



AZ-900 Domain 1: Cloud Concepts

AZ-900 skills measured 2026-07-20, 'Describe cloud concepts' (25-30 %) | Cloud computing, shared responsibility, public / private / hybrid, consumption model and pricing models, serverless, benefits of the cloud, IaaS / PaaS / SaaS

AZ-900 Domain 1 25-30 %

Cloud computing and who is responsible

DEFINITION

Cloud computing = renting compute, storage, networking and higher-level services over the internet, provisioned in minutes and **billed by consumption**. You trade owning datacenters for paying a provider that runs them at scale.

	On-premises	IaaS	PaaS	SaaS
Information and data	Customer	Customer	Customer	Customer
Devices (mobile and PCs)	Customer	Customer	Customer	Customer
Accounts and identities	Customer	Customer	Customer	Customer
Identity and directory infrastructure	Customer	Customer	Shared	Shared
Applications	Customer	Customer	Shared	Microsoft
Network controls	Customer	Customer	Shared	Microsoft
Operating system	Customer	Customer	Microsoft	Microsoft
Physical hosts	Customer	Microsoft	Microsoft	Microsoft
Physical network	Customer	Microsoft	Microsoft	Microsoft
Physical datacenter	Customer	Microsoft	Microsoft	Microsoft

Legend: Customer (blue), Shared (green), Microsoft (orange), responsibility shifts (thick black line)

EXAM TIP

Always the customer, whatever the model: **information and data, devices, accounts and identities**. Always Microsoft in the cloud: **physical hosts, network and datacenter**. The OS moves to Microsoft at PaaS; applications and network controls move at SaaS.

Cloud models

Model	What it is	Pros	Cons	Use case
Public	provider-owned, shared by tenants	no CapEx, fast, massive scale, pay per use	less control of hardware, data residency to check	new apps, variable demand, startups
Private	dedicated to one organisation	full control, specific compliance	CapEx, you run and scale it	strict regulation, legacy constraints
Hybrid	public + private connected	keep sensitive data on premises, burst to cloud	complexity, networking, skills	datacenter extension, gradual migration, DR to cloud
Multicloud	several public providers	best service per provider, no single dependency	skills, tooling, governance spread	mergers, specific services, regulatory exit plans

- **Azure Arc** manages servers, Kubernetes and SQL across on-premises and other clouds from Azure (hybrid and multicloud)
- **Azure VMware Solution** runs VMware workloads in Azure for a hybrid move without re-platforming
- **Azure Local** Azure-managed infrastructure in your datacenter (private side of hybrid)

Consumption, pricing models and serverless

CapEx (own datacenter)	vs	OpEx (cloud consumption)
up front, then depreciate	When you pay	monthly for what you used ✓
buy for the peak, idle most of the time	Capacity	scale to demand, stop paying when idle ✓
weeks to order hardware	Speed	minutes to provision ✓
✓ fixed and known	Cost predictability	varies with use (budgets help)
✓ full	Control of hardware	provider decides

Pricing model	How you pay	Best for
Pay-as-you-go	per second / hour / GB / transaction, no commitment	variable or new workloads
Reservations (1 or 3 years)	commit to a specific resource type and region for a discount	steady VMs, SQL, Cosmos DB, storage capacity
Savings plan for compute	commit to an hourly spend for 1 or 3 years across compute services and regions	steady but changing compute mix
Spot	spare capacity at a deep discount, can be evicted	batch, dev/test, interruptible jobs
Azure Hybrid Benefit	reuse Windows Server and SQL Server licences with Software Assurance	existing Microsoft licences
Free services and free account	always-free quotas, 12 months of selected services, credit for 30 days	learning, prototypes

☰ Serverless

You deploy code or workflows; Azure provisions, scales (to zero) and patches the servers, and bills **per execution or use**. Examples: **Azure Functions** (code on events), **Logic Apps** (workflows), Container Apps (serverless containers). Not 'no servers': servers you never see or pay for idle.

Three-year cost: buy servers or consume?

PROBLEM
A seasonal web shop needs 20 servers for 2 months a year and 4 servers otherwise. Compare buying for the peak with paying per use.

1. On-premises CapEx
⇒ $20 \times 6,000 = 120,000$ EUR
why: must own the peak capacity

2. On-premises running
⇒ $120,000 \times 0.25 \times 3 = 90,000$ EUR → total 210,000 EUR
why: power, cooling, space, support

3. Cloud peak months
⇒ $20 \times 730 \times 6 \times 0.25 = 21,900$ EUR
why: pay for 20 servers only 6 months in 3 years

4. Cloud normal months
⇒ $4 \times 730 \times 30 \times 0.25 = 21,900$ EUR → total 43,800 EUR
why: 4 servers for the other 30 months

GIVEN

- Buy: 20 servers × 6,000 EUR purchase + 25 % per year for power, space and support (illustrative)
- Cloud: 0.25 EUR per server-hour pay-as-you-go (illustrative)
- Hours: 730 per month; 3 years = 36 months, of which 6 are peak months

ANSWER
≈ 43,800 EUR in the cloud vs ≈ 210,000 EUR owned: elasticity pays when demand is spiky.

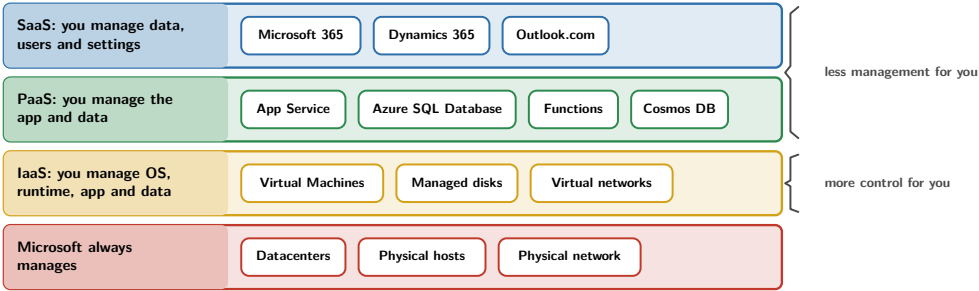
Check: For a flat 24/7 load the gap shrinks; reservations or savings plans then cut the cloud price further.

⚙️ Benefits of the cloud and service types

Benefit (exam term)	Meaning	Azure example
High availability	service stays up, measured by SLA	VMs in availability zones 99.99 %
Scalability	add resources for demand: vertical (scale up) or horizontal (scale out)	resize a VM; add Scale Set instances
Elasticity	automatic scale out and in	App Service autoscale rules

Reliability	recover from failures, decentralised design	region pairs, geo-redundant storage
Predictability (performance)	consistent experience under load	autoscale, load balancing
Predictability (cost)	forecast and track spend	pricing calculator, Cost Management, budgets and forecasts
Security	provider patches the platform, you choose controls	Defender for Cloud, PaaS patching
Governance	standards and compliance enforced	Azure Policy, templates, audit
Manageability of the cloud	manage resources by portal, CLI, APIs, templates, automatic scaling	ARM, Bicep
Manageability in the cloud	monitor and get alerts on resources	Azure Monitor alerts

IaaS, PaaS and SaaS: what you still manage (top layers)



Scenario	Model	Why
Lift-and-shift an app needing a custom OS configuration	IaaS	you keep OS control
Test and development environments created and destroyed often	IaaS or PaaS	fast to provision, pay only while used
Developers build a web API without managing servers	PaaS	no OS patching, built-in scaling
E-mail and office productivity for all staff	SaaS	nothing to install or run
Storage, backup and recovery in the cloud	IaaS	pay-per-use storage

Recap and self-test

YOU MAY HEAR

"In SaaS the provider is responsible for my data"

BUSTED

✓ ACTUALLY

Data, devices and identities stay yours in every model

Microsoft secures the platform; you classify, protect and govern your data.

YOU MAY HEAR

"Elasticity and scalability are the same"

BUSTED

✓ ACTUALLY

Elasticity is automatic scaling with demand

Scalability is the ability to scale, manually or automatically.

YOU MAY HEAR

"Serverless means there are no servers"

BUSTED

✓ ACTUALLY

Servers exist but the provider manages them

You pay per execution and never manage the OS.

YOU MAY HEAR

"Hybrid cloud means using two public clouds"

BUSTED

✓ ACTUALLY

Hybrid mixes public and private

Two public clouds is multicloud.

Key takeaways

01 Shared responsibility shifts with the model
data, devices, identities always yours

02 Public, private, hybrid, multicloud
control vs agility trade-off

03 Consumption = OpEx
pay-as-you-go, reservations, savings plan, Spot, Hybrid Benefit

04 Scale up vs out; elasticity is automatic

05 IaaS control, PaaS productivity, SaaS ready to use

Q1 Which responsibilities stay with the customer in all cloud models?

A Information and data, devices, accounts and identities.

Q2 At which model does the operating system become Microsoft's responsibility?

A PaaS.

Q3 Adding more VMs to a pool is scaling ____?

A Out (horizontal); a bigger VM is scaling up (vertical).

Q4 Which expenditure type matches the cloud consumption model?

A OpEx (operational expenditure).

Q5 Public + on-premises private cloud connected?

A Hybrid cloud.

Q6 Which pricing option suits interruptible batch jobs?

A Spot VMs (evictable, deeply discounted).

Q7 Reuse on-premises Windows Server licences in Azure?

A Azure Hybrid Benefit (with Software Assurance or eligible subscriptions).

Q8 Example of SaaS from Microsoft?

A Microsoft 365 (Exchange Online, Teams, SharePoint).

Q9 Which tools help predict cost?

A Pricing calculator, Cost Management with budgets and forecasts, Azure Advisor cost recommendations.