

AZ-900 Topics

1. Cloud Concepts

(AZ-900 Section: Describe cloud concepts)

- ✓ Day 1 – Cloud basics, benefits, shared responsibility
- ✓ Day 2 – IaaS/PaaS/SaaS, public/private/hybrid

2. Core Azure Services

(AZ-900 Section: Describe core Azure services)

- ✓ Day 3 – Regions, zones, resource groups
- ✓ Day 4 – Compute services (VMs, App Service, Functions, AKS)
- ✓ Day 5 – Storage services + redundancy (LRS, ZRS, GRS)
- ✓ Day 6 – Networking (VNet, VPN, ExpressRoute, LB, App Gateway)

3. Security, Privacy, Compliance, Trust

(AZ-900 Section: Describe security and identity features)

- ✓ Day 7 – Azure AD, RBAC, Key Vault, Defender for Cloud, Zero Trust, Policy

4. Azure Pricing & Support

(AZ-900 Section: Describe cost management and SLAs)

- ✓ Day 8 – Cost tools, optimization, SLAs, service lifecycles, support plans

5. Practice & Revision

- ✓ Day 9 – Full practice exams
- ✓ Day 10 – Final revision + weak areas review

Day 1 – Cloud Basics, Benefits, Shared Responsibility

1. What is Cloud Computing?

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

Key Points:

- Users can access services **on-demand**, without managing physical hardware.
- No upfront investment in hardware (reduces **CAPEX**, increases **OPEX** flexibility).
- Pay-as-you-go model: only pay for what you use.

Example:

Instead of buying a server for a website, you can deploy it on **Azure App Service** and pay for the resources you consume.

Cloud vs On-Premises:

Feature	On-Premises	Cloud
Hardware Ownership	Own everything	Provider owns
Upfront Cost	High (CAPEX)	Low (OPEX)
Scalability	Limited	Instant/Elastic
Maintenance	Customer responsibility	Provider handles most

2. Cloud Service Models

Cloud services are divided into three main categories:

A. Infrastructure as a Service (IaaS)

- Provides virtualized computing resources over the internet.
- You manage: OS, applications, data.
- Provider manages: hardware, storage, network.
Example: Azure Virtual Machines (VMs)

Pros:

- Flexible, scalable
- Full control over OS and apps

Cons:

- You manage updates, patches, and security of OS
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B. Platform as a Service (PaaS)

- Provides a runtime environment, databases, and platform for application development.
- You manage: applications and data
- Provider manages: OS, runtime, infrastructure
- **Example:** Azure App Service, Azure SQL Database

Pros:

- Less maintenance
- Quick deployment

Cons:

- Less control than IaaS
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C. Software as a Service (SaaS)

- Fully managed software, accessed over the internet.
- The provider manages everything; you just use the app.
- **Example:** Microsoft 365, Teams, Outlook

Pros:

- No infrastructure to manage
- Accessible from anywhere

Cons:

- Limited customization
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D. Comparison Table

Feature	IaaS	PaaS	SaaS
Infrastructure	Provided	Provided	Provided
OS	Customer	Provider	Provider
Applications	Customer	Customer	Provided
Maintenance	High	Medium	Low
Examples	VM, Storage	App Service, SQL DB	Office 365, Teams

3. Cloud Deployment Models

A. Public Cloud

- Services hosted by third-party providers, shared among multiple organizations.
- **Example:** Microsoft Azure, AWS, Google Cloud

B. Private Cloud

- Services hosted **exclusively** for one organization.
- Can be on-premises or in a provider's dedicated data center.

C. Hybrid Cloud

- Combination of public and private cloud resources.
- Used for flexibility, compliance, or workload balancing.
- **Example:** On-premises SQL Server + Azure Backup

D. Multi-Cloud

- Using more than one cloud provider to avoid vendor lock-in.
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4. Benefits of Cloud Computing

1. Cost Efficiency:

- Pay only for what you use
- No upfront hardware cost

2. Scalability & Elasticity:

- Scale resources up/down automatically (e.g., Azure VM Scale Sets)

3. Global Reach:

- Deploy apps in regions worldwide
- Reduces latency for users

4. High Availability & Reliability:

- Redundant data centers, SLAs guarantee uptime
- Example: Azure Availability Zones

5. Agility & Speed:

- Quickly deploy new apps/services

6. Security & Compliance:

- Cloud providers invest heavily in security, certifications (ISO, GDPR, HIPAA)

7. Innovation:

- Access to AI, ML, analytics, and other advanced services

5. Shared Responsibility Model

Definition:

Shared responsibility defines what the cloud provider manages and what the customer is responsible for.

Responsibility Table

Responsibility	IaaS	PaaS	SaaS
Physical infrastructure	Provider	Provider	Provider
Network & data center security	Provider	Provider	Provider
OS & patching	Customer	Provider	Provider
Applications	Customer	Customer	Provider
Data & access management	Customer	Customer	Customer

Key Notes:

- In **IaaS**, you manage more (OS, apps).
 - In **PaaS**, the provider handles OS & platform; you focus on apps & data.
In **SaaS**, the provider handles everything; you just use the software.
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