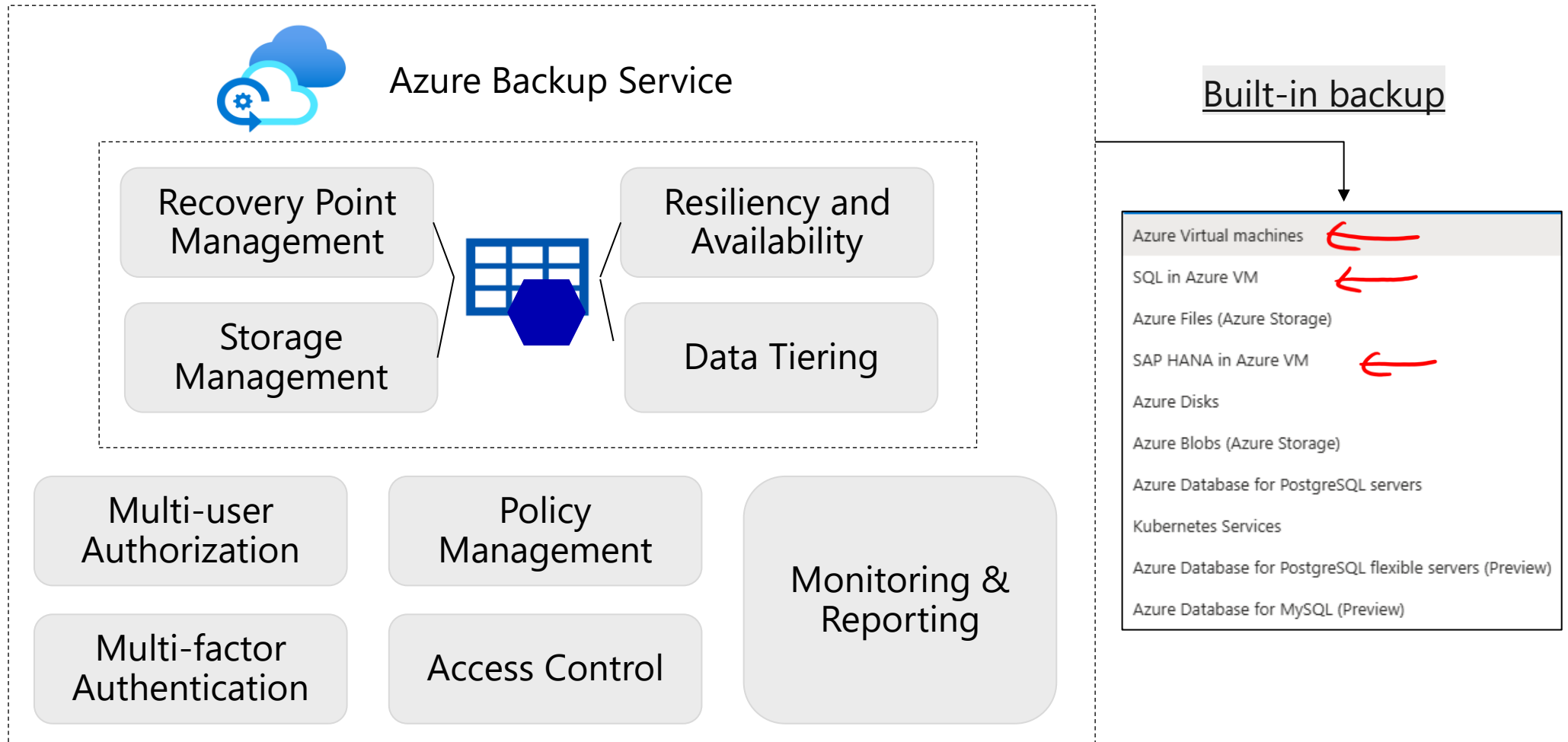
Recovery Service Vault



Policies

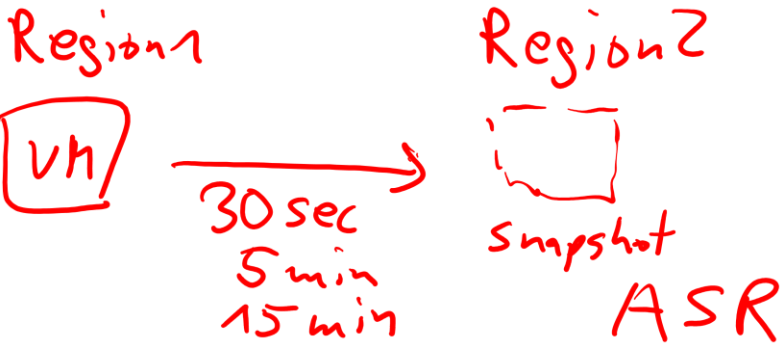
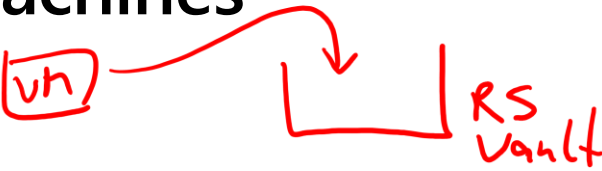


What is Azure Backup?



Options to protect virtual machines

Volume Shadow Copy



Snapshots

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

Azure Backup

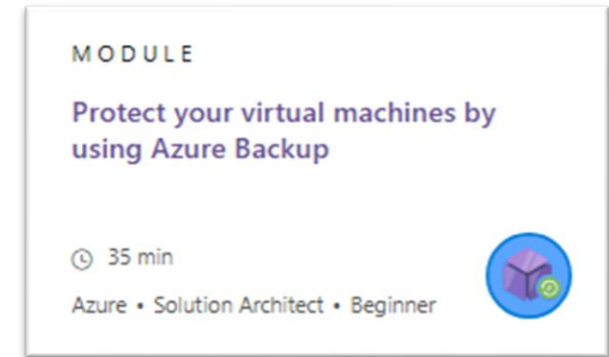
Azure Backup supports application-consistent backups for both Windows and Linux VMs

Azure Site Recovery

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

Review and Reference (Backup)

1. What product scenarios are supported by the Azure Backup Center?
2. What configuration settings are included in a backup and retention policy?



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

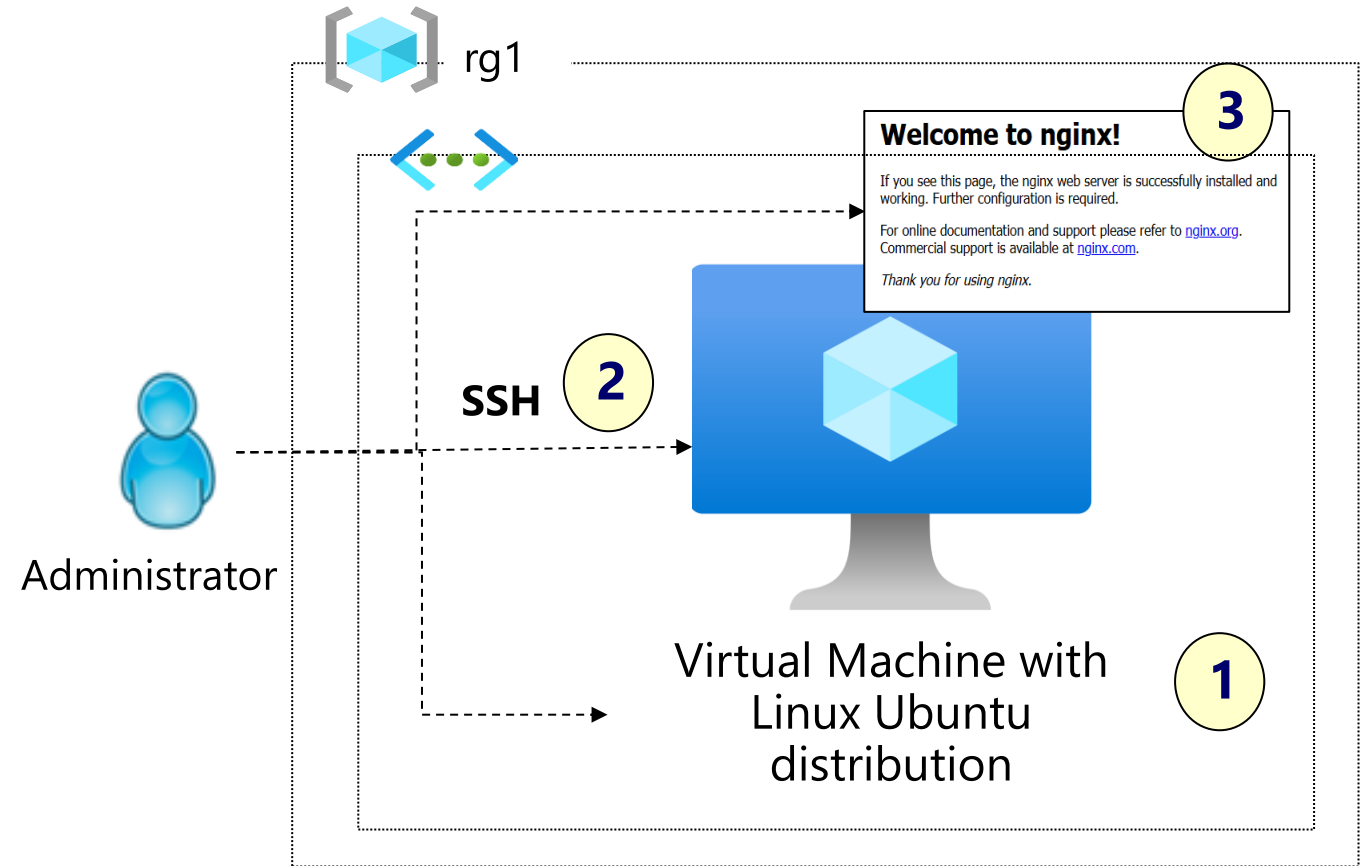
Labs



Exercise 01: Configure virtual machines

Job Skills:

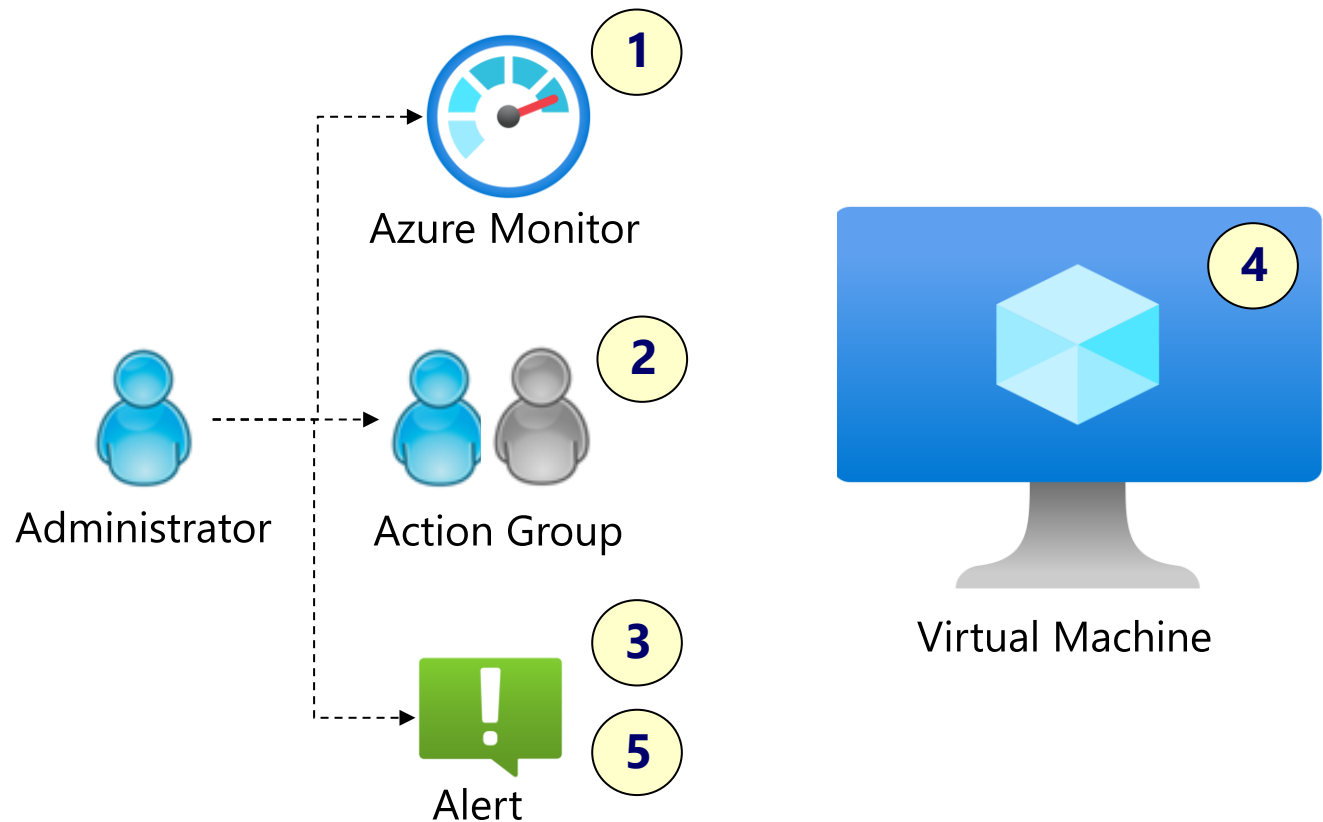
1. Create a virtual machine (portal) with Linux distribution (Ubuntu).
2. Use SSH to connect the virtual machine and install OS updates.
3. Install a web server (Nginx) and test to ensure it is responding.



Exercise 02: Monitor virtual machines

Job Skills:

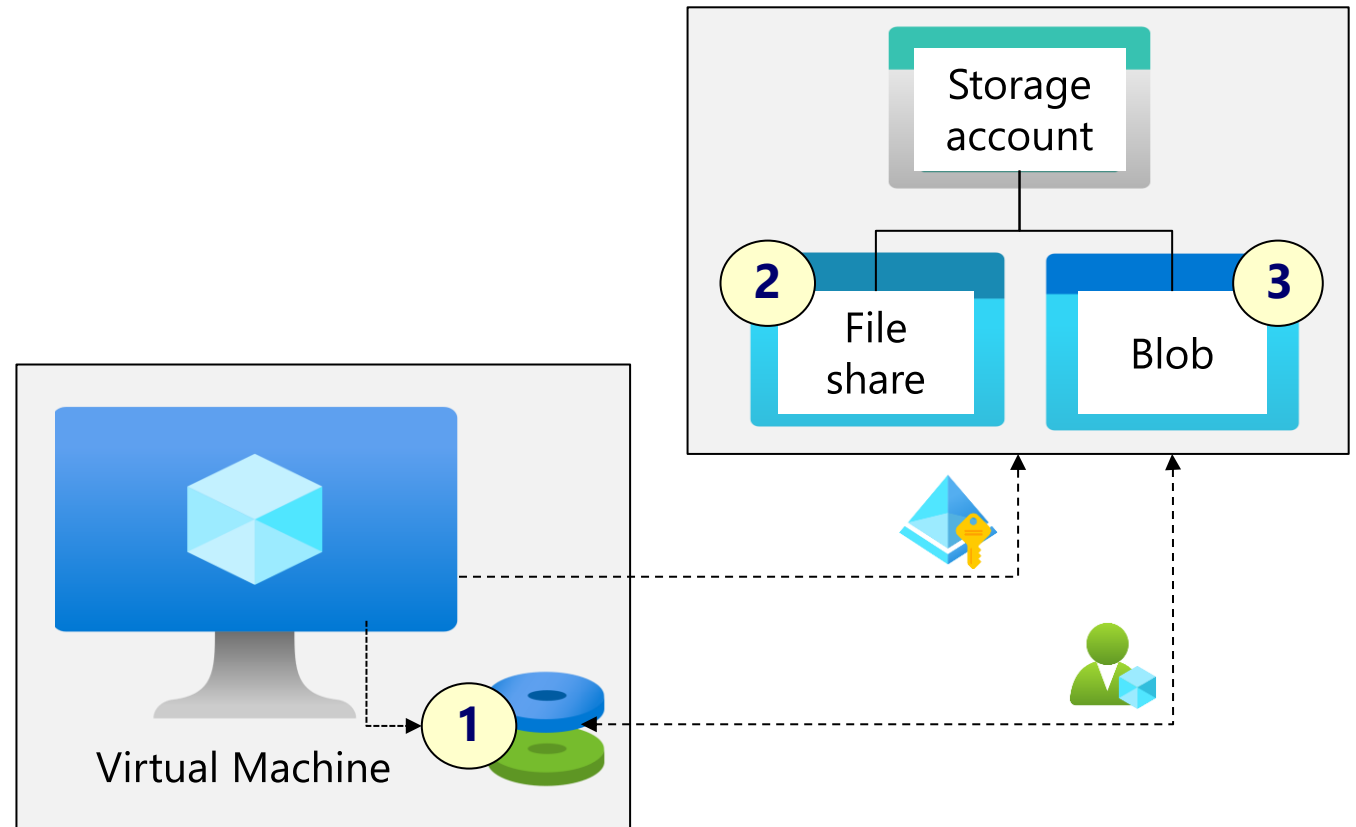
1. Configure VM Insights
2. Create action groups and notifications
3. Create and configure alerts
4. Trigger an alert by resizing a virtual machine
5. Configure an alert processing rule for maintenance times (optional)



Exercise 03: Storage for virtual machines

Job Skills:

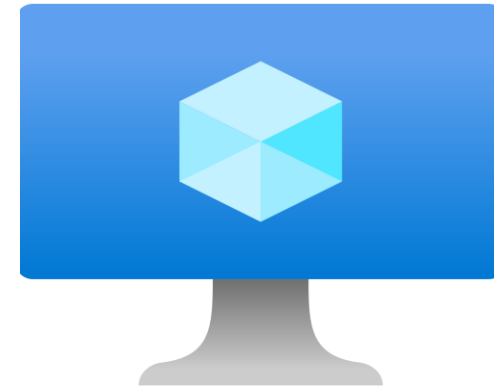
1. Create a virtual machine and add a data disk (CLI).
2. Access an Azure file share from the virtual machine.
3. Copy a file from Azure blob storage to the virtual machine data disk.



Exercise 04: Backup virtual machines

Job Skills:

1. Create and configure a Recovery Services vault.
2. Configure an Azure virtual machine-level backup policy.
3. Monitor Azure Backup.
4. Connect to a virtual machine with a user and password (optional).



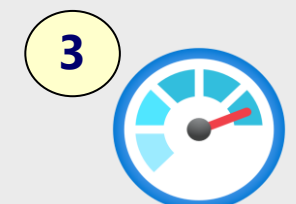
Virtual Machine



Recovery
Service Vault



Azure Backup



Azure Monitor

End of presentation

