



PREPKLOUD FIELD GUIDE SERIES

Azure Fundamentals The Complete AZ-900 Field Guide

A visual, exam-ready walkthrough of cloud concepts, Azure architecture, security, governance, and pricing — built from real AZ-900 exam patterns.

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About this book

Azure Fundamentals: The Complete AZ-900 Field Guide is published by PrepKloud, an independent cloud-certification preparation platform. This guide maps directly to the four graded domains of the Microsoft AZ-900 exam skills outline: Cloud Concepts, Azure Architecture and Services, Azure Management and Governance, and Azure Pricing and Support.

Every chapter pairs plain-English explanations with an original diagram, exam-focused callouts, and practice questions. It is written for absolute beginners — no prior Azure or IT infrastructure experience is assumed.

How to use this book: Read chapters in order the first time through. Use the glossary and cheat sheet in the appendix for last-minute review. Attempt every practice question before checking the answer.

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How This Book Is Organized

Welcome to your AZ-900 study journey. The Microsoft Certified: Azure Fundamentals exam is designed for people who are new to cloud computing and new to Azure. It does not require hands-on Azure experience, scripting skills, or prior IT infrastructure knowledge — which is exactly why it is the most popular entry point into the Microsoft cloud certification track.

This guide is organized around the four skill domains that Microsoft uses to build and weight the real exam:

Domain	Approx. Weight	Chapters
Describe cloud concepts	25–30%	2–4
Describe Azure architecture and services	35–40%	5–10
Describe Azure management and governance	30–35%	11–13
Describe Azure pricing, SLA, and support	included above	14–15

 **Study tip:** Domain weightings shift slightly with each exam refresh. Treat the percentages above as a study-priority guide, not an exact contract — the practice questions in Chapter 16 sample all domains proportionally.

Each chapter follows the same structure so you always know what to expect:

- **Plain-English explanation** of the concept, written for someone who has never touched a cloud console.

- **One original diagram** that you should be able to redraw from memory before test day.
- **Exam-focus callouts** marking the specific phrasing Microsoft tends to test.
- **Exam-trap callouts** marking the most common wrong-answer patterns.
- **An end-of-chapter checklist** you can use for spaced-repetition review.

 **Exam focus:** AZ-900 questions are almost always scenario-based ("A company needs X — which service should they use?") rather than pure definition recall. As you read, practice translating each concept into a one-sentence "when would I use this" statement.

Why this exam matters

AZ-900 is a prerequisite of confidence, not of paperwork — no other Microsoft certification requires you to hold it first. But it is by far the most common recommended starting point because it establishes a shared vocabulary (region, subscription, SLA, RBAC, PaaS) that every subsequent role-based certification — Azure Administrator, Developer, Security Engineer, Solutions Architect — assumes you already know. Skipping it and jumping straight into a harder exam is possible, but most candidates find they spend the first few hours of any advanced course re-learning exactly what this book covers.

 **Study tip:** If you already work in IT but have never touched Azure specifically, resist the urge to skim this book. AZ-900 intentionally tests Azure-specific terminology (e.g.,

"resource group," "management group") that does not map one-to-one onto AWS or Google Cloud vocabulary, even when the underlying concept is similar.

Suggested study plan

Week	Focus
1	Chapters 2–4: cloud concepts, service models, deployment models
2	Chapters 5–7: global infrastructure, core components, compute
3	Chapters 8–10: networking, storage, databases
4	Chapters 11–13: identity, governance, monitoring
5	Chapters 14–15: pricing, SLA, support plans
6	Chapter 16: full practice question set, twice, spaced two days apart

 **Exam focus:** This book also includes a full six-week, day-by-day study planner with a printable tracker in the appendix (Chapter 19) if you prefer a more structured, checkbox-driven pace rather than a loose weekly outline.

Chapter 1 checklist

- ☐ I understand the four exam domains and their approximate weight.
- ☐ I have a six-week (or compressed) study schedule mapped to this book.
- ☐ I know this exam is scenario-based, not pure trivia recall.

What Is Cloud Computing?

Cloud computing is the delivery of computing services — servers, storage, databases, networking, software, analytics, and intelligence — over the internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Microsoft Azure.

2.1 CapEx vs. OpEx

One of the most heavily tested concepts in this chapter is the shift from **capital expenditure (CapEx)** to **operational expenditure (OpEx)**.

Capital Expenditure (CapEx)	Operational Expenditure (OpEx)
Upfront spending on physical infrastructure	Spending on services, billed as you use them
Has a value that reduces over time (depreciation)	No long-term value — you pay for what you consume
Requires estimating capacity in advance (often over-provisioning "just in case")	Scales up or down to match actual demand
Ties up cash in owned assets	Frees cash for other business investment

 **Exam focus:** If a question describes a company wanting to "avoid large upfront costs" or "pay only for what they use," the expected answer keyword is **OpEx** and the cloud's **consumption-based model**.

2.2 The economics and benefits of cloud computing

Microsoft groups the benefits of cloud computing into six themes that show up repeatedly on the exam:

- **High availability** — the ability of a system to remain operational and accessible with minimal downtime, often expressed as an SLA percentage such as 99.9%.
- **Scalability** — the ability to increase or decrease resources to meet demand, either by adding more instances (scale-out) or by making an existing instance bigger (scale-up).
- **Elasticity** — the ability to automatically or dynamically scale resources to match real-time demand, then scale back down when demand drops.
- **Agility** — the ability to react quickly, deploying resources in minutes rather than weeks or months.
- **Fault tolerance** — the ability of a system to remain up even if some of its components fail, typically achieved through redundancy.
- **Disaster recovery** — the ability to restore business operations after a disruptive event, often measured by RTO (Recovery Time Objective) and RPO (Recovery Point Objective).



Figure 2.1 — Four core cloud economics benefits tested on AZ-900.

⚠ **Exam trap:** Do not confuse **scalability** (manual or planned capacity change) with **elasticity** (automatic, real-time capacity change). Exam distractors frequently swap these two terms.

2.3 Consumption-based model

In a consumption-based model, you are billed for exactly what you use, similar to a utility bill for electricity or water. Key characteristics tested on the exam:

- No upfront infrastructure costs.
- No need to purchase and manage costly physical infrastructure.
- Pay for extra resources when needed, and stop paying when they are no longer needed.
- The ability to stop paying for resources that are no longer needed.

2.4 Shared responsibility model (introduction)

Under the shared responsibility model, cloud provider and customer responsibilities shift depending on the service model. Physical security of data centers is always the cloud provider's job; data classification and access management are always the customer's job. Everything in between moves along a sliding scale, which we explore in full in Chapter 3.

Case Study

Retail chain modernizing during a seasonal sales spike

A mid-sized retail chain runs its own on-premises servers for its e-commerce site. Every holiday season, traffic spikes 8–10x for about six weeks, forcing IT to buy extra servers each year that then sit idle for the other 46 weeks. After moving order-processing to Azure, the company scales out automatically during the peak weeks and scales back down afterward — paying only for the extra capacity while it is actually needed. This single decision illustrates three concepts from this chapter at once: the shift from CapEx (buying idle hardware) to OpEx (consumption-based scaling), elasticity (automatic response to real-time demand), and agility (new capacity provisioned in minutes, not the months it took to order and rack physical servers).

Chapter 2 checklist

- ☐ I can define CapEx vs OpEx and give an example of each.
- ☐ I can distinguish scalability from elasticity.

☐ I can name all six cloud economics benefits.

☐ I understand the basic idea of the shared responsibility model.

Cloud Service Models — IaaS, PaaS, SaaS

Every cloud service falls into one of three broad models. The difference between them is **how much of the stack you manage yourself versus how much the provider manages for you**.

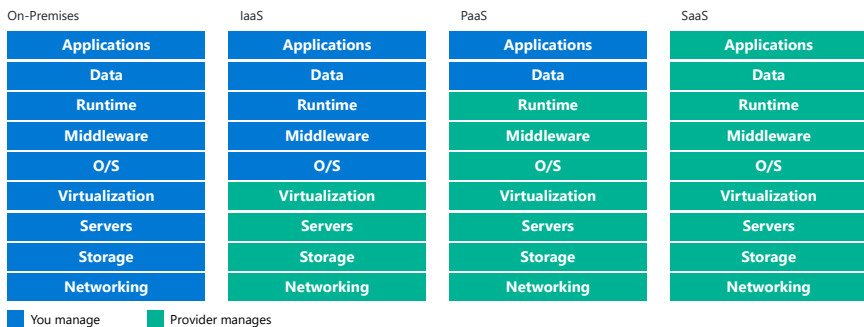


Figure 3.1 — Responsibility split across on-premises, IaaS, PaaS, and SaaS. Blue = customer-managed, green = provider-managed.

3.1 Infrastructure as a Service (IaaS)

IaaS is the most flexible category of cloud service. It gives you the maximum amount of control over IT resources and most closely resembles a traditional on-premises environment — except the physical hardware is owned, hosted, and maintained by the provider. **Azure Virtual Machines** is the classic IaaS example. You still patch the operating system, install and configure software, and manage your own security groups.

 **Exam focus:** Keywords that point to IaaS: "full control over the operating system," "lift-and-shift migration," "custom software requiring specific OS configuration."

3.2 Platform as a Service (PaaS)

PaaS removes the need to manage the underlying infrastructure (usually hardware and operating systems) and allows you to focus on the deployment and management of your applications. **Azure App Service** and **Azure SQL Database** are classic PaaS examples — you deploy code or data, and Azure handles patching, scaling, and availability of the platform underneath.

 **Exam focus:** Keywords that point to PaaS: "developers want to focus only on code," "don't want to manage OS patching," "built-in scaling for a web app."

3.3 Software as a Service (SaaS)

SaaS is software that is centrally hosted and managed for the customer. It is usually accessed through a browser, and the provider manages absolutely everything except the data you put into it and the users you assign. **Microsoft 365**, **Dynamics 365**, and **Outlook on the web** are SaaS examples.

 **Exam focus:** Keywords that point to SaaS: "ready-to-use application," "no infrastructure or platform to manage," "subscribe and start using immediately."

3.4 Comparing the three models

Model	You manage	Provider manages	Example service
IaaS	OS, runtime, middleware, apps, data	Physical hardware, virtualization, networking	Azure Virtual Machines
PaaS	Applications and data	OS, runtime, middleware, hardware	Azure App Service
SaaS	Your data and user access	Everything else	Microsoft 365

⚠ **Exam trap:** A common wrong-answer pattern is assuming "more managed = always better." The exam expects you to match the scenario's stated need (control vs. convenience) to the correct model — not to pick the "easiest" one by default.

Case Study

Startup migrating a legacy Windows Server app

A logistics startup runs a 15-year-old inventory application tightly coupled to a specific Windows Server version and a proprietary licensed driver. A "lift-and-shift" to **Azure Virtual Machines (IaaS)** is chosen deliberately over App Service, because the team needs full OS-level control to install the legacy driver — something a PaaS platform would not allow. Six months later, once the inventory app's reporting module is rewritten as a modern REST API, that new component is deployed to **App Service (PaaS)** instead, since it has no legacy OS dependency and benefits from automatic scaling and patching. This mixed approach — IaaS for legacy, PaaS for new — is common in real migrations and a frequent exam scenario.

Chapter 3 checklist

- ☐ I can name one Azure example service for IaaS, PaaS, and SaaS.
- ☐ I can redraw the responsibility-split diagram from memory.
- ☐ I can match a one-sentence scenario to the correct service model.

Cloud Deployment Models

Deployment models describe **where** your cloud resources physically live and **who** else shares that infrastructure.

4.1 Public cloud

Public cloud resources are owned and operated by a third-party provider (like Microsoft) and shared across multiple customers over the public internet, on shared physical hardware, but with logical isolation between tenants. Benefits: no capital expenditure, high scalability, high reliability. Azure itself, at the datacenter level, is a public cloud.

4.2 Private cloud

A private cloud consists of computing resources used exclusively by one business or organization, hosted either on-premises or by a third party but dedicated solely to that organization. It provides more control and privacy but requires the organization to purchase and maintain the hardware and software (higher CapEx, more management overhead).

4.3 Hybrid cloud

A hybrid cloud combines public and private clouds, allowing data and applications to move between the two. This is common for organizations

with regulatory requirements, legacy systems, or a desire to keep sensitive data on-premises while bursting compute-intensive workloads to the public cloud. **Azure Arc** and **Azure Stack** are the flagship Azure hybrid technologies.

4.4 Multi-cloud

A multi-cloud strategy uses services from more than one public cloud provider (for example, Azure and AWS together), often to avoid vendor lock-in, meet data-residency rules, or use best-of-breed services from each provider.

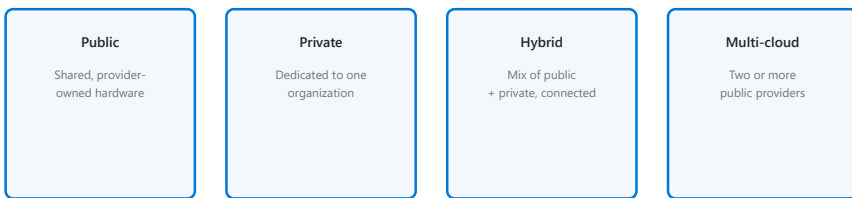


Figure 4.1 — The four deployment models tested on AZ-900.

 **Exam focus:** Keywords: "regulatory requirement to keep data on-premises" or "legacy application that can't move" → **hybrid**. "Best pricing/service from two vendors" or "avoid vendor lock-in" → **multi-cloud**.

Case Study

Bank keeping core ledgers on-premises, moving analytics to Azure

A regional bank is required by its regulator to keep core transaction ledgers within its own physically controlled datacenter. At the same time, its data-science team wants elastic compute to run fraud-detection models over billions of rows. The bank adopts a hybrid architecture: ledgers stay on-premises (private), while anonymized, replicated copies flow to Azure for large-scale analytics (public), connected over ExpressRoute. This is a textbook hybrid cloud scenario — regulatory constraint driving the "private" half, and elastic scale needs driving the "public" half.

Chapter 4 checklist

- ☐ I can define public, private, hybrid, and multi-cloud in one sentence each.
- ☐ I can name the Azure hybrid-specific technologies (Arc, Stack).

Azure's Global Infrastructure

Azure runs on a globally distributed network of Microsoft-managed datacenters. Understanding how this infrastructure is organized — geographies, regions, region pairs, and availability zones — is foundational to almost every later chapter.

5.1 Geographies

A geography is a discrete market, typically containing two or more regions, that preserves data residency and compliance boundaries. Geographies allow customers with specific data-residency and compliance needs to keep their data and applications close.

5.2 Regions

A region is a set of datacenters deployed within a latency-defined perimeter and connected through a dedicated regional low-latency network. Most Azure services are deployed regionally, letting you choose the specific region closest to your users.

5.3 Region pairs

Each Azure region is paired with another region within the same geography (at least 300 miles apart where possible). Region pairs provide:

- Physical isolation so that both regions are unlikely to be affected by the same natural disaster or civil event simultaneously.
- Prioritized recovery — if a large-scale outage occurs, one region from every pair is prioritized for restoration.
- Sequential platform updates — planned Azure updates are rolled out to only one region in a pair at a time to minimize downtime.
- Data residency — some services replicate data automatically within a region pair, keeping it in the same geography.

5.4 Availability zones

Availability Zones are physically separate locations within an Azure region, each made up of one or more datacenters with independent power, cooling, and networking. There are a minimum of three separate zones in all availability-zone-enabled regions. Distributing your VMs across zones protects your applications from datacenter-level failures.

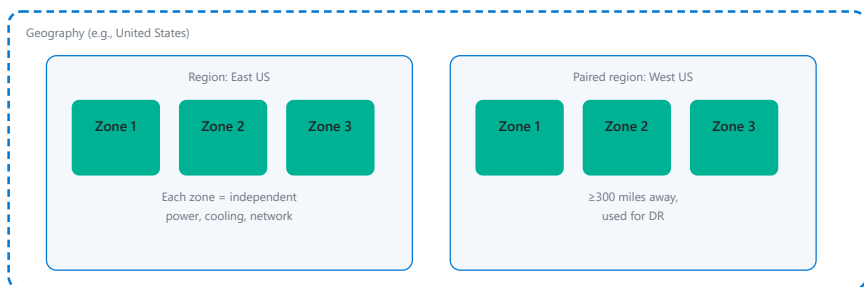


Figure 5.1 — Geography → region pair → availability zones hierarchy.

 **Exam focus:** "Protect against an entire datacenter failure" → **Availability Zones.**

"Protect against an entire regional disaster" → **paired regions / geo-redundancy.**

5.5 Datacenters

Datacenters are the physical buildings with the actual servers, storage, and networking gear. Microsoft does not disclose exact datacenter locations for security reasons — customers pick regions, not datacenters.

Case Study

Global SaaS company designing for regional failure

A SaaS company serving customers in North America deploys its production workload across three Availability Zones within East US, protecting against any single datacenter failure. For disaster recovery, it also deploys a passive, lower-capacity copy of the same application in West US 2 — East US's official region pair — so that if the entire East US region became unavailable, traffic can fail over with a Recovery Time Objective (RTO) of under one hour. This two-layer design (zones for daily resilience, region pairs for catastrophic failure) is exactly the reasoning the exam expects when a scenario asks "how do you protect against X level of failure."

Chapter 5 checklist

☐ I can list the hierarchy: geography → region → availability zone → datacenter.

- ☐ I can explain why region pairs are kept physically distant.
- ☐ I know AZs protect against datacenter failure, region pairs protect against regional disaster.

Core Architectural Components

Before you can deploy anything in Azure, you need to understand the organizational hierarchy that governs billing, access, and policy.

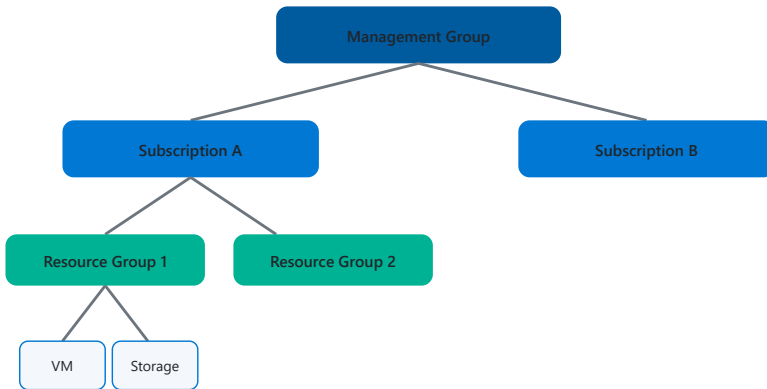


Figure 6.1 — Management group → subscription → resource group → resource hierarchy.

6.1 Azure Resource Manager (ARM)

Azure Resource Manager is the deployment and management layer for Azure. Every action you take — through the Azure Portal, CLI, PowerShell, REST API, or client SDKs — goes through ARM, which ensures consistent results and enforces access control, locks, and tagging across whatever tool you use.

 **Study tip:** Remember: **Azure Portal is just one interface into ARM** — CLI, PowerShell, and REST calls hit the exact same underlying API.

6.2 Resource groups

A resource group is a logical container for resources deployed on Azure. Every resource must belong to exactly one resource group. Resource groups are commonly organized by application, environment (dev/test/prod), or lifecycle — because deleting a resource group deletes everything inside it.

6.3 Subscriptions

A subscription is a logical unit of Azure services that links to an Azure account and is used for billing and access control at scale. Organizations often use multiple subscriptions to separate billing (departments) or apply different governance policies (dev vs. production).

6.4 Management groups

Management groups provide a level of scope above subscriptions, letting you organize subscriptions into containers and apply governance conditions (like Azure Policy or RBAC) to all subscriptions within that group at once. Up to six levels of management groups can be nested (not counting the root and subscription levels).

6.5 The scope hierarchy for governance

Scope (widest to narrowest)	Typical use
Management group	Apply policy/RBAC across many subscriptions
Subscription	Billing boundary, apply policy to one billing unit
Resource group	Group resources with the same lifecycle
Resource	Individual VM, storage account, database, etc.

 **Exam focus:** Settings applied at a wider scope (e.g., management group) are inherited by everything beneath it, unless explicitly overridden at a narrower scope.

Hands-On Walkthrough

Creating your first resource group

- 1 Sign in to the Azure Portal with your account.
- 2 Search for "Resource groups" in the top search bar and select "Create."
- 3 Choose your subscription, give the resource group a name (e.g., rg-learning-demo), and pick a region close to you.
- 4 Select "Review + create," then "Create." The resource group now exists as an empty container.
- 5 Deploy a resource (e.g., a Storage Account) into that resource group, and notice how deleting the group later would delete the storage account with it.

Chapter 6 checklist

- ☐ I can draw the management group → subscription → resource group → resource diagram.
- ☐ I understand that ARM is the common API layer behind every management tool.
- ☐ I know settings inherit downward through the scope hierarchy.

Compute Services

Compute is where your code actually runs. Azure offers a spectrum of compute options ranging from full control (VMs) to zero infrastructure management (serverless Functions).

7.1 Azure Virtual Machines (IaaS)

Virtual Machines give you full control of the operating system and installed software. Use VMs when you need custom OS configurations, legacy applications, or full administrative control. **Virtual Machine Scale Sets** let you run a group of identical, load-balanced VMs that scale automatically based on demand or a schedule.

7.2 Azure App Service (PaaS)

App Service is a fully managed platform for building, deploying, and scaling web apps, REST APIs, and mobile backends. It supports multiple languages (.NET, Java, Node.js, Python, PHP) and includes built-in auto-scaling, load balancing, and deployment slots for staged rollouts.

7.3 Containers: Azure Container Instances & Azure Kubernetes Service

Containers package an application with all of its dependencies, ensuring it runs consistently across environments. **Azure Container Instances (ACI)** is the fastest way to run a single container without managing any servers or orchestration. **Azure Kubernetes Service (AKS)** is a managed Kubernetes offering for orchestrating many containers at scale, handling load balancing, self-healing, and rolling updates.

 **Exam focus:** "Run a single container quickly with no orchestration" → ACI. "Manage hundreds of containers across many nodes with auto-healing" → AKS.

7.4 Azure Functions (Serverless)

Azure Functions is a serverless, event-driven compute service that runs small pieces of code ("functions") without you having to manage infrastructure at all. Functions can be triggered by HTTP requests, timers, queue messages, or many other event sources, and you are billed only for the compute time actually consumed (the Consumption plan can scale to zero when idle).

7.5 Choosing a compute service

Need	Best fit
Full OS control, legacy app, custom software	Virtual Machines
Web app / API, minimal ops overhead	App Service
Single container, quick spin-up	Container Instances
Complex, multi-container orchestration	Azure Kubernetes Service
Event-driven, short-lived, pay-per-execution code	Azure Functions



Figure 7.1 — Compute spectrum: control vs. management overhead.

Case Study

Media processing pipeline built from three compute services

A video platform accepts uploads, transcodes them into multiple resolutions, and serves the results. The upload API runs on **App Service** (steady traffic, simple scaling). The transcoding job — bursty, unpredictable, and easily parallelized — runs on **Azure Kubernetes Service**, where dozens of transcoding pods spin up only when a queue has pending work. A lightweight notification ("transcoding complete, send an email") runs as an **Azure Function** triggered by a queue message, since it executes in milliseconds and would waste money running on an always-on VM or container. Three different compute services, each chosen for a genuinely different traffic and cost pattern — this is the level of reasoning AZ-900 scenario questions expect.

Chapter 7 checklist

- ☐ I can name the five core compute services and one use case for each.
- ☐ I understand the difference between ACI and AKS.

☐ I know Azure Functions is billed by execution/consumption, not by always-on server time.

Networking Services

Networking connects your resources to each other, to on-premises networks, and to the internet — securely and with predictable performance.

8.1 Azure Virtual Network (VNet)

A VNet is the fundamental building block for your private network in Azure. It enables Azure resources (like VMs) to securely communicate with each other, the internet, and on-premises networks. VNets are divided into **subnets**, which let you segment the network and apply different security rules to different tiers of an application (e.g., web tier vs. database tier).

8.2 Network Security Groups (NSG)

An NSG contains security rules that allow or deny inbound and outbound network traffic to resources, based on source/destination IP, port, and protocol. NSGs can be associated with subnets or individual network interfaces.

8.3 Connecting to Azure: VPN Gateway & ExpressRoute

Service	Connection type	Best for
---------	-----------------	----------

VPN Gateway	Encrypted tunnel over the public internet	Lower cost, quick setup, moderate bandwidth needs
ExpressRoute	Private, dedicated connection via a connectivity provider	Higher bandwidth, lower latency, higher reliability, sensitive workloads

 **Exam focus:** "Connection must not traverse the public internet" or "requires guaranteed low latency and high reliability" → **ExpressRoute**. "Quick, cost-effective encrypted connection" → **VPN Gateway**.

8.4 Load Balancer, Application Gateway, and Traffic Manager

These three services are frequently confused on the exam because they all "distribute traffic," but at different layers:

- **Azure Load Balancer** operates at Layer 4 (transport) and distributes traffic across VMs within a single region based on IP and port.
- **Application Gateway** operates at Layer 7 (application) and can route based on URL path or hostname, and includes a built-in Web Application Firewall (WAF).
- **Azure Traffic Manager** is DNS-based and routes users across *multiple Azure regions* based on geography, priority, or endpoint health — not traffic itself, just DNS resolution.

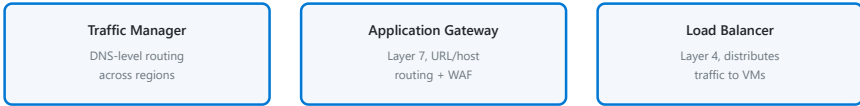


Figure 8.1 — Traffic Manager (DNS/global) → Application Gateway (L7/regional) → Load Balancer (L4/regional).

8.5 Azure DNS and Content Delivery Network (CDN)

Azure DNS hosts DNS domains and provides name resolution using Microsoft's global network of name servers. **Azure CDN** caches static content at edge locations physically closer to users, reducing latency for things like images, videos, and scripts.

Case Study

Media company serving video to a global audience

A streaming startup's users complain of buffering when watching from regions far from the company's single Azure datacenter. The fix has two parts: first, an **Azure CDN** profile is placed in front of the video files so that popular content is cached at edge nodes close to viewers worldwide, cutting round-trip latency dramatically. Second, as the company expands to multiple regions for redundancy, **Azure Traffic Manager** is added to route each viewer's DNS request to their nearest healthy regional endpoint. Neither Load Balancer nor Application Gateway would help here — both operate within a single region, while this problem is fundamentally about global distribution.

Chapter 8 checklist

- ☐ I can explain VNets and subnets in one sentence.
- ☐ I can choose between VPN Gateway and ExpressRoute for a given scenario.
- ☐ I can distinguish Load Balancer (L4/regional), Application Gateway (L7/regional+WAF), and Traffic Manager (DNS/global).

Storage Services

Azure Storage is a Microsoft-managed cloud storage solution for modern data storage scenarios. All Azure Storage services share common characteristics: durability, high availability, massive scalability, and security through encryption at rest.

9.1 Storage account types

- **Blob storage** — massively scalable object storage for unstructured data like images, video, backups, and logs. Blobs come in three tiers: *Hot* (frequent access), *Cool* (infrequent access, lower storage cost), and *Archive* (rarely accessed, cheapest storage but slowest retrieval).
- **Azure Files** — fully managed file shares accessed via the standard SMB and NFS protocols, usable as a drop-in replacement for on-premises file servers.
- **Queue storage** — used for storing and retrieving messages, enabling asynchronous communication between application components.
- **Table storage** (now part of Azure Cosmos DB Table API) — a NoSQL key-value store for structured, non-relational data.
- **Managed Disks** — block-level storage volumes used exclusively as the persistent disks attached to Virtual Machines.

 **Exam focus:** "Rarely accessed data, cheapest cost, hours to retrieve" → Archive tier.

"Drop-in replacement for a file server, accessed via SMB" → Azure Files.

9.2 Redundancy options

Redundancy determines how many copies of your data exist and where, protecting against hardware failure, datacenter outage, or full regional disaster.

Option	Copies	Protects against
LRS (Locally Redundant Storage)	3 copies in one datacenter	Hardware failure only
ZRS (Zone-Redundant Storage)	3 copies across availability zones in one region	Datacenter-level failure
GRS (Geo-Redundant Storage)	6 copies total: 3 local + 3 in the paired region	Regional disaster (secondary is not readable unless failover occurs)
RA-GRS (Read-Access GRS)	Same as GRS	Regional disaster, and the secondary copy is readable at all times
GZRS / RA-GZRS	ZRS in primary region + GRS to paired region	Both datacenter and regional failure, highest durability



Figure 9.1 — GRS/RA-GRS replication: 3 local copies + 3 copies in the paired region.

Case Study

Photo-sharing app choosing redundancy and access tiers

A photo-sharing startup stores three kinds of blobs: freshly uploaded photos viewed constantly for the first week (Hot tier), photos older than a month that are rarely viewed but must load instantly if requested (Cool tier), and legally required audit logs that must be retained for seven years but almost never read (Archive tier). For redundancy, the startup initially uses **LRS** to keep costs low during its beta, then upgrades to **RA-GRS** once it signs its first enterprise customer who contractually requires regional disaster recovery with a readable secondary copy. This progression — starting cheap, then adding redundancy as the business matures — mirrors how real Azure storage decisions evolve over time.

Chapter 9 checklist

- ☐ I can name all five storage service types and a use case for each.
- ☐ I can order redundancy options from least to most protection: LRS → ZRS → GRS → RA-GRS → GZRS/RA-GZRS.
- ☐ I know the three Blob access tiers and when to use each.

Database Services

Azure offers fully managed database services so you never have to patch a database engine, manage backups manually, or provision replica servers by hand.

10.1 Relational databases

- **Azure SQL Database** — a fully managed PaaS relational database based on the Microsoft SQL Server engine, with built-in high availability, automatic backups, and intelligent performance tuning.
- **Azure Database for MySQL / PostgreSQL / MariaDB** — fully managed community-edition database engines for open-source workloads.
- **Azure SQL Managed Instance** — near-100% compatibility with on-premises SQL Server, ideal for lift-and-shift migrations that need instance-level features.

10.2 NoSQL and non-relational databases

Azure Cosmos DB is Microsoft's globally distributed, multi-model NoSQL database service. It offers guaranteed single-digit-millisecond latency, elastic scaling of throughput and storage, and multiple consistency levels. Cosmos DB supports several APIs so you can use the data model you prefer: SQL (Core), MongoDB, Cassandra, Gremlin (graph), and Table.

 **Exam focus:** "Globally distributed app needing single-digit millisecond response times anywhere in the world" → **Cosmos DB**.

10.3 Choosing between relational and non-relational

Scenario	Best fit
Structured data with fixed schema, complex joins/transactions	Azure SQL Database
Lift-and-shift of an existing SQL Server estate	SQL Managed Instance
Open-source engine already in use (MySQL/PostgreSQL)	Azure Database for MySQL/PostgreSQL
Flexible/changing schema, global scale, low-latency reads worldwide	Azure Cosmos DB

10.4 Managed database benefits

- Automated patching and version upgrades.
- Automated backups with point-in-time restore.
- Built-in high availability without you configuring failover clusters manually.
- Built-in monitoring and performance recommendations.

Case Study

SaaS vendor choosing between SQL Database and Cosmos DB

A SaaS vendor building a multi-tenant invoicing product needs strict relational integrity (invoices, line items, tax rules with foreign-key constraints) — a natural fit for **Azure SQL Database**. The same company also builds a separate product-catalog service used by customers across five continents, where the schema changes frequently and read latency matters far more than complex joins — a natural fit for **Azure Cosmos DB**. Choosing the right database per workload, rather than forcing one engine to do both jobs, is a pattern the exam expects you to recognize.

Chapter 10 checklist

- ☐ I can name three relational and one non-relational Azure database service.
- ☐ I understand what makes Cosmos DB unique (global distribution, multi-model, low latency).
- ☐ I can list the benefits of PaaS-managed databases over self-managed ones.

Identity, Access & Security

11.1 Microsoft Entra ID (formerly Azure Active Directory)

Microsoft Entra ID is Microsoft's cloud-based identity and access management service. It is the foundation for authentication (proving who you are) and authorization (determining what you can do) across Azure, Microsoft 365, and thousands of third-party SaaS applications.

11.2 Authentication vs. authorization

Authentication (AuthN)	Authorization (AuthZ)
Confirms you are who you claim to be	Determines what you're allowed to access or do
Example: entering a username and password	Example: being granted "Contributor" on a resource group

11.3 Multi-Factor Authentication (MFA)

MFA requires two or more verification methods (something you know, something you have, something you are) to sign in, dramatically reducing the risk of compromised credentials leading to a breach.

11.4 Conditional Access

Conditional Access is a Microsoft Entra ID feature that enforces automated if-then access-control decisions based on signals such as user, location, device, and application — for example, "require MFA when signing in from outside the corporate network."

11.5 Role-Based Access Control (RBAC)

RBAC lets you grant users, groups, and applications only the access they need — no more, no less — following the principle of least privilege. Access is granted by assigning a **role** (a collection of permissions, such as Owner, Contributor, Reader) to a **security principal** at a particular **scope** (management group, subscription, resource group, or resource).

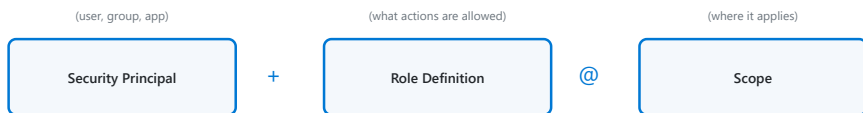


Figure 11.1 — RBAC role assignment = Security Principal + Role Definition + Scope.

⚠ Exam trap: RBAC controls *what actions* a user can perform on Azure resources. It does not control access to individual pieces of data inside an application — that is handled by the application itself.

11.6 Zero Trust model

Zero Trust operates on the principle "never trust, always verify." Rather than assuming everything behind the corporate firewall is safe, Zero Trust verifies

every request as though it originated from an open network, based on three guiding principles: verify explicitly, use least-privilege access, and assume breach.

11.7 Defense in depth

Defense in depth uses a layered approach to security rather than relying on a single perimeter. The classic layers, from outermost to innermost, are:

1. Physical security (datacenter access)
2. Identity and access (authentication, MFA)
3. Perimeter (DDoS protection, firewalls)
4. Network (network segmentation, NSGs)
5. Compute (VM security, endpoint protection)
6. Application (secure coding, WAF)
7. Data (encryption at rest and in transit)

11.8 Microsoft Defender for Cloud & Microsoft Sentinel

Microsoft Defender for Cloud is a Cloud Security Posture Management (CSPM) and workload-protection tool that assesses your environment and provides a Secure Score with recommendations. **Microsoft Sentinel** is a cloud-native Security Information and Event Management (SIEM) and Security Orchestration Automated Response (SOAR) solution, used to detect, investigate, and respond to security threats across an entire organization.

11.9 Encryption

Azure encrypts data **at rest** (stored on disk) and **in transit** (moving across a network) by default for most services, using industry-standard protocols such as TLS. **Azure Key Vault** securely stores and manages secrets, encryption keys, and certificates, with tightly controlled access via RBAC and access policies.

Case Study

Contractor requiring MFA only from unmanaged devices

A consulting firm's employees sign in from company-managed laptops that already meet strict security baselines, while external contractors sign in from their own personal devices. Rather than forcing MFA on everyone equally (annoying employees who are already on a trusted device) or forcing it on no one (leaving contractor access under-protected), the firm configures a **Conditional Access** policy: require MFA only when the sign-in comes from a device that is not marked as "compliant" or "hybrid Azure AD joined." This is a precise, real-world illustration of "verify explicitly" from the Zero Trust model — the access decision adapts to the actual risk signal rather than applying one blanket rule.

Chapter 11 checklist

- ☐ I can distinguish authentication from authorization.

- I can explain RBAC's three components: principal, role, scope.
- I know the three Zero Trust principles and the seven defense-in-depth layers.
- I can name the difference between Defender for Cloud (posture/CSPM) and Sentinel (SIEM/SOAR).

Governance & Compliance

12.1 Azure Policy

Azure Policy creates, assigns, and manages rules (policies) to enforce standards and assess compliance across your resources — for example, "only allow VMs of a certain size" or "require a specific tag on every resource." Non-compliant resources can be flagged, or in the case of a *deny* effect, blocked from being created altogether.

12.2 Resource locks

Resource locks prevent accidental deletion or modification of critical resources, regardless of RBAC permissions.

Lock type	Effect
CanNotDelete	Authorized users can still read and modify, but cannot delete
ReadOnly	Authorized users can only read; no modification or deletion allowed

⚠ Exam trap: Locks apply regardless of role assignments — even an Owner cannot delete a resource with a CanNotDelete lock until the lock itself is removed.

12.3 Tags

Tags are name/value pairs attached to resources for organizing them logically across categories such as cost center, environment, or owner — useful for cost reporting and automation, independent of the resource group hierarchy.

12.4 Azure Blueprints (and its evolution)

Azure Blueprints packages together role assignments, policy assignments, ARM templates, and resource groups so entire environments can be deployed repeatably in a compliant state — commonly used for standing up a new subscription that must automatically meet regulatory requirements from day one.

12.5 Cloud Adoption Framework & the Well-Architected Framework

The **Cloud Adoption Framework (CAF)** is a collection of documentation, best practices, and tools to help organizations plan, ready, adopt, and govern their cloud journey. The **Azure Well-Architected Framework** provides guidance across five pillars: reliability, security, cost optimization, operational excellence, and performance efficiency — used when designing individual workloads rather than an entire cloud adoption strategy.

12.6 Compliance resources

Microsoft maintains extensive compliance documentation and certifications (ISO, SOC, GDPR, HIPAA, and many more) through the **Microsoft Trust**

Center and the **Microsoft Purview Compliance Manager**, which provides a compliance score and actionable improvement recommendations.

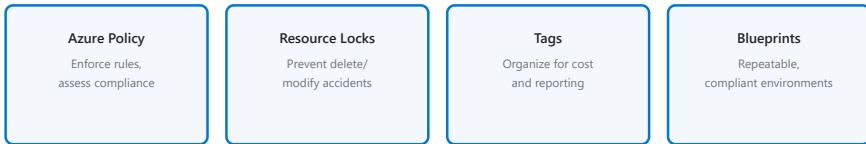


Figure 12.1 — Four governance tools working together across a subscription.

Case Study

Healthcare provider preventing an accidental production outage

A hospital IT team accidentally deleted a production database during a cleanup script six months ago, causing a costly outage. To prevent a repeat, they now apply a **CanNotDelete** lock to every production resource group, an **Azure Policy** requiring an "environment: production" tag on all resources in that scope, and a monthly **Azure Advisor** review to catch configuration drift. This combination — lock + policy + tag + review — is a realistic exam scenario testing whether you know which governance tool solves which specific problem.

Chapter 12 checklist

- ☐ I can explain what Azure Policy does versus what RBAC does (compliance/rules vs. permissions).
- ☐ I know the two resource lock types and their effects.

☐ I can distinguish CAF (adoption strategy) from the Well-Architected Framework (workload design).

Monitoring & Management Tools

13.1 Azure Portal, Cloud Shell, CLI, and PowerShell

The **Azure Portal** is a web-based, graphical console for managing resources. **Azure Cloud Shell** is a browser-accessible command-line environment (choice of Bash or PowerShell) for managing Azure without installing anything locally. **Azure CLI** and **Azure PowerShell** are cross-platform command-line tools for scripting and automating resource management outside the browser.

13.2 Azure Mobile App

Lets you monitor resource health, receive alerts, and perform basic management tasks from a phone.

13.3 Azure Monitor

Azure Monitor collects, analyzes, and acts on telemetry (metrics and logs) from cloud and on-premises environments, helping you maximize performance and availability, and proactively identify problems.

13.4 Azure Advisor

Azure Advisor is a free, personalized recommendation engine that analyzes your resource configuration and usage to suggest solutions across five pillars: **reliability, security, performance, cost, and operational excellence.**

 **Exam focus:** If a question asks how to get free, personalized best-practice recommendations across cost, security, and performance — the answer is **Azure Advisor**, not Azure Monitor.

13.5 Azure Service Health & Resource Health

Azure Service Health tells you about ongoing issues with the Azure platform itself (service outages, planned maintenance, health advisories) that affect your region or subscription. **Azure Resource Health** tells you about the health of an individual resource you own (e.g., "why is my specific VM currently unavailable").

13.6 Azure Arc

Azure Arc extends Azure management and governance (including Azure Policy and Monitor) to resources running outside Azure — on-premises servers, other clouds, or edge devices — giving a single control plane across hybrid and multi-cloud environments.

13.7 Infrastructure as Code: ARM templates & Bicep

ARM templates are JSON files that declaratively define the resources you want to deploy. **Bicep** is a newer, simpler domain-specific language that compiles down to ARM templates, making infrastructure-as-code easier to author and read. Both approaches ensure repeatable, consistent deployments and enable version-controlled infrastructure.

Case Study

Ops team catching a slow memory leak before it becomes an outage

An operations team notices customer complaints trickling in about a web app becoming sluggish every few days, always fixed temporarily by a manual restart. Using **Azure Monitor**, they set up a metric alert on memory utilization and discover a steady, linear climb consistent with a memory leak, rather than a sudden spike. Separately, **Azure Advisor** flags that the App Service plan is running fewer instances than recommended for the app's traffic pattern. Acting on both signals — fixing the underlying leak in code, and following Advisor's scaling recommendation — resolves the recurring incident permanently instead of relying on manual restarts as a workaround.

Chapter 13 checklist

- ☐ I can name the four ways to interact with Azure (Portal, Cloud Shell, CLI, PowerShell).
- ☐ I can distinguish Azure Monitor (telemetry) from Azure Advisor (recommendations).

- ☐ I can distinguish Service Health (platform-wide) from Resource Health (one resource).
- ☐ I know what Azure Arc is for and what Infrastructure as Code means.

Pricing, Cost Management & SLAs

14.1 Factors affecting cost

Azure pricing is influenced by resource type, region (prices vary by location), consumption (usage volume), billing zone, and bandwidth (data egress out of Azure is typically billed; data ingress into Azure is typically free).

14.2 Pricing Calculator vs. Total Cost of Ownership (TCO) Calculator

Tool	Purpose
Azure Pricing Calculator	Estimate the cost of Azure products/services <i>you configure</i> , before deploying anything
Total Cost of Ownership (TCO) Calculator	Compare the cost of running your <i>current on-premises</i> infrastructure vs. running the equivalent in Azure

 **Exam focus:** "Estimate what a new Azure deployment will cost" → Pricing Calculator.
"Compare existing on-prem costs to Azure" → TCO Calculator.

14.3 Azure Cost Management + Billing

This tool lets you monitor, allocate, and optimize the cost of your workloads. Key features include budgets with alerts, cost analysis by tag/resource

group/subscription, and recommendations for right-sizing resources.

14.4 Service Level Agreements (SLAs)

An SLA is Microsoft's commitment to a certain level of uptime and connectivity for a paid service, expressed as a percentage. Free services generally do not carry an SLA.

SLA	Downtime per year (approx.)
99% ("two nines")	~3.65 days
99.9% ("three nines")	~8.76 hours
99.95%	~4.38 hours
99.99% ("four nines")	~52.6 minutes
99.999% ("five nines")	~5.26 minutes

 **Study tip:** When two independent services are combined, the **composite SLA is lower than either individual SLA** — multiply the availability percentages (e.g., $99.95\% \times 99.95\% \approx 99.9\%$). Using resources across multiple regions or availability zones **increases** effective availability instead.

Web tier: 99.95%

DB tier: 99.99%

Combined $\approx 99.94\%$
(lower than either alone)

Figure 14.1 — Composite SLA of dependent tiers is lower than any single tier's SLA.

14.5 Service lifecycle: Public preview vs. General Availability (GA)

Services in **Public Preview** are made available to try before they are officially released, may not be feature-complete, and typically are not covered by an SLA. **General Availability (GA)** services are fully supported, production-ready, and covered by their published SLA.

Case Study

Comparing SLA math before signing a customer contract

A company is about to promise its own customers "99.9% uptime" in a contract. Its architecture chains three Azure services together: App Service (99.95% SLA), Azure SQL Database (99.99% SLA), and a single-region VPN Gateway (99.95% SLA). Multiplying these together gives a composite availability of roughly 99.89% — just under the 99.9% the company is about to promise. By adding a second VPN Gateway in an active-active configuration, the combined connectivity availability rises well above 99.99%, pulling the overall composite comfortably above 99.9% and making the contractual promise safe to sign. This is precisely the kind of SLA arithmetic AZ-900 tests, just framed as a business decision rather than a bare calculation.

Chapter 14 checklist

- ☐ I can distinguish the Pricing Calculator from the TCO Calculator.
- ☐ I can calculate roughly how much downtime a given SLA percentage allows.

- ☐ I understand that combined-service SLA is lower than a single service's SLA.
- ☐ I know Preview services generally lack an SLA; GA services have one.

Support Plans & Service Lifecycle

15.1 Azure support plans

Plan	Who it's for	Response time (critical issue)
Basic (free)	All Azure customers by default	No guaranteed technical support SLA
Developer	Trial and non-production workloads	< 8 business hours
Standard	Production workloads, business-hours-critical	< 1 hour
Professional Direct	Business-critical, mission-critical apps	< 1 hour, plus proactive guidance
Premier / Unified	Large enterprises needing account management	Fastest, most comprehensive, enterprise-wide

15.2 Service Trust Portal & Azure Status page

The **Azure Status** page (a public website) shows the current health of all Azure services across every region — a quick way to check for widespread outages without logging in. This is distinct from **Azure Service Health** (inside the portal), which is personalized to your specific subscription and resources.

15.3 Knowledge Center, Community, and Documentation

Beyond paid support, Microsoft offers free self-service resources: Microsoft Learn documentation, Microsoft Q&A community forums, Stack Overflow tagging, and the Azure Feedback forums for feature requests.

15.4 Putting it all together

You have now covered every domain in the AZ-900 skills outline. Chapter 16 gives you 60 realistic practice questions across all four domains, mirroring the phrasing style and scenario structure of the real exam. Chapter 17 is a full glossary, and Chapter 18 is a single-page cheat sheet for last-minute review.

Chapter 15 checklist

- ☐ I can rank the five Azure support plans from Basic to Premier.
- ☐ I can distinguish the public Azure Status page from the in-portal Azure Service Health blade.

Hands-On Walkthroughs

Reading about Azure gets you exam-ready in theory; ten minutes of hands-on practice cements it. Every walkthrough below can be completed on a free Azure account and cleaned up (deleted) immediately afterward at no cost.

Walkthrough 1 — Create a free Azure account

- 1 Go to azure.microsoft.com and select "Start free."
- 2 Sign in with a Microsoft account, or create a new one.
- 3 Verify your identity with a phone number and a credit card (used only for identity verification — you will not be charged unless you explicitly upgrade).
- 4 Once approved, you receive free credit and a set of "always free" service tiers for the first 12 months.
- 5 Sign in to portal.azure.com to see your new subscription.

Walkthrough 2 — Deploy your first Virtual Machine

- 1 In the Azure Portal, search for "Virtual machines" and select "Create."
- 2 Choose your subscription and resource group (or create a new one), name the VM, and select a region.

- 3 Pick an image (e.g., Ubuntu Server or Windows Server) and a size in the free-eligible B-series tier.
- 4 Set an administrator username and authentication method (SSH key or password).
- 5 Review and create. Deployment typically finishes in one to two minutes.
- 6 Once deployed, note the public IP address, then connect via SSH or Remote Desktop.
- 7 **Important:** delete the VM (and its associated disk, network interface, and public IP) when finished, to avoid ongoing charges.

Walkthrough 3 — Set a budget alert in Cost Management

- 1 Search for "Cost Management + Billing" in the portal.
- 2 Select your subscription, then "Budgets," then "Add."
- 3 Set a monthly amount (e.g., \$5) and add an alert at 80% and 100% of that amount.
- 4 Provide an email address to receive the alert.
- 5 Save — you will now be notified automatically before you approach your spending limit.

Walkthrough 4 — Assign an RBAC role

- 1 Navigate to a resource group and select "Access control (IAM)."
- 2 Select "Add" → "Add role assignment."

- 3 Choose a role (e.g., "Reader") and search for a user or group to assign it to.
- 4 Review and assign. That user now has read-only access to everything in this resource group, and nothing else.

 **Study tip:** Doing even two of these four walkthroughs will make several exam questions about VMs, cost alerts, and RBAC feel like recall rather than guesswork.

60 Practice Questions with Explanations

Attempt to answer each question yourself before reading the explanation. Questions are grouped by domain, roughly proportional to real exam weighting.

Section A — Cloud Concepts (Q1–15)

1. A startup wants to avoid spending money on physical servers and only pay for what it uses each month. Which cloud characteristic does this describe?

Answer: Consumption-based model (OpEx)

No upfront capital expense; billing follows actual usage.

2. What is the difference between scalability and elasticity?

Answer: Scalability is planned capacity change; elasticity is automatic, real-time capacity change

Elasticity implies automation and immediate reaction to demand.

3. Which deployment model keeps sensitive data on-premises while bursting overflow workloads to the public cloud?

Answer: Hybrid cloud

Hybrid explicitly connects private and public environments.

4. A company wants full control over the OS to run a legacy application with specific driver requirements. Which service model fits?

Answer: IaaS (Virtual Machines)

IaaS gives maximum control, closest to on-premises servers.

5. Which cloud benefit is measured using metrics like RTO and RPO?

Answer: Disaster recovery

RTO/RPO define how fast and how completely you recover after an outage.

6. A company only wants to log into a ready-made CRM tool through a browser with zero infrastructure to manage. Which model is this?

Answer: SaaS

SaaS is fully managed, ready-to-use software (e.g., Dynamics 365).

7. True or False: In the public cloud, physical hardware is shared with other tenants but logically isolated.

Answer: True

Multi-tenancy with strict logical isolation is core to public cloud.

8. What does "fault tolerance" mean in cloud computing?

Answer: The system keeps running even if a component fails

Usually achieved via redundancy across zones/regions.

9. Which term describes buying only what you need, when you need it, similar to a utility bill?

Answer: Consumption-based pricing

Pay-as-you-go, no long-term asset ownership.

10. A retailer wants to use both Azure and AWS to avoid depending on a single vendor. What strategy is this?

Answer: Multi-cloud

Using two or more public cloud providers together.

11. Which is an example of CapEx?

Answer: Purchasing physical servers outright

CapEx = upfront investment in owned assets that depreciate.

12. What is "agility" in the context of cloud economics?

Answer: The ability to deploy resources quickly, in minutes

Contrast with weeks/months for on-premises procurement.

13. A private cloud is best described as:

Answer: Computing resources used exclusively by one organization

Dedicated infrastructure, whether hosted on-prem or by a third party.

14. Under the shared responsibility model, who is always responsible for physical datacenter security?

Answer: The cloud provider (Microsoft)

Regardless of service model, physical security is never a customer task.

15. Under the shared responsibility model, who is always responsible for data classification and access management?

Answer: The customer

Classifying and controlling access to your own data stays with you in every model.

Section B — Azure Architecture & Services (Q16–35)

16. What is the correct order of Azure's infrastructure hierarchy, largest to smallest?

Answer: Geography → Region → Availability Zone → Datacenter

Geographies contain regions; regions can contain availability zones and datacenters.

17. What protects an application against a single datacenter failure within a region?

Answer: Availability Zones

Distribute VMs across zones for datacenter-level fault tolerance.

18. What protects an application against an entire regional disaster?

Answer: Paired regions / geo-redundancy

Failing over to a paired region covers loss of the whole primary region.

19. Every Azure resource must belong to exactly one of what container?

Answer: Resource group

Resource groups are the base logical container for lifecycle management.

20. What sits above subscriptions in the governance hierarchy and lets policy apply to many subscriptions at once?

Answer: Management groups

Up to six levels can be nested above subscriptions.

21. What is the common API layer behind the Azure Portal, CLI, PowerShell, and REST calls?

Answer: Azure Resource Manager (ARM)

All management tools ultimately call the same ARM API.

22. Which compute service is best for running a single container with no orchestration needs?

Answer: Azure Container Instances (ACI)

Fastest way to run one container without managing servers.

23. Which compute service auto-scales groups of identical VMs based on demand?

Answer: Virtual Machine Scale Sets

Manages many identical, load-balanced VM instances.

24. A team wants to deploy a web app without managing servers or patching an OS. What should they use?

Answer: [Azure App Service](#)

PaaS — Microsoft manages the underlying platform.

25. A developer wants short, event-triggered code that scales to zero when idle. What's the best fit?

Answer: [Azure Functions](#)

Serverless, consumption-billed, event-driven compute.

26. Which networking service segments a VNet and applies different security rules to different application tiers?

Answer: [Subnets \(with NSGs\)](#)

Subnets divide a VNet; NSGs enforce traffic rules per subnet or NIC.

27. A company needs a private, dedicated, low-latency connection to Azure that avoids the public internet. What should they choose?

Answer: [ExpressRoute](#)

Private connection via a connectivity provider, higher reliability than VPN.

28. Which load-distribution service works at Layer 7 and includes a built-in Web Application Firewall?

Answer: [Application Gateway](#)

L7-aware, URL/host-based routing, plus WAF.

29. Which service routes users to the closest healthy Azure region using DNS, without touching the actual traffic?

Answer: [Azure Traffic Manager](#)

DNS-level, global routing across regions.

30. Which Blob storage tier is cheapest for storage but slowest to retrieve?

Answer: [Archive tier](#)

Lowest storage cost, hours-long retrieval time.

31. Which redundancy option keeps three copies of data spread across availability zones within one region?

Answer: [ZRS \(Zone-Redundant Storage\)](#)

Protects against datacenter failure, stays within one region.

32. Which redundancy option lets you read the secondary copy at any time, even without a failover?

Answer: [RA-GRS](#)

Read-Access Geo-Redundant Storage exposes a readable secondary endpoint.

33. Which database service offers global distribution, multiple APIs, and guaranteed single-digit-millisecond latency?

Answer: [Azure Cosmos DB](#)

Multi-model, globally distributed NoSQL database.

34. Which database option is best for a near-exact lift-and-shift of an on-premises SQL Server instance?

Answer: Azure SQL Managed Instance

Near-100% engine compatibility with on-prem SQL Server.

35. What does Azure Files provide that Blob storage does not?

Answer: Access via standard SMB/NFS file-share protocols

Azure Files behaves like a traditional network file share.

Section C — Management & Governance (Q36–50)

36. What is the difference between authentication and authorization?

Answer: Authentication confirms identity; authorization determines allowed access

AuthN = who you are; AuthZ = what you can do.

37. What are the three components of an RBAC role assignment?

Answer: Security principal, role definition, scope

Who, what permissions, and where they apply.

38. Which Microsoft Entra ID feature enforces "require MFA when signing in from outside the corporate network"?

Answer: Conditional Access

If-then access policies based on signals like location and device.

39. What are the three guiding principles of Zero Trust?

Answer: Verify explicitly, use least-privilege access, assume breach

Never implicitly trust anything inside or outside the network.

40. Which tool enforces rules like "every resource must have a cost-center tag" and can block non-compliant deployments?

Answer: Azure Policy

Policy assesses/enforces compliance; RBAC controls who can act.

41. Which resource lock type allows reads and edits but blocks deletion?

Answer: CanNotDelete

ReadOnly blocks both edits and deletion; CanNotDelete blocks only deletion.

42. What is the purpose of Azure Blueprints?

Answer: Package policies, RBAC, and templates to repeatably deploy compliant environments

Useful for standing up new, governed subscriptions quickly.

43. Which framework provides guidance for adopting cloud at an organizational strategy level?

Answer: Cloud Adoption Framework (CAF)

CAF = organizational strategy; Well-Architected Framework = individual workload design.

44. Which service gives a free, personalized set of recommendations across cost, security, reliability, performance, and operational excellence?

Answer: Azure Advisor

Not to be confused with Azure Monitor, which collects telemetry.

45. What is the difference between Azure Service Health and Azure Resource Health?

Answer: Service Health covers platform-wide issues; Resource Health covers one specific resource

Service Health = "is Azure having problems"; Resource Health = "why is my VM down."

46. What does Azure Arc extend to resources outside Azure?

Answer: Azure management and governance (policy, monitoring) for hybrid/multi-cloud resources

Single control plane spanning on-prem, other clouds, and edge.

47. What is Bicep?

Answer: A simpler domain-specific language that compiles to ARM templates

Used for Infrastructure as Code, easier syntax than raw JSON ARM templates.

48. Which tool would you use to securely store and manage encryption keys, secrets, and certificates?

Answer: Azure Key Vault

Centralizes secret management with RBAC-controlled access.

49. Which SIEM/SOAR tool detects, investigates, and responds to security threats across an organization?

Answer: Microsoft Sentinel

Defender for Cloud is CSPM/posture; Sentinel is SIEM/SOAR.

50. What is the defense-in-depth layer that sits directly outside "Network" and directly inside "Perimeter"?

Answer: There is no layer between them — Perimeter sits directly outside Network

Order: Physical → Identity → Perimeter → Network → Compute → Application → Data.

Section D — Pricing, SLA & Support (Q51–60)

51. Which tool estimates the cost of a new Azure deployment before you build it?

Answer: Azure Pricing Calculator

TCO Calculator instead compares existing on-prem costs to Azure.

52. Roughly how much downtime per year does a 99.9% SLA allow?

Answer: About 8.76 hours

"Three nines" $\approx$ 8.76 hours/year of allowed downtime.

53. If two dependent services each have a 99.9% SLA, is the combined SLA higher or lower than 99.9%?

Answer: Lower

Composite SLA of dependent components is the product of their individual SLAs.

54. Does deploying redundant resources across two regions increase or decrease effective availability?

Answer: Increase

Independent, redundant paths raise the overall availability, unlike dependent chains.

55. Which support plan is the free, default plan for every Azure customer?

Answer: Basic support plan

No guaranteed technical response SLA; paid tiers add faster response times.

56. Which support plan is recommended for a business-critical production application needing under one hour response time?

Answer: Standard (or higher, e.g., Professional Direct)

Standard offers <1 hour response for critical issues.

57. Where can you check the public, real-time health of Azure services across all regions without signing in?

Answer: [Azure Status page](#)

Distinct from the personalized, in-portal Azure Service Health blade.

58. Do services in Public Preview generally carry a full SLA?

Answer: No

Preview services are pre-release and typically excluded from SLA guarantees.

59. Which billing factor usually applies to data leaving Azure (egress) but not data entering it (ingress)?

Answer: [Bandwidth/data-transfer charges](#)

Outbound data transfer is typically billed; inbound is typically free.

60. Which free tool centralizes budgets, alerts, and cost analysis across subscriptions and resource groups?

Answer: [Azure Cost Management + Billing](#)

Provides budgets, forecasts, and tag/resource-group-level cost breakdowns.

 **Study tip:** Score yourself: 54/60 (90%) or higher on a cold attempt suggests you're exam-ready. Below that, revisit the chapters tied to whichever section scored lowest before scheduling your exam.

Appendix: 6-Week Study Planner & Daily Tracker

Print this planner, or copy it into your own notes app, and check off each day as you complete it. Each study day is designed to take 30–60 minutes. If you have more time available, compress the plan into three weeks by doubling up two days at a time.

Week 1 — Cloud Concepts

Day	Task	Done
Mon	Read Chapter 2 (What Is Cloud Computing?); redraw the four-benefits diagram from memory	☐
Tue	Read Chapter 3 (Service Models); memorize one Azure example per model	☐
Wed	Read Chapter 4 (Deployment Models); write a one-sentence definition for each model, unaided	☐
Thu	Re-read all exam-focus and exam-trap callouts from Chapters 2–4	☐
Fri	Attempt Practice Questions 1–15 (Chapter 16, Section A) cold, then review explanations	☐

Week 2 — Global Infrastructure, Core Components & Compute

Day	Task	Done
Mon	Read Chapter 5 (Global Infrastructure); redraw the geography/region/zone diagram	☐

Tue	Read Chapter 6 (Core Components); redraw the management group hierarchy diagram	☐
Wed	Complete Walkthrough 1 (create free Azure account) and Walkthrough 2 (deploy a VM) from Chapter 15B	☐
Thu	Read Chapter 7 (Compute Services); complete the compute-selection table from memory	☐
Fri	Attempt Practice Questions 16–25 (Chapter 16, Section B start) cold, then review	☐

Week 3 — Networking, Storage & Databases

Day	Task	Done
Mon	Read Chapter 8 (Networking); memorize Load Balancer vs. App Gateway vs. Traffic Manager	☐
Tue	Read Chapter 9 (Storage); order all five redundancy options from memory	☐
Wed	Read Chapter 10 (Databases); list one scenario each for SQL DB, Managed Instance, and Cosmos DB	☐
Thu	Complete Walkthrough 3 (budget alert) from Chapter 15B	☐
Fri	Attempt Practice Questions 26–35 (rest of Section B) cold, then review	☐

Week 4 — Identity, Governance & Monitoring

Day	Task	Done
Mon	Read Chapter 11 (Identity, Access & Security); write out the three Zero Trust principles unaided	☐
Tue	Complete Walkthrough 4 (assign an RBAC role) from Chapter 15B	☐

Wed	Read Chapter 12 (Governance & Compliance); explain Policy vs. RBAC vs. Locks in your own words	☐
Thu	Read Chapter 13 (Monitoring & Management Tools); distinguish Monitor / Advisor / Service Health / Resource Health	☐
Fri	Attempt Practice Questions 36–50 (Section C) cold, then review	☐

Week 5 — Pricing, SLA & Support

Day	Task	Done
Mon	Read Chapter 14 (Pricing, Cost Management & SLAs); practice the SLA downtime table from memory	☐
Tue	Read Chapter 15 (Support Plans & Service Lifecycle); rank all five support plans	☐
Wed	Re-read every exam-trap callout in the entire book, front to back	☐
Thu	Re-read the Chapter 18 cheat sheet once, out loud if possible	☐
Fri	Attempt Practice Questions 51–60 (Section D) cold, then review	☐

Week 6 — Full Review & Exam Readiness

Day	Task	Done
Mon	Retake all 60 practice questions in one sitting, timed to 45 minutes	☐
Tue	Review only the questions you got wrong; re-read the matching chapter section	☐
Wed	Redraw every diagram in the book from memory on blank paper	☐
Thu	Retake all 60 practice questions a second time; target 90%+	☐
Fri	Rest. Skim the glossary once. Schedule or confirm your exam appointment.	☐

 **Study tip:** Consistency beats intensity. Five focused 40-minute sessions a week for six weeks will outperform one exhausting eight-hour cram session the night before your exam.

Full-Length Mock Exam (40 Questions)

This is a separate, multiple-choice-style mock exam distinct from the rapid-recall questions in Chapter 16. Give yourself 45 minutes, answer every question before checking the key at the end, and try to simulate real exam conditions (no notes, no searching).

1. A company wants to move its infrastructure spending from a large upfront investment to an ongoing, usage-based expense. Which term describes the model they are moving to?

- ☐ A. Capital expenditure
- ☐ B. Operational expenditure
- ☐ C. Depreciation
- ☐ D. Fixed asset investment

2. Which cloud characteristic automatically adds or removes resources in real time based on current demand?

- ☐ A. Scalability
- ☐ B. Elasticity
- ☐ C. Agility
- ☐ D. Fault tolerance

3. A company needs full administrative control of the operating system to run a custom legacy application. Which service model should they choose?

- ☐ A. SaaS
- ☐ B. PaaS
- ☐ C. IaaS
- ☐ D. FaaS

4. Which deployment model uses resources from two or more different public cloud providers?

- ☐ A. Hybrid cloud
- ☐ B. Private cloud
- ☐ C. Multi-cloud
- ☐ D. Community cloud

5. What is the minimum number of Availability Zones in a region that supports them?

- ☐ A. One
- ☐ B. Two
- ☐ C. Three
- ☐ D. Five

6. Which Azure construct is the base logical container that every deployed resource must belong to?

- ☐ A. Management group
- ☐ B. Subscription
- ☐ C. Resource group
- ☐ D. Tenant

7. A developer needs to deploy a web API quickly without managing any servers or patching an OS. What should they use?

- ☐ A. Virtual Machines
- ☐ B. Azure App Service
- ☐ C. Azure Container Instances
- ☐ D. Azure Bastion

8. Which compute service is best suited to orchestrating dozens of interdependent containers with self-healing and rolling updates?

- ☐ A. Azure Container Instances
- ☐ B. Azure Kubernetes Service
- ☐ C. Azure Functions
- ☐ D. Azure Batch

9. Which networking service provides a private, dedicated, non-internet connection between an on-premises datacenter and Azure?

- ☐ A. VPN Gateway
- ☐ B. ExpressRoute
- ☐ C. Azure Front Door
- ☐ D. Azure Bastion

10. Which service distributes traffic across VMs at Layer 4 within a single region?

- ☐ A. Traffic Manager
- ☐ B. Application Gateway
- ☐ C. Azure Load Balancer
- ☐ D. Azure CDN

11. Which Blob storage tier offers the lowest storage cost but the slowest retrieval time?

- ☐ A. Hot
- ☐ B. Cool
- ☐ C. Archive
- ☐ D. Premium

12. Which redundancy option keeps three synchronous copies spread across availability zones in a single region?

- ☐ A. LRS
- ☐ B. ZRS
- ☐ C. GRS
- ☐ D. RA-GRS

13. Which database service is best for a globally distributed application needing single-digit-millisecond latency worldwide?

- ☐ A. Azure SQL Database
- ☐ B. Azure Database for PostgreSQL
- ☐ C. Azure Cosmos DB
- ☐ D. SQL Managed Instance

14. Which Azure database option offers the closest compatibility with an on-premises SQL Server for lift-and-shift migrations?

- ☐ A. Azure SQL Database (single database)
- ☐ B. Azure SQL Managed Instance
- ☐ C. Azure Cosmos DB (SQL API)
- ☐ D. Azure Table Storage

15. What does Microsoft Entra ID (formerly Azure Active Directory) primarily provide?

- ☐ A. Virtual networking
- ☐ B. Identity and access management
- ☐ C. Storage redundancy
- ☐ D. Cost management

16. Which feature enforces "require MFA when signing in from an unmanaged device"?

- ☐ A. Azure Policy
- ☐ B. Conditional Access
- ☐ C. Resource locks
- ☐ D. Azure Blueprints

17. What are the three RBAC role-assignment components?

- ☐ A. User, group, tenant
- ☐ B. Principal, role definition, scope
- ☐ C. Policy, initiative, compliance
- ☐ D. Subscription, resource group, resource

18. Which principle is NOT part of the Zero Trust model?

- ☐ A. Verify explicitly
- ☐ B. Use least-privilege access
- ☐ C. Trust internal network traffic by default
- ☐ D. Assume breach

19. Which tool enforces organizational rules such as "every resource must have a cost-center tag"?

- ☐ A. Azure Policy
- ☐ B. RBAC
- ☐ C. Azure Monitor
- ☐ D. Azure Advisor

20. Which resource lock type prevents deletion but still allows modification?

- ☐ A. ReadOnly
- ☐ B. CanNotDelete
- ☐ C. CanNotModify
- ☐ D. FullLock

21. Which framework provides guidance at the individual-workload design level across reliability, security, cost, operations, and performance?

- ☐ A. Cloud Adoption Framework
- ☐ B. Azure Well-Architected Framework
- ☐ C. Microsoft Purview Compliance Manager
- ☐ D. Zero Trust model

22. Which tool provides free, personalized recommendations across cost, security, and performance?

- ☐ A. Azure Monitor
- ☐ B. Azure Advisor
- ☐ C. Azure Sentinel
- ☐ D. Azure Service Health

23. Which tool tells you why one specific VM you own is currently unavailable?

- ☐ A. Azure Service Health
- ☐ B. Azure Resource Health
- ☐ C. Azure Status page
- ☐ D. Azure Advisor

24. What does Azure Arc primarily enable?

- ☐ A. Extending Azure management to resources outside Azure
- ☐ B. Encrypting data at rest
- ☐ C. Load balancing across regions
- ☐ D. Estimating Azure costs before deployment

25. Which tool estimates the cost of an Azure deployment you configure before building it?

- ☐ A. TCO Calculator
- ☐ B. Azure Pricing Calculator
- ☐ C. Azure Cost Management
- ☐ D. Azure Advisor

26. Which tool compares your existing on-premises infrastructure cost to running the equivalent in Azure?

- ☐ A. Azure Pricing Calculator
- ☐ B. TCO Calculator
- ☐ C. Azure Cost Management + Billing
- ☐ D. Azure Advisor

27. Approximately how much downtime per year does a 99.99% SLA allow?

- ☐ A. ~3.65 days
- ☐ B. ~8.76 hours
- ☐ C. ~52.6 minutes
- ☐ D. ~5.26 minutes

28. If two dependent services each carry a 99.9% SLA, what happens to the composite SLA?

- ☐ A. It stays at 99.9%
- ☐ B. It becomes higher than 99.9%
- ☐ C. It becomes lower than 99.9%
- ☐ D. SLA does not apply to combined services

29. Which Azure support plan is free and included by default for every customer?

- ☐ A. Developer
- ☐ B. Standard
- ☐ C. Basic
- ☐ D. Professional Direct

30. Where can you check the public, real-time health of Azure services across all regions, without signing in?

- ☐ A. Azure Service Health (in-portal)
- ☐ B. Azure Status page (public website)
- ☐ C. Azure Resource Health
- ☐ D. Azure Monitor

31. Which term describes computing resources dedicated exclusively to a single organization?

- ☐ A. Public cloud
- ☐ B. Private cloud
- ☐ C. Multi-cloud
- ☐ D. Community cloud

32. A region pair is typically how far apart, where possible?

- ☐ A. At least 50 miles
- ☐ B. At least 100 miles
- ☐ C. At least 300 miles
- ☐ D. At least 1,000 miles

33. Which Azure service is a fully managed file share accessed via SMB/NFS protocols?

- ☐ A. Blob storage
- ☐ B. Azure Files
- ☐ C. Queue storage
- ☐ D. Table storage

34. Which service securely stores secrets, encryption keys, and certificates?

- ☐ A. Azure Key Vault
- ☐ B. Azure Policy
- ☐ C. Microsoft Sentinel
- ☐ D. Azure Blueprints

35. Which service is a cloud-native SIEM/SOAR used to detect and respond to security threats?

- ☐ A. Microsoft Defender for Cloud
- ☐ B. Microsoft Sentinel
- ☐ C. Microsoft Entra ID
- ☐ D. Azure Policy

36. What is the correct order of Azure's infrastructure hierarchy, from largest to smallest?

- ☐ A. Region → Geography → Zone → Datacenter
- ☐ B. Geography → Region → Availability Zone → Datacenter
- ☐ C. Datacenter → Zone → Region → Geography
- ☐ D. Zone → Region → Datacenter → Geography

37. Which Infrastructure-as-Code language compiles down to ARM templates and is designed to be easier to read and write?

- ☐ A. Bicep
- ☐ B. Terraform
- ☐ C. PowerShell DSC
- ☐ D. YAML

38. Which tool packages role assignments, policies, and ARM templates to repeatably deploy compliant environments?

- ☐ A. Azure Blueprints
- ☐ B. Azure Monitor
- ☐ C. Azure Bastion
- ☐ D. Azure Migrate

39. Which billing factor is typically charged for data leaving Azure but not for data entering it?

- ☐ A. Compute hours
- ☐ B. Storage capacity
- ☐ C. Bandwidth/data egress
- ☐ D. Support plan fee

40. Do services in Public Preview typically carry a full published SLA?

- ☐ A. Yes, always
- ☐ B. No, typically not
- ☐ C. Only for PaaS services
- ☐ D. Only for SaaS services

Answer key

- | | |
|------|------|
| 1. B | 5. C |
| 2. B | 6. C |
| 3. C | 7. B |
| 4. C | 8. B |

- | | |
|-------|-------|
| 9. B | 25. B |
| 10. C | 26. B |
| 11. C | 27. C |
| 12. B | 28. C |
| 13. C | 29. C |
| 14. B | 30. B |
| 15. B | 31. B |
| 16. B | 32. C |
| 17. B | 33. B |
| 18. C | 34. A |
| 19. A | 35. B |
| 20. B | 36. B |
| 21. B | 37. A |
| 22. B | 38. A |
| 23. B | 39. C |
| 24. A | 40. B |

 **Study tip:** Scoring guide: 36/40 (90%) or better on a cold, timed attempt is a strong signal you are ready to book your exam.

Full-Length Mock Exam — Set B (40 More Questions)

Once Set A feels comfortable, use Set B as a fresh, non-overlapping test of the same material. Treat it exactly like exam day: 45 minutes, no notes.

1. Which term describes owning physical servers whose value depreciates over time on the balance sheet?

- ☐ A. Operational expenditure
- ☐ B. Capital expenditure
- ☐ C. Consumption-based spend
- ☐ D. Elastic spend

2. A company wants to react to a sudden traffic spike by adding more, smaller VM instances rather than upgrading to bigger VMs. What is this called?

- ☐ A. Scaling up
- ☐ B. Scaling out
- ☐ C. Bursting down
- ☐ D. Vertical scaling

3. Which service model requires the customer to manage only their application and its data?

- ☐ A. IaaS
- ☐ B. PaaS
- ☐ C. On-premises
- ☐ D. Colocation

4. A company must keep certain workloads on hardware it fully owns while bursting other workloads to Azure. Which deployment model fits?

- ☐ A. Public cloud
- ☐ B. Private cloud
- ☐ C. Hybrid cloud
- ☐ D. Community cloud

5. Two Azure regions in the same geography, kept physically distant for disaster recovery, are called what?

- ☐ A. Availability zones
- ☐ B. Region pairs
- ☐ C. Edge zones
- ☐ D. Datacenter clusters

6. Which construct sits above subscriptions and lets governance apply to many subscriptions at once?

- ☐ A. Resource group
- ☐ B. Management group
- ☐ C. Tenant root group
- ☐ D. Billing account

7. Which compute option is best for a legacy application requiring a specific, custom OS driver?

- ☐ A. Azure Functions
- ☐ B. Azure App Service
- ☐ C. Azure Virtual Machines
- ☐ D. Azure Container Instances

8. Which compute service can scale a workload's execution to zero cost when it's completely idle?

- ☐ A. Virtual Machine Scale Sets
- ☐ B. Azure Functions (Consumption plan)
- ☐ C. Azure Kubernetes Service
- ☐ D. Azure App Service (dedicated plan)

9. Which service segments a virtual network and lets you apply distinct security rules to different application tiers?

- ☐ A. Azure Firewall
- ☐ B. Subnets with NSGs
- ☐ C. Azure Bastion
- ☐ D. Azure Front Door

10. Which service routes end users to the nearest healthy Azure region purely at the DNS level?

- ☐ A. Azure Load Balancer
- ☐ B. Application Gateway
- ☐ C. Azure Traffic Manager
- ☐ D. Network Security Group

11. Which Blob access tier is intended for data accessed frequently?

- ☐ A. Archive
- ☐ B. Cool
- ☐ C. Hot
- ☐ D. Cold

12. Which redundancy option provides only local, single-datacenter protection?

- ☐ A. LRS
- ☐ B. ZRS
- ☐ C. GRS
- ☐ D. RA-GRS

13. Which database service supports multiple APIs including SQL (Core), MongoDB, Cassandra, and Gremlin?

- ☐ A. Azure SQL Database
- ☐ B. Azure Cosmos DB
- ☐ C. Azure Database for MySQL
- ☐ D. Azure Table Storage (classic)

14. Which term describes confirming a user is who they claim to be?

- ☐ A. Authorization
- ☐ B. Authentication
- ☐ C. Auditing
- ☐ D. Accounting

15. Requiring two or more verification methods to sign in is known as what?

- ☐ A. Single sign-on
- ☐ B. Multi-Factor Authentication
- ☐ C. Conditional Access
- ☐ D. Federated identity

16. Which layer of defense in depth deals with encryption and classification of information itself?

- ☐ A. Perimeter
- ☐ B. Network
- ☐ C. Data
- ☐ D. Identity

17. Which Azure tool assesses your security posture and provides a Secure Score?

- ☐ A. Microsoft Sentinel
- ☐ B. Microsoft Defender for Cloud
- ☐ C. Azure Advisor
- ☐ D. Azure Monitor

18. Which governance tool would block deployment of a VM size that violates an organizational standard?

- ☐ A. RBAC
- ☐ B. Azure Policy (deny effect)
- ☐ C. Tags
- ☐ D. Resource locks

19. Which lock type blocks both modification and deletion of a resource?

- ☐ A. CanNotDelete
- ☐ B. ReadOnly
- ☐ C. NoAccess
- ☐ D. Frozen

20. Which framework guides an organization's overall strategy for planning, readying, adopting, and governing the cloud?

- ☐ A. Well-Architected Framework
- ☐ B. Cloud Adoption Framework
- ☐ C. Zero Trust model
- ☐ D. Shared responsibility model

21. Which command-line tool lets you manage Azure resources entirely from the browser with no local install?

- ☐ A. Azure PowerShell (local)
- ☐ B. Azure CLI (local)
- ☐ C. Azure Cloud Shell
- ☐ D. Azure Mobile App

22. Which telemetry-focused service collects metrics and logs to help maximize availability and performance?

- ☐ A. Azure Advisor
- ☐ B. Azure Monitor
- ☐ C. Azure Service Health
- ☐ D. Azure Policy

23. Which service extends Azure Policy and Monitor to on-premises or other-cloud resources?

- ☐ A. Azure Arc
- ☐ B. Azure Stack HCI (alone)
- ☐ C. Azure Bastion
- ☐ D. Azure Front Door

24. What is the main advantage of Bicep over raw ARM JSON templates?

- ☐ A. It runs faster at deployment time
- ☐ B. It is a simpler, more readable syntax that compiles to ARM
- ☐ C. It replaces the need for resource groups
- ☐ D. It only works with Kubernetes

25. Which tool would you use to estimate a brand-new Azure deployment's monthly cost before creating anything?

- ☐ A. TCO Calculator
- ☐ B. Azure Pricing Calculator
- ☐ C. Cost Management + Billing
- ☐ D. Azure Advisor

26. Roughly how much downtime per year does a 99% SLA allow?

- ☐ A. ~52.6 minutes
- ☐ B. ~8.76 hours
- ☐ C. ~3.65 days
- ☐ D. ~36.5 days

27. Deploying redundant, independent resources across two regions has what effect on overall effective availability?

- ☐ A. Decreases it
- ☐ B. Has no effect
- ☐ C. Increases it
- ☐ D. Voids the SLA entirely

28. Which support plan adds a designated Technical Account Manager and proactive guidance for business/mission-critical apps?

- ☐ A. Basic
- ☐ B. Developer
- ☐ C. Professional Direct
- ☐ D. Standard

29. Which of these is generally billed, while the counterpart is generally free?

- ☐ A. Data egress (billed) vs. data ingress (free)
- ☐ B. Data ingress (billed) vs. data egress (free)
- ☐ C. Both are always free
- ☐ D. Both are always billed equally

30. What is the defining feature of a resource group?

- ☐ A. It is the top-level billing boundary
- ☐ B. It is a logical container for resources sharing a lifecycle
- ☐ C. It replaces the need for RBAC
- ☐ D. It is used only for networking resources

31. Which Azure global infrastructure unit is defined as a discrete market preserving data residency?

- ☐ A. Region
- ☐ B. Geography
- ☐ C. Availability Zone
- ☐ D. Edge location

32. Which of the following is an example of a SaaS product?

- ☐ A. Azure Virtual Machines
- ☐ B. Azure App Service
- ☐ C. Microsoft 365
- ☐ D. Azure Kubernetes Service

33. Azure Files is best described as:

- ☐ A. Object storage for unstructured blobs
- ☐ B. A managed file share accessed via SMB/NFS
- ☐ C. A message queue service
- ☐ D. A NoSQL key-value store

34. What benefit does a fully managed PaaS database provide that a self-managed database does not?

- ☐ A. Manual patching control
- ☐ B. Automated patching, backups, and built-in HA
- ☐ C. Unlimited free storage
- ☐ D. No need for any redundancy planning

35. Which Zero Trust principle assumes an attacker may already be inside the network?

- ☐ A. Verify explicitly
- ☐ B. Least-privilege access
- ☐ C. Assume breach
- ☐ D. Trust but verify

36. Which tool centralizes budgets, forecasts, and cost breakdowns by tag or resource group?

- ☐ A. Azure Advisor
- ☐ B. Azure Cost Management + Billing
- ☐ C. Azure Monitor
- ☐ D. Azure Policy

37. Which is true about General Availability (GA) services compared to Public Preview services?

- ☐ A. GA services are less stable than Preview
- ☐ B. GA services are fully supported and SLA-covered; Preview typically is not
- ☐ C. Preview services always cost more
- ☐ D. There is no meaningful difference

38. What is the primary purpose of tags on Azure resources?

- ☐ A. Enforcing network security rules
- ☐ B. Organizing resources for cost reporting and automation
- ☐ C. Replacing resource groups
- ☐ D. Encrypting data at rest

39. Which is the correct relationship between Azure Policy and RBAC?

- ☐ A. They are the same thing
- ☐ B. Policy enforces compliance/rules; RBAC controls permissions/actions
- ☐ C. RBAC enforces compliance; Policy controls permissions
- ☐ D. Neither affects governance

40. Which Azure global infrastructure element has independent power, cooling, and networking within a region?

- ☐ A. Geography
- ☐ B. Region pair
- ☐ C. Availability Zone
- ☐ D. Subscription

Answer key — Set B

- | | |
|------|-------|
| 1. B | 6. B |
| 2. B | 7. C |
| 3. B | 8. B |
| 4. C | 9. B |
| 5. B | 10. C |

11. C

12. A

13. B

14. B

15. B

16. C

17. B

18. B

19. B

20. B

21. C

22. B

23. A

24. B

25. B

26. C

27. C

28. C

29. A

30. B

31. B

32. C

33. B

34. B

35. C

36. B

37. B

38. B

39. B

40. C

Frequently Asked Questions About the AZ-900 Exam

Do I need any hands-on Azure experience before taking AZ-900?

No. AZ-900 is explicitly designed for beginners and does not assume any prior Azure, scripting, or infrastructure experience. That said, completing the hands-on walkthroughs in Chapter 15B will make several questions feel far more intuitive than pure reading alone.

How many questions are on the real exam, and what is the passing score?

Microsoft varies exact question counts and does not publish a fixed pass mark publicly, but candidates commonly report 40–60 questions with roughly 85 minutes allotted, scored on a scaled 700/1000 pass threshold. Always check the official exam page for the current, authoritative format before booking.

What question formats should I expect?

Multiple choice (single answer), multiple response (select all that apply), drag-and-drop matching, and occasional case-study-style scenarios with several related questions. This book's mock exam in Chapter 20 mirrors the single-answer multiple-choice format, which is the most common.

Is the exam proctored online or only at a test center?

Both options are typically available: an in-person Pearson VUE test center, or an online proctored exam taken from home with a webcam and ID verification. Requirements for online proctoring (quiet room, clear desk, working webcam) are strict — read the current online proctoring rules on the official exam page well before your scheduled time.

How long is the AZ-900 certification valid?

Fundamentals-level certifications from Microsoft generally do not expire and do not require renewal, unlike role-based certifications (Associate/Expert), which typically require an annual free renewal assessment.

Can I retake the exam if I fail?

Yes. There is typically a mandatory waiting period before a first retake (commonly 24 hours), with longer waiting periods for subsequent attempts. Retake fees generally apply. Always confirm the current policy on the official Microsoft Learn certification page, since these rules can change.

Should I take AI-900 or AZ-900 first?

AZ-900 is the broader, more foundational exam covering general cloud and Azure concepts, and is the more common starting point. AI-901 (the renamed AI Fundamentals exam) is a narrower, AI/ML-focused track best taken by candidates specifically interested in Azure AI services, either before or after AZ-900 depending on your career focus.

Is a free Azure account enough to practice for the exam?

Yes. The free tier and included credit are more than sufficient to complete every walkthrough in Chapter 15B. Just remember to delete any resources

you create once you're done practicing, so you don't accrue unexpected charges after any free credit or trial period ends.

What should I bring to an in-person testing center?

Two forms of valid, unexpired identification (one government-issued with a photo) matching the name used at registration. Personal items, phones, and notes are not allowed in the testing room and are typically stored in a locker.

Are the practice questions in this book exactly like the real exam?

They are written to mirror the phrasing style, scenario structure, and difficulty level of real AZ-900 questions, based on the publicly documented skills outline — but they are original content, not reproductions of any copyrighted exam question bank. Treat them as calibrated practice, not a leaked question dump (which would violate Microsoft's certification agreement and could get your certification revoked if used).

What is the single most common reason candidates fail on a first attempt?

Confusing services that sound similar but serve different purposes — Load Balancer vs. Application Gateway vs. Traffic Manager; Azure Monitor vs. Azure Advisor; Azure Policy vs. RBAC. Chapters 8, 11, 12, and 13 of this book specifically target those confusions with side-by-side comparison tables.

How much does the AZ-900 exam cost, and does the price vary by country?

Microsoft prices fundamentals exams modestly compared to Associate/Expert exams, and pricing is set per country/currency, so the number you see at checkout depends on your billing region. Microsoft

periodically runs free voucher promotions (through Learn events, student programs, or partner offers) — it's worth checking for an active voucher before paying full price.

Do I need to know Azure PowerShell or the CLI for this exam?

No. AZ-900 is a fundamentals exam and is concept-focused rather than syntax-focused. You won't be asked to write a CLI command or a script. Deeper exams like AZ-104 and AZ-204 do expect command-line and scripting comfort, which is one more reason this book's hands-on walkthroughs in Chapter 15B are worth doing even though they aren't strictly required to pass.

Is there negative marking for wrong answers?

No. Microsoft certification exams do not penalize incorrect answers beyond simply not awarding points for that question, so it is always worth selecting your best guess rather than leaving a question blank.

Can I use a calculator or scratch paper during the exam?

Most Pearson VUE test centers provide a physical whiteboard or dry-erase sheet for notes, or an on-screen equivalent for online proctored exams. Bringing your own paper, calculator, or notes is not permitted, and personal calculators are unnecessary since AZ-900 has no significant math component.

How far in advance should I book my exam?

There's no fixed rule, but booking 2–3 weeks ahead gives you a firm deadline to study toward (which tends to improve follow-through) while leaving

enough flexibility to reschedule once, free of charge, if you need more time — as long as you reschedule outside the provider's minimum notice window, commonly 24 hours.

Will this book alone be enough, or should I also do the official Microsoft Learn modules?

This book is designed to be sufficient on its own for most learners, covering every skill in the public AZ-900 outline with explanations, diagrams, and two full mock exams. That said, pairing it with the free, interactive Microsoft Learn modules is a good idea if you learn better by clicking through a live sandbox than by reading — the two formats reinforce each other well.

What happens to my score if I run out of time mid-question?

Any question not answered when time expires is scored as incorrect, the same as a wrong answer — there is no partial credit. Pacing (roughly 90 seconds to 2 minutes per question, covered in Chapter 22) is designed specifically to avoid this outcome.

Does Azure Fundamentals certification expire if Azure services change?

Your certification badge itself does not expire, but the underlying exam content is periodically refreshed by Microsoft to track platform changes. If you're certifying to demonstrate current knowledge to an employer years later, it's reasonable to mention the certification year alongside the badge, and consider a refresher pass on any major new service announcements.

Exam Day Logistics & Test-Taking Strategy

The week before

Finish new content at least three days before your exam date. The final days should be pure review: re-reading callouts, redrawing diagrams, and retaking the practice questions in Chapters 16 and 20. Cramming new material the night before tends to crowd out material you already knew well, which is counterproductive so close to test day.

The night before

Confirm your appointment time, testing method (center or online), and identification requirements. If testing online, run through your proctoring software's system check well in advance — discovering a webcam or connectivity issue an hour before your slot is one of the most common, entirely avoidable causes of a missed appointment. Get a full night's sleep; a rested brain outperforms a few extra hours of last-minute review.

During the exam

- **Read every question twice.** AZ-900 distractors are frequently a real, valid Azure service — just the wrong one for the specific scenario described.

- **Watch for absolute words.** Options containing "always," "never," or "only" are often (not always) the incorrect choice, because cloud services rarely behave with zero exceptions.
- **Flag and move on.** If a question stumps you, mark it for review and continue — a later question sometimes jogs your memory, and you avoid burning disproportionate time on one point.
- **Eliminate before you guess.** Even if you don't know the exact answer, you can usually eliminate one or two options that clearly belong to the wrong service category (e.g., a storage answer to a networking question).
- **Manage your pace.** With roughly 85 minutes and 40–60 questions, budget no more than 1.5–2 minutes per question on your first pass, saving extra time for flagged questions at the end.

Common myths, debunked

Myth	Reality
"You need coding experience to pass."	False — AZ-900 tests concepts and service names, not syntax or scripting.
"Failing once means you can never try again."	False — retakes are allowed after a waiting period, with standard retake fees.
"Memorizing every service name guarantees a pass."	False — most questions test whether you can match a scenario to the right concept, not bare recall.
"AZ-900 expires and must be renewed yearly."	False — Fundamentals-level certifications generally do not expire, unlike Associate/Expert-level ones.

After the exam

Most candidates receive a pass/fail result immediately on-screen at the end of the exam, with a detailed score report and digital badge following within a few business days through the Credly/Microsoft Learn credentialing system. If you don't pass, review the domain-level performance breakdown in your score report — it tells you exactly which of the four domains in Chapter 1's weighting table to revisit before your next attempt.

 **Study tip:** Whatever the outcome, treat this as the first rung of a longer ladder. Many successful cloud careers start with exactly this exam — the goal was never just a badge, but the working vocabulary you now have for everything that comes next.

Your Next Steps After AZ-900

AZ-900 is a foundation, not a finish line. Once you pass, the Microsoft certification path branches into role-based tracks. Which one to pursue next depends entirely on the kind of work you want to do.

If you want to manage cloud infrastructure day-to-day

AZ-104: Microsoft Azure Administrator Associate is the natural next step. It goes deep on the topics this book introduced at a conceptual level — VNets, storage accounts, identity, monitoring — but expects you to actually configure them, not just describe them. Expect hands-on portal and CLI practice to matter far more here than pure reading.

If you want to build applications on Azure

AZ-204: Developing Solutions for Microsoft Azure targets developers building and deploying apps using App Service, Functions, Cosmos DB, and Azure's messaging and event services. Comfort with at least one supported language (C#, Python, JavaScript, Java) is expected.

If you're drawn to security

SC-900: Microsoft Security, Compliance, and Identity Fundamentals is another fundamentals-level exam (like this one) that pairs naturally with AZ-

900, going deeper into Entra ID, Defender, Purview, and Sentinel. From there, **SC-200 (Security Operations Analyst)** or **SC-300 (Identity and Access Administrator)** are common next steps.

If you want to design whole solutions

AZ-305: Designing Microsoft Azure Infrastructure Solutions is the Solutions Architect Expert-level exam, typically pursued after AZ-104, and tests your ability to make architecture trade-offs across compute, storage, networking, and identity for a given business requirement — closer to the "case study" reasoning style hinted at in this book's scenario callouts, but far deeper.

If you're interested in AI

AI-901: Azure AI Fundamentals (the exam that replaced the older AI-900 code) is another fundamentals-level option covering machine learning, generative AI, and Azure AI services conceptually, without requiring you to write model code.

If data is more your interest

DP-900: Microsoft Azure Data Fundamentals covers core data concepts, relational and non-relational data, and analytics workloads — a natural complement to this book if your career is heading toward data engineering or analytics roles.

Career direction	Recommended next exam
Cloud infrastructure / operations	AZ-104
Application development	AZ-204
Security operations / identity	SC-900 → SC-200 / SC-300
Solutions architecture	AZ-104 → AZ-305
AI / machine learning	AI-901
Data engineering / analytics	DP-900 → DP-203

 **Study tip:** Whichever path you choose, keep applying the same study rhythm that got you through this book: read, diagram, question, review, repeat. It scales to every certification after this one.

PrepKloud publishes free study guides for many of the certifications listed above. Visit prepkloud.com to find your next one.

Rapid-Recall Flashcard Deck

Cover the right-hand column with your hand or a sheet of paper, say the answer out loud, then check yourself. Aim to go through the full deck in under 15 minutes once you're comfortable with the material.

Prompt	Answer
Pay only for what you use	Consumption-based model / OpEx
Automatic, real-time capacity change	Elasticity
Planned capacity change (bigger or more instances)	Scalability
Full OS control, closest to on-premises	IaaS
Provider manages OS/runtime, you manage app + data	PaaS
Fully managed, ready-to-use software	SaaS
Shared hardware, multi-tenant, internet-delivered	Public cloud
Dedicated to one organization only	Private cloud
Connects public + private clouds	Hybrid cloud
Uses two or more public cloud providers	Multi-cloud
Discrete market containing 2+ regions	Geography
Set of datacenters within a latency perimeter	Region
Physically distant region used for DR	Region pair

Independent power/cooling/network within a region	Availability Zone
Base logical container every resource must belong to	Resource group
Billing + access boundary linked to an account	Subscription
Sits above subscriptions for wide-scope governance	Management group
Common API behind Portal/CLI/PowerShell/REST	Azure Resource Manager (ARM)
Fastest way to run one container, no orchestration	Azure Container Instances
Managed Kubernetes for many containers at scale	Azure Kubernetes Service
Event-driven, pay-per-execution, scales to zero	Azure Functions
Private, dedicated, non-internet Azure connection	ExpressRoute
Encrypted tunnel over the public internet	VPN Gateway
Layer 4, regional traffic distribution	Azure Load Balancer
Layer 7, URL/host routing + WAF	Application Gateway
DNS-level routing across regions	Azure Traffic Manager
Cheapest storage tier, slowest retrieval	Archive tier
3 copies, one datacenter only	LRS
3 copies spread across zones in one region	ZRS
6 copies total, secondary not readable by default	GRS
Same as GRS, but secondary is always readable	RA-GRS
Globally distributed, multi-model NoSQL database	Azure Cosmos DB
Confirms who you are	Authentication
Determines what you can do	Authorization

Two or more verification methods to sign in	Multi-Factor Authentication (MFA)
If-then rules based on location/device/app signals	Conditional Access
Principal + role definition + scope	RBAC role assignment
Never trust, always verify	Zero Trust
Enforces organizational compliance rules	Azure Policy
Prevents deletion, allows edits	CanNotDelete lock
Prevents both edits and deletion	ReadOnly lock
Packages policy + RBAC + templates for repeatable envs	Azure Blueprints
Organization-wide cloud adoption strategy guidance	Cloud Adoption Framework
Individual workload design guidance (5 pillars)	Well-Architected Framework
Free, personalized recommendations engine	Azure Advisor
Platform-wide outage/maintenance status, in-portal	Azure Service Health
Health of one specific resource you own	Azure Resource Health
Public, sign-in-free, all-region Azure status page	Azure Status page
Extends Azure governance to non-Azure resources	Azure Arc
Simple DSL that compiles to ARM templates	Bicep
Estimates cost of a new Azure deployment	Azure Pricing Calculator
Compares on-prem cost to equivalent Azure cost	TCO Calculator
Budgets, alerts, and cost breakdowns	Azure Cost Management + Billing
Microsoft's committed uptime percentage	SLA (Service Level Agreement)
Combined SLA of dependent services (lower than either alone)	Composite SLA

Free, default Azure support plan	Basic support plan
<1 hour response, for production workloads	Standard support plan
Adds a Technical Account Manager + proactive guidance	Professional Direct support plan
Pre-release stage, typically no SLA	Public Preview
Fully supported, SLA-covered production stage	General Availability (GA)

Real-World Scenario Walkthroughs

The AZ-900 exam frequently frames questions as short business scenarios and asks you to pick the best-fit service or approach. The five walkthroughs below train that specific skill by reasoning through the decision out loud, the way you should in the exam.

Scenario: The seasonal retailer

An online retailer expects a 20x traffic spike for two weeks around a seasonal sale, then a return to normal traffic for the rest of the year. They currently run on fixed on-premises servers sized for peak load year-round, which sit mostly idle 50 weeks a year.

Reasoning: The core problem is a mismatch between fixed capacity and variable demand — this is the textbook definition of *elasticity*, not just scalability. The consumption-based pricing model means they only pay for the extra capacity during the two-week spike, then scale back down automatically. Azure App Service with autoscale rules, or VM Scale Sets, both fit this pattern well.

Best-fit answer: Move to Azure and use autoscaling compute (App Service autoscale or VM Scale Sets) to expand automatically for the sale period and contract afterward, paying only for consumption.

Scenario: The regulated healthcare provider

A hospital network must keep patient records within their home country's borders at all times due to local data residency law, but also wants the operational benefits of the public cloud.

Reasoning: Data residency requirements point directly at *region selection* — Azure lets you pin resources to a specific region (and its paired region for DR, ideally also within the legal boundary), rather than letting the platform choose automatically. This is a public cloud deployment model question disguised as a compliance question; the deployment model itself (public cloud) is still appropriate, but the region choice is what satisfies the legal requirement.

Best-fit answer: Public cloud deployment, with resources explicitly deployed to, and replicated only within, regions inside the required legal jurisdiction.

Scenario: The startup with unpredictable spend

A small startup's finance lead is nervous about a cloud bill spiraling out of control if a developer accidentally leaves an expensive VM running.

Reasoning: This is a cost governance question, not a compute question. The tools that directly address "don't let spend surprise us" are Azure Cost Management + Billing for budgets and alerts, combined with Azure Policy to prevent expensive SKUs from being deployed in the first place, and possibly a resource lock or RBAC restriction to limit who can create large VMs at all.

Best-fit answer: Configure a budget with alert thresholds in Cost Management, and use Azure Policy to restrict allowed VM sizes for that subscription.

Scenario: The company migrating a legacy .NET app

A company wants to move a legacy ASP.NET web application to Azure with minimal code changes, and doesn't want to manage patching or the underlying operating system themselves.

Reasoning: "Minimal code changes" plus "don't want to manage the OS" is the classic PaaS signal. Azure App Service is purpose-built for exactly this: it runs the application while Microsoft manages the underlying OS, patching, and runtime. Choosing IaaS (a VM) would still require them to manage the OS themselves, which contradicts the stated requirement.

Best-fit answer: Azure App Service (PaaS), not a virtual machine (IaaS).

Scenario: The global gaming company

A gaming company has players worldwide and needs single-digit-millisecond read/write latency for player profile data from any region, with automatic multi-region replication.

Reasoning: "Any region, low latency, automatic replication" is close to a direct definition of Azure Cosmos DB's value proposition — a globally distributed database designed specifically for this use case, with configurable consistency levels and turnkey multi-region writes. A single-region relational database (Azure SQL Database) could still work for some workloads, but would not meet the low-latency-from-anywhere requirement without significant added complexity.

Best-fit answer: Azure Cosmos DB with multi-region write enabled.

Scenario: The manufacturing firm going hybrid

A manufacturer wants to modernize its cloud footprint but must keep certain machine-control systems physically on the factory floor for latency and safety reasons, while moving reporting and analytics to the cloud.

Reasoning: This is a textbook hybrid cloud scenario — not every workload needs to move, and some legitimately shouldn't. The requirement isn't "all-in on cloud" or "stay on-prem," it's selective placement based on latency and safety constraints, connected by a reliable link (ExpressRoute or VPN Gateway) so the two environments can share data securely.

Best-fit answer: Hybrid cloud deployment model, connecting on-premises control systems to Azure-hosted analytics via ExpressRoute or a Site-to-Site VPN.

Scenario: The nonprofit with a tight budget

A small nonprofit wants to host a low-traffic informational website and a monthly batch job that processes donation reports, with almost no budget for ongoing infrastructure.

Reasoning: Two separate, small, intermittent workloads is a strong signal for serverless and consumption-based options rather than always-on infrastructure. A static or lightweight App Service (potentially on a free or low-cost tier) fits the website, while Azure Functions on a consumption plan — which charges only for actual execution time — fits the monthly batch job perfectly, since it would otherwise sit idle (and unbilled, under IaaS, still costing money) the rest of the month.

Best-fit answer: App Service (low-cost tier) for the website, Azure Functions (consumption plan) for the monthly batch job.

💡 **Study tip:** Notice the pattern in all seven: identify the one or two words in the scenario that are doing the real work ("elasticity," "data residency," "don't manage the OS," "any region, low latency," "some workloads must stay on-prem," "intermittent and low-budget"), then match that signal to the service or concept built specifically to answer it. Most AZ-900 scenario questions reward this kind of targeted reading over exhaustive knowledge of every service.

Glossary of Key Terms

Availability Zone

A physically separate location within an Azure region with independent power, cooling, and networking.

ARM (Azure Resource Manager)

The deployment and management layer behind every Azure management tool.

CapEx

Capital expenditure — upfront spending on owned physical infrastructure.

Conditional Access

Microsoft Entra ID feature enforcing if-then access rules based on signals like location or device.

Consumption-based model

Billing model where you pay only for the resources you actually use.

Cosmos DB

Azure's globally distributed, multi-model NoSQL database service.

Defense in depth

A layered security strategy spanning physical, identity, perimeter, network, compute, application, and data layers.

Elasticity

The ability to automatically scale resources up or down in real time to match demand.

ExpressRoute

A private, dedicated connection between on-premises networks and Azure that bypasses the public internet.

Fault tolerance

A system's ability to keep operating despite the failure of one or more components.

Geography

A discrete market containing two or more Azure regions, preserving data-residency boundaries.

GRS / RA-GRS

Geo-Redundant Storage, replicating data to a paired region; RA-GRS additionally allows read access to the secondary copy at any time.

Hybrid cloud

A deployment model combining public and private cloud resources with connectivity between them.

IaaS

Infrastructure as a Service — the provider manages hardware; you manage the OS upward.

Management group

A container above subscriptions used to apply governance settings to many subscriptions at once.

Microsoft Entra ID

Microsoft's cloud-based identity and access management service (formerly Azure Active Directory).

NSG (Network Security Group)

A set of rules that allow or deny inbound/outbound traffic to Azure resources.

OpEx

Operational expenditure — ongoing, consumption-based spending with no long-term owned asset.

PaaS

Platform as a Service — the provider manages the OS and runtime; you manage only your app and data.

RBAC

Role-Based Access Control — granting only necessary permissions via principal + role + scope.

Region pair

Two Azure regions within the same geography, used for disaster recovery and sequential platform updates.

Resource group

A logical container that holds related Azure resources sharing the same lifecycle.

SaaS

Software as a Service — fully managed, ready-to-use software accessed by end users.

Scalability

The ability to increase or decrease resource capacity, either by scaling up (bigger) or scaling out (more instances).

SLA

Service Level Agreement — Microsoft's committed uptime percentage for a paid service.

Subscription

A logical billing and access-control boundary linking Azure usage to an account.

TCO Calculator

A tool comparing the cost of existing on-premises infrastructure to running the equivalent in Azure.

Zero Trust

A security model that verifies every request explicitly rather than trusting anything by default.

ZRS

Zone-Redundant Storage — replicates data across availability zones within a single region.

Agility

The ability to react quickly and provision resources in minutes rather than weeks or months.

Azure Advisor

A free recommendation engine covering reliability, security, performance, cost, and operational excellence.

Azure Arc

Extends Azure management and governance to resources running outside Azure, including on-premises and other clouds.

Azure Bastion

A managed service providing secure RDP/SSH connectivity to VMs without exposing a public IP.

Azure Blueprints

Packages policies, RBAC, and templates for repeatable, compliant environment deployment.

Azure CLI

A cross-platform command-line tool for managing Azure resources via scripts.

Azure Cost Management + Billing

A tool for monitoring, allocating, and optimizing cloud spend with budgets and alerts.

Azure Functions

Azure's serverless, event-driven compute service billed by execution rather than always-on server time.

Azure Key Vault

A managed service for securely storing secrets, encryption keys, and certificates.

Azure Monitor

Collects and analyzes telemetry (metrics and logs) to maximize availability and performance.

Azure Policy

Creates, assigns, and enforces rules to keep resources compliant with organizational standards.

Azure Portal

The web-based graphical console for managing Azure resources.

Azure Resource Health

Reports on the health of one specific resource you own.

Azure Service Health

Reports on platform-wide Azure issues affecting your subscription or region.

Azure Stack

A family of products extending Azure services and capabilities into on-premises environments.

Azure Status page

A public website showing real-time health of Azure services across all regions.

Bicep

A simplified domain-specific language that compiles to ARM templates for Infrastructure as Code.

Blob storage

Massively scalable object storage for unstructured data like images, video, and backups.

Cloud Adoption Framework (CAF)

Microsoft documentation and best practices guiding an organization's overall cloud adoption strategy.

Composite SLA

The combined availability of dependent services, calculated by multiplying their individual SLA percentages.

Conditional Access

See entry above — enforces if-then access rules based on user, device, location, and app signals.

Datacenter

A physical building containing the servers, storage, and networking hardware behind Azure regions.

Defense in depth

A layered security strategy spanning physical, identity, perimeter, network, compute, application, and data layers.

Disaster recovery (DR)

The ability to restore business operations after a disruptive event, measured by RTO and RPO.

Elasticity

See entry above — automatic, real-time scaling of resources to match demand.

ExpressRoute

See entry above — a private, dedicated connection bypassing the public internet.

GA (General Availability)

The stage at which a service is fully supported, production-ready, and covered by its published SLA.

GZRS / RA-GZRS

Combines zone redundancy in the primary region with geo-redundancy to a paired region for the highest durability.

Managed disk

Block-level persistent storage attached to Azure Virtual Machines.

Microsoft Defender for Cloud

A cloud security posture management (CSPM) tool providing a Secure Score and recommendations.

Microsoft Purview Compliance Manager

Provides a compliance score and actionable recommendations across regulatory frameworks.

Microsoft Sentinel

A cloud-native SIEM/SOAR solution for detecting, investigating, and responding to security threats.

Public Preview

A pre-release stage where a service is available to try but is typically not covered by an SLA.

Queue storage

Stores and retrieves messages to enable asynchronous communication between application components.

RA-GRS

Read-Access Geo-Redundant Storage — GRS with a readable secondary copy at all times.

Region

A set of Azure datacenters within a latency-defined perimeter, connected via a low-latency network.

Resource lock

A setting (CanNotDelete or ReadOnly) that prevents accidental deletion or modification, regardless of RBAC role.

RPO (Recovery Point Objective)

The maximum acceptable amount of data loss, measured in time, after a disruptive event.

RTO (Recovery Time Objective)

The maximum acceptable length of time to restore operations after a disruptive event.

Scale out / scale up

Scale out adds more instances; scale up increases the size/power of an existing instance.

SLA (Service Level Agreement)

Microsoft's committed uptime percentage for a paid service.

Tags

Name/value pairs attached to resources for cost reporting and organization independent of the resource group hierarchy.

Well-Architected Framework

Guidance across reliability, security, cost optimization, operational excellence, and performance efficiency for individual workloads.

Zero Trust

See entry above — a model that verifies every request explicitly rather than trusting by default.

Appendix: Quick-Reference Cheat Sheet

Use this two-page spread for your final review pass, ideally the night before your exam.

Service models

Model	Example
IaaS	Virtual Machines
PaaS	App Service
SaaS	Microsoft 365

Governance tools

Tool	Purpose
Azure Policy	Enforce rules/compliance
RBAC	Control permissions
Locks	Prevent delete/modify
Tags	Organize for cost/reporting

Redundancy (least → most protection)

LRS	ZRS	GRS	RA-GRS	GZRS/RA-GZRS
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Support plans (low → high)

Basic	Developer	Standard	Pro Direct	Premier
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Networking

Layer	Service
DNS/global	Traffic Manager
L7 + WAF	Application Gateway
L4/regional	Load Balancer

SLA memory aid

SLA	Downtime/yr
99%	~3.65 days
99.9%	~8.76 hrs
99.99%	~52.6 min

💡 **Study tip:** Final tip: On exam day, read every question twice. AZ-900 distractors are usually plausible-sounding services from the *wrong* category (e.g., offering Load Balancer when the scenario clearly needs Traffic Manager). Match the scenario's keyword to the concept, not to the most "familiar-sounding" answer.

Thank you for studying with PrepKloud. More free guides, practice tests, and roadmaps are available at **preploud.com**. Good luck on your exam!

Appendix: Consolidated Comparison Tables

These tables pull together the "which one do I pick" comparisons scattered across earlier chapters into one place, for a fast final scan.

Compute options

Service	Control level	Best for
Virtual Machines	Full OS control	Lift-and-shift, custom OS/software requirements
VM Scale Sets	Full OS control, auto-managed count	Identical VMs that need to scale automatically
App Service	App code only	Web apps and APIs without OS management
Azure Container Instances	Container only	Single containers, burst workloads, no orchestration needed
Azure Kubernetes Service	Container + orchestration config	Many containers needing scheduling, scaling, self-healing
Azure Functions	Function code only	Event-driven, short-lived, pay-per-execution logic

Storage redundancy options

Option	Copies	Spread across	Protects against
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LRS	3	One datacenter	Hardware failure only
ZRS	3	Availability zones in one region	Datacenter-level failure
GRS	6	Primary region + paired region	Region-wide outage (secondary not readable)
RA-GRS	6	Primary region + paired region	Region-wide outage (secondary readable)

Identity & access comparison

Concept	Answers the question
Authentication	"Are you who you say you are?"
Authorization	"What are you allowed to do?"
RBAC	"What actions can this identity perform, on what scope?"
Azure Policy	"What configurations are allowed to exist at all?"
Conditional Access	"Under what conditions should extra checks apply?"

Networking traffic distribution

Service	OSI layer	Scope
Azure Load Balancer	Layer 4 (transport)	Regional
Application Gateway	Layer 7 (application)	Regional, with WAF
Azure Traffic Manager	DNS-level	Global, across regions
Azure Front Door	Layer 7 (application)	Global, with CDN + WAF

Support plan comparison

Plan	Cost	Response time (critical)	Best for
Basic	Free	No SLA-backed response	Personal/trial accounts
Developer	Low fixed fee	<8 business hours	Non-production evaluation
Standard	Moderate fee	<1 hour	Production workloads
Professional Direct	Higher fee	<1 hour + TAM	Business-critical, high-touch needs

 **Study tip:** If you can mentally reconstruct every row of these five tables from memory, you have covered the comparison-style questions that make up a large share of the AZ-900 exam.

Common Exam Myths, Debunked

A surprising amount of exam-prep anxiety comes from secondhand claims that turn out to be outdated or simply wrong. Here are the ones we hear most often from learners, and what's actually true.

Myth: "You need to memorize every Azure service by name."

Untrue. AZ-900 tests roughly 30–40 services in meaningful depth, almost all of which are covered in this book. Azure has hundreds of services in total; the exam intentionally focuses on the ones a beginner is likely to encounter in real conversations about cloud strategy.

Myth: "Fundamentals exams are a rubber stamp with no real value."

Also untrue, and increasingly so. Many hiring managers now explicitly screen for AZ-900 (or an equivalent) as a baseline signal of cloud literacy, even for non-technical roles like sales engineering, project management, and procurement. It's a floor, not a ceiling — but the floor matters.

Myth: "You can pass just by cramming practice questions the night before."

Risky at best. Question banks that circulate outside official channels are frequently outdated, sometimes deliberately wrong, and using them can violate Microsoft's certification agreement. This book's mock exams are original and mirror the skills outline, but genuine conceptual understanding (the kind built by working through Chapters 1–14) transfers to reworded questions in a way that memorized answers never do.

Myth: "Once you're certified, you're done — no more learning needed."

Cloud platforms change monthly. Certification badges (especially at the fundamentals level) represent a point-in-time baseline, not a permanent mastery claim. The healthiest approach, covered in Chapter 23, is to treat AZ-900 as the first checkpoint in an ongoing path, not a final destination.

Myth: "You must take the exam in English."

Not necessarily. Microsoft offers many certification exams, including fundamentals-level ones, in multiple languages depending on the exam and region. Check the language options on the specific exam's registration page — availability can vary and does change over time.

Myth: "If you fail once, it looks bad and follows your record."

No employer sees your failed attempts — only your current, valid certifications appear in verification and on your public credential profile (if

you choose to share it). A failed attempt is private information used only to schedule your retake waiting period.

Myth: "You have to be a developer or IT professional to pass."

Not at all. AZ-900 was specifically built for non-technical audiences — sales teams, project managers, finance and procurement staff, students exploring a career change — as well as technical staff. Nothing in the skills outline assumes coding ability, and this book's explanations deliberately avoid jargon wherever a plain-language description does the job.

Myth: "The exam is basically the same every year, so old study material still works fine."

Partially true at best. Core concepts like the shared responsibility model or the difference between IaaS and PaaS are stable and rarely change. But specific service names, newer offerings, and pricing/support details are refreshed by Microsoft over time, so material more than a year or two old can quietly drift out of sync with the current skills outline. Always cross-check the publication or last-updated date of any AZ-900 resource, including this one, against the exam's official skills-measured document.

 **Study tip:** When in doubt about any exam-policy detail (cost, retake windows, proctoring rules, language availability), the official Microsoft Learn certification page for AZ-900 is always the authoritative, up-to-date source — treat any prep material, including this book, as a study aid that supplements it, not a replacement for it.

A Closing Word

If you've read this book cover to cover, worked through the case studies, completed the hands-on walkthroughs, and sat both mock exams, you are genuinely ready for AZ-900 — not just in the sense of being able to answer questions, but in the sense of actually understanding how cloud computing changes the trade-offs organizations make around cost, scale, security, and speed.

That understanding is worth more than the badge itself. Certifications open doors and validate effort to employers, but the mental model you now carry — elasticity versus scalability, shared responsibility, the right service for the right constraint — is what actually makes you useful in a room full of decision-makers, regardless of whether a badge is displayed next to your name.

A few closing recommendations, gathered from learners who've been through this exact path:

- Book your exam date before you feel "ready." A deadline is a better motivator than a feeling.
- Redo both mock exams within 48 hours of your actual appointment, not weeks before — recency matters more than most people expect.

- On the day itself, arrive (or log in) early, breathe, and trust the preparation you've already put in.
- Whatever the outcome, keep moving along the path in Chapter 23. One exam is a data point, not a verdict.

Thank you again for choosing PrepKloud for this stage of your journey. We built this book because we believe good, honest, jargon-free explanations should be free and accessible to anyone starting out in cloud — and we'd genuinely love to hear how your exam goes.

— The PrepKloud Team · prepkloud.com