Exam AZ-900: Microsoft Azure Fundamentals – Skills Measured

This exam will be updated on September 15, 2020. Following the current exam guide, we have included a version of the new exam guide as well as a marked-up guide showing the changes.

Audience Profile

Candidates for this exam should have foundational knowledge of cloud services and how those services are provided with Microsoft Azure. The exam is intended for candidates who are just beginning to work with cloud-based solutions and services or are new to Azure.

Azure Fundamentals exam is an opportunity to prove knowledge of cloud concepts, Azure services, Azure workloads, security and privacy in Azure, as well as Azure pricing and support. Candidates should be familiar with the general technology concepts, including concepts of networking, storage, compute, application support, and application development.

Azure Fundamentals can be used to prepare for other Azure role-based or specialty certifications, but it is not a prerequisite for any of them.

Skills Measured

NOTE: The bullets that appear below each of the skills measured are intended to illustrate how we are assessing that skill. This list is not definitive or exhaustive.

NOTE: Unless otherwise noted in the skills measured or in the exam description, exams do not cover preview features. In most cases, features will only be added to exams when they are GA (general availability).

Describe Cloud Concepts (15-20%)

Describe the benefits and considerations of using cloud services

- describe terms such as High Availability, Scalability, Elasticity, Agility, Fault Tolerance, and Disaster Recovery
- describe the principles of economies of scale
- describe the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx)
- describe the consumption-based model

Describe the differences between Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS)

- describe Infrastructure-as-a-Service (IaaS),
- describe Platform-as-a-Service (PaaS)
- describe Software-as-a-Service (SaaS)
- compare and contrast the three different service types

Describe the differences between Public, Private and Hybrid cloud models

- describe Public cloud
- describe Private cloud
- describe Hybrid cloud
- compare and contrast the three different cloud models

Describe Core Azure Services (30-35%)

Describe the core Azure architectural components

- describe Regions
- describe Availability Zones
- describe Resource Groups
- describe Azure Resource Manager
- describe the benefits and usage of core Azure architectural components

Describe some of the core products available in Azure

- describe products available for Compute such as Virtual Machines, Virtual Machine Scale Sets, App Services, Azure Container Instances (ACI) and Azure Kubernetes Service (AKS)
- describe products available for Networking such as Virtual Network, Load Balancer, VPN Gateway, Application Gateway and Content Delivery Network
- describe products available for Storage such as Blob Storage, Disk Storage, File Storage, and Archive Storage
- describe products available for Databases such as Cosmos DB, Azure SQL Database, Azure Database for MySQL, Azure Database for PostgreSQL, Azure Database Migration service
- describe the Azure Marketplace and its usage scenarios

Describe some of the solutions available on Azure

- describe Internet of Things (IoT) and products that are available for IoT on Azure such as IoT Hub and IoT Central
- describe Big Data and Analytics and products that are available for Big Data and Analytics such as Azure Synapse Analytics, HDInsight, and Azure Databricks
- describe Artificial Intelligence (AI) and products that are available for AI such as Azure Machine Learning Service and Studio

- describe Serverless computing and Azure products that are available for serverless computing such as Azure Functions, Logic Apps and Event Grid
- describe DevOps solutions available on Azure such as Azure DevOps and Azure DevTest Labs
- describe the benefits and outcomes of using Azure solutions

Describe Azure management tools

- describe Azure tools such as Azure Portal, Azure PowerShell, Azure CLI and Cloud Shell
- describe Azure Advisor

Describe Security, Privacy, Compliance, and Trust (25-30%)

Describe securing network connectivity in Azure

- describe Network Security Groups (NSG)
- describe Application Security Groups (ASG)
- describe User Defined Rules (UDR)
- describe Azure Firewall
- describe Azure DDoS Protection
- choose an appropriate Azure security solution

Describe core Azure Identity services

- describe the difference between authentication and authorization
- describe Azure Active Directory
- describe Azure Multi-Factor Authentication

Describe security tools and features of Azure

- describe Azure Security Center
- describe Azure Security Center usage scenarios
- describe Key Vault
- describe Azure Information Protection (AIP)
- describe Azure Advanced Threat Protection (ATP)

Describe Azure governance methodologies

- describe policies and initiatives with Azure Policy
- describe Role-Based Access Control (RBAC)
- describe Locks
- describe Azure Advisor security assistance
- describe Azure Blueprints

Describe monitoring and reporting options in Azure

- describe Azure Monitor
- describe Azure Service Health
- describe the use cases and benefits of Azure Monitor and Azure Service Health

Describe privacy, compliance and data protection standards in Azure

- describe industry compliance terms such as GDPR, ISO and NIST
- describe the Microsoft Privacy Statement
- describe the Trust center
- describe the Service Trust Portal
- describe Compliance Manager
- determine if Azure is compliant for a business need
- describe Azure Government cloud services
- describe Azure China cloud services

Describe Azure Pricing, Service Level Agreements, and Lifecycles (20-25%)

Describe Azure subscriptions

- describe an Azure Subscription
- describe the uses and options with Azure subscriptions such access control and offer types
- describe subscription management using Management groups

Describe planning and management of costs

- describe options for purchasing Azure products and services
- describe options around Azure Free account
- describe the factors affecting costs such as resource types, services, locations, ingress and egress traffic
- describe Zones for billing purposes
- describe the Pricing calculator
- describe the Total Cost of Ownership (TCO) calculator
- describe best practices for minimizing Azure costs such as performing cost analysis, creating spending limits and quotas, using tags to identify cost owners, using Azure reservations and using Azure Advisor recommendations
- describe Azure Cost Management

Describe Azure Service Level Agreements (SLAs)

- describe a Service Level Agreement (SLA)
- describe Composite SLAs
- describe how to determine an appropriate SLA for an application

Describe service lifecycle in Azure

- describe Public and Private Preview features
- describe the term General Availability (GA)
- describe how to monitor feature updates and product changes

The exam guide below shows the new study guide that will be in effect on September 15, 2020. Because there were many changes this round, we have included a marked-up study guide so that you can view the differences.

Skills measured

NOTE: The bullets that appear below each of the skills measured are intended to illustrate how we are assessing that skill. This list is not definitive or exhaustive.

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Describe Cloud Concepts (20-25%)

Identify the benefits and considerations of using cloud services

- identify the benefits of cloud computing, such as High Availability, Scalability, Elasticity, Agility, and Disaster Recovery
- identify the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx)
- describe the consumption-based model

Describe the differences between categories of cloud services

- describe the shared responsibility model
- describe Infrastructure-as-a-Service (IaaS),
- describe Platform-as-a-Service (PaaS)
- describe serverless computing
- describe Software-as-a-Service (SaaS)
- identify a service type based on a use case

Describe the differences between types of cloud computing

- define cloud computing
- describe Public cloud
- describe Private cloud
- describe Hybrid cloud
- compare and contrast the three types of cloud computing

Describe Core Azure Services (15-20%)

Describe the core Azure architectural components

- describe the benefits and usage of Regions and Region Pairs
- describe the benefits and usage of Availability Zones
- describe the benefits and usage of Resource Groups
- describe the benefits and usage of Subscriptions
- describe the benefits and usage of Management Groups
- describe the benefits and usage of Azure Resource Manager
- explain Azure resources

Describe core resources available in Azure

- describe the benefits and usage of Virtual Machines, Azure App Services, Azure Container Instances (ACI), Azure Kubernetes Service (AKS), and Windows Virtual Desktop
- describe the benefits and usage of Virtual Networks, VPN Gateway, Virtual Network peering, and ExpressRoute
- describe the benefits and usage of Container (Blob) Storage, Disk Storage, File Storage, and storage tiers
- describe the benefits and usage of Cosmos DB, Azure SQL Database, Azure Database for MySQL, Azure Database for PostgreSQL, and SQL Managed Instance
- describe the benefits and usage of Azure Marketplace

Describe core solutions and management tools on Azure (10-15%)

Describe core solutions available in Azure

- describe the benefits and usage of Internet of Things (IoT) Hub, IoT Central, and Azure Sphere
- describe the benefits and usage of Azure Synapse Analytics, HDInsight, and Azure Databricks
- describe the benefits and usage of Azure Machine Learning, Cognitive Services and Azure Bot Service
- describe the benefits and usage of serverless computing solutions that include Azure Functions and Logic Apps

- describe the benefits and usage of Azure DevOps, GitHub, GitHub Actions, and Azure DevTest Labs

Describe Azure management tools

- describe the functionality and usage of the Azure Portal, Azure PowerShell, Azure CLI, Cloud Shell, and Azure Mobile App
- describe the functionality and usage of Azure Advisor
- describe the functionality and usage of Azure Resource Manager (ARM) templates
- describe the functionality and usage of Azure Monitor
- describe the functionality and usage of Azure Service Health

Describe general security and network security features (10-15%)

Describe Azure security features

- describe basic features of Azure Security Center, including policy compliance, security alerts, secure score, and resource hygiene
- describe the functionality and usage of Key Vault
- describe the functionality and usage of Azure Sentinel
- describe the functionality and usage of Azure Dedicated Hosts

Describe Azure network security

- describe the concept of defense in depth
- describe the functionality and usage of Network Security Groups (NSG)
- describe the functionality and usage of Azure Firewall
- describe the functionality and usage of Azure DDoS protection

Describe identity, governance, privacy, and compliance features (20-25%)

Describe core Azure identity services

- explain the difference between authentication and authorization
- define Azure Active Directory
- describe the functionality and usage of Azure Active Directory
- describe the functionality and usage of Conditional Access, Multi-Factor Authentication (MFA), and Single Sign-On (SSO)

Describe Azure governance features

- describe the functionality and usage of Role-Based Access Control (RBAC)

- describe the functionality and usage of resource locks
- describe the functionality and usage of tags
- describe the functionality and usage of Azure Policy
- describe the functionality and usage of Azure Blueprints
- describe the Cloud Adoption Framework for Azure

Describe privacy and compliance resources

- describe the Microsoft core tenets of Security, Privacy, and Compliance
- describe the purpose of the Microsoft Privacy Statement, Online Services Terms (OST) and Data Protection Amendment (DPA)
- describe the purpose of the Trust Center
- describe the purpose of the Azure compliance documentation
- describe the purpose of Azure Sovereign Regions (Azure Government cloud services and Azure China cloud services)

Describe Azure cost management and Service Level Agreements (10-15%)

Describe methods for planning and managing costs

- identify factors that can affect costs (resource types, services, locations, ingress and egress traffic)
- identify factors that can reduce costs (reserved instances, reserved capacity, hybrid use benefit, spot pricing) Describe the functionality and usage of the Pricing calculator and the Total Cost of Ownership (TCO) calculator
- describe the functionality and usage of Azure Cost Management

Describe Azure Service Level Agreements (SLAs) and service lifecycles

- describe the purpose of an Azure Service Level Agreement (SLA)
- identify actions that can impact an SLA (i.e. Availability Zones)
- describe the service lifecycle in Azure (Public Preview and General Availability)

Marked-up guide below

Skills measured

NOTE: The bullets that appear below each of the skills measured are intended to illustrate how we are assessing that skill. This list is not definitive or exhaustive.

NOTE: Unless otherwise noted in the skills measured or in the exam description, exams do not cover preview features. In most cases, features will only be added to exams when they are GA (general availability).

Describe Cloud Concepts (~~15-20~~20-25%)

Identify~~Describe~~ the benefits and considerations of using cloud services

- identify the benefits of cloud computing, ~~Describe terms~~ such as High Availability, Scalability, Elasticity, Agility, ~~Fault Tolerance~~, and Disaster Recovery
- ~~describe the principles of economies of scale~~
- ~~describe~~ Identify the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx)
- describe the consumption-based model

Describe the differences between categories of cloud

services~~Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS)~~
- describe the shared responsibility model
- describe Infrastructure-as-a-Service (IaaS),
- describe Platform-as-a-Service (PaaS)
- describe serverless computing
- describe Software-as-a-Service (SaaS)
- identify a service type based on a use case
- identify a service type based on a use case
- ~~compare and contrast the three different service types~~

Describe the differences between types of cloud computing~~Public, Private and Hybrid cloud models~~
- define cloud computing
- describe Public cloud
- describe Private cloud
- describe Hybrid cloud
- compare and contrast the three types of cloud computing~~different cloud models~~

Describe Core Azure Services (~~30-35~~15-20%)

Describe the core Azure architectural components

- describe the benefits and usage of Regions and Region Pairs
- describe the benefits and usage of Availability Zones
- describe the benefits and usage of Resource Groups
- describe the benefits and usage of Subscriptions

- [describe the benefits and usage of Management Groups](#)
- describe [the benefits and usage of](#) Azure Resource Manager
- [explain Azure resources](#)
- ~~describe the benefits and usage of core Azure architectural components~~

Describe ~~some of the~~ core [resources](#)~~products~~ available in Azure

- describe [the benefits and usage of](#) ~~products available for Compute such as~~ Virtual Machines, ~~Virtual Machine Scale Sets,~~ [Azure](#) App Services, Azure Container Instances (ACI)[,](#) ~~and~~ Azure Kubernetes Service (AKS)[, and Windows Virtual Desktop](#)
- describe [the benefits and usage of](#) ~~products available for Networking such as~~ Virtual Network[s,](#) ~~Load Balancer,~~ VPN Gateway, [Virtual Network peering, and ExpressRoute](#)~~Application Gateway and Content Delivery Network~~
- describe [the benefits and usage of](#) ~~products available for Storage such as~~[Container](#) (Blob) Storage, Disk Storage, File Storage, and [storage tiers](#) ~~Archive Storage~~
- describe [the benefits and usage of](#) ~~products available for Databases such as~~ Cosmos DB, Azure SQL Database, Azure Database for MySQL, Azure Database for PostgreSQL, [and SQL Managed Instance](#) ~~Azure Database Migration service~~
- describe [the benefits and usage of](#) ~~the~~ Azure Marketplace ~~and its usage scenarios~~

Describe core solutions and management tools on Azure (10-15%)

Describe ~~some of the~~[core](#) solutions available [in](#)~~on~~ Azure

- describe [the benefits and usage of](#) Internet of Things (IoT) [Hub, IoT Central, and Azure Sphere](#) ~~and products that are available for IoT on Azure such as IoT Hub and IoT Central~~
- describe [the benefits and usage of](#) ~~Big Data and Analytics and products that are available for Big Data and Analytics such as~~ Azure Synapse Analytics, HDInsight, and Azure Databricks
- describe [the benefits and usage of](#) ~~Artificial Intelligence (AI) and products that are available for AI such as~~ Azure Machine Learning[, Cognitive](#) Service[s](#) and [Azure Bot Service](#)~~Studio~~
- describe [the benefits and usage of](#) [S](#)~~s~~erverless computing [solutions that include](#) ~~and Azure products that are available for serverless computing such as~~ Azure Functions[,](#)~~and~~ Logic Apps [and Event Grid](#)
- describe ~~the benefits and usage of DevOps solutions available on Azure such as~~ Azure DevOps[, GitHub, GitHub Actions,](#) and Azure DevTest Labs
- ~~describe the benefits and outcomes of using Azure solutions~~

Describe Azure management tools

- describe [the functionality and usage of the](#) ~~Azure tools such as~~ Azure Portal, Azure PowerShell, Azure CLI[,](#) ~~and~~ Cloud Shell[, and Azure Mobile App](#)
- describe [the functionality and usage of](#) Azure Advisor
- [describe the functionality and usage of Azure Resource Manager (ARM) templates](#)

- describe the functionality and usage of Azure Monitor
- describe the functionality and usage of Azure Service Health

Describe Security, Privacy, Compliance, and Trust (25-30%)

Describe securing network connectivity in Azure

- describe Network Security Groups (NSG)
- describe Application Security Groups (ASG)
- describe User Defined Rules (UDR)
- describe Azure Firewall
- describe Azure DDoS Protection
- choose an appropriate Azure security solution

Describe core Azure Identity services

- describe the difference between authentication and authorization
- describe Azure Active Directory
- describe Azure Multi-Factor Authentication

Describe security tools and features of Azure

- describe Azure Security Center
- describe Azure Security Center usage scenarios
- describe Key Vault
- describe Azure Information Protection (AIP)
- describe Azure Advanced Threat Protection (ATP)

Describe Azure governance methodologies

- describe policies and initiatives with Azure Policy
- describe Role-Based Access Control (RBAC)
- describe Locks
- describe Azure Advisor security assistance
- describe Azure Blueprints

Describe monitoring and reporting options in Azure

- describe Azure Monitor
- describe Azure Service Health
- describe the use cases and benefits of Azure Monitor and Azure Service Health

Describe privacy, compliance and data protection standards in Azure

Describe general security and network security features (10-15%)

Describe Azure security features

- describe basic features of Azure Security Center, including policy compliance, security alerts, secure score, and resource hygiene
- describe the functionality and usage of Key Vault
- describe the functionality and usage of Azure Sentinel
- describe the functionality and usage of Azure Dedicated Hosts

Describe Azure network security

- describe the concept of defense in depth
- describe the functionality and usage of Network Security Groups (NSG)
- describe the functionality and usage of Azure Firewall
- describe the functionality and usage of Azure DDoS protection

Describe identity, governance, privacy, and compliance features (20-25%)

- describe core Azure identity services
- explain the difference between authentication and authorization
- define Azure Active Directory
- describe the functionality and usage of Azure Active Directory
- describe the functionality and usage of Conditional Access, Multi-Factor Authentication (MFA), and Single Sign-On (SSO)

Describe Azure governance features

- describe the functionality and usage of Role-Based Access Control (RBAC)
- describe the functionality and usage of resource locks
- describe the functionality and usage of tags
- describe the functionality and usage of Azure Policy
- describe the functionality and usage of Azure Blueprints

- describe the Cloud Adoption Framework for Azure

Describe privacy and compliance resources

- describe the Microsoft core tenets of Security, Privacy, and Compliance
- describe the purpose of the Microsoft Privacy Statement, Online Services Terms (OST) and Data Protection Amendment (DPA)
- describe the purpose of the Trust Center
- describe the purpose of the Azure compliance documentation
- describe the purpose of Azure Sovereign Regions (Azure Government cloud services and Azure China cloud services)

Describe Azure cost management and ~~Pricing,~~ Service Level Agreements, ~~and Lifecycles~~ (~~20‑25~~10-15%)

~~Describe Azure subscriptions~~

- ~~describe an Azure Subscription~~
- ~~describe the uses and options with Azure subscriptions such access control and offer types~~
- ~~describe subscription management using Management groups~~

Describe methods for planning and mana~~gingement of~~ costs

- ~~describe options for purchasing Azure products and services~~
- ~~describe options around Azure Free account~~
- ~~describe the~~Identify factors that can affect costs~~ affecting costs such as ~~(resource types, services, locations, ingress and egress traffic)
- identify factors that can reduce costs (reserved instances, reserved capacity, hybrid use benefit, spot pricing)
- ~~describe Zones for billing purposes~~
- ~~describe the Pricing calculator~~
- describe the functionality and usage of the Pricing calculator and the Total Cost of Ownership (TCO) calculator
- ~~describe best practices for minimizing Azure costs such as performing cost analysis, creating spending limits and quotas, using tags to identify cost owners, using Azure reservations and using Azure Advisor recommendations~~
- describe the functionality and usage of Azure Cost Management

Describe Azure Service Level Agreements (SLAs) and service lifecycles
- describe the purpose of an Azure Service Level Agreement (SLA)
- identify actions that can impact an SLA (i.e. Availability Zones)
- describe the service lifecycle in Azure (Public Preview and General Availability)

- describe Composite SLAs
- describe how to determine an appropriate SLA for an application

Describe service lifecycle in Azure

- describe Public and Private Preview features
- describe the term General Availability (GA)
- describe how to monitor feature updates and product changes