

AZ-900 Reading Guide

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

- <https://docs.microsoft.com/en-us/azure/architecture/framework/resiliency/overview>
- <https://docs.microsoft.com/en-us/azure/architecture/guide/design-principles/redundancy>
- <https://docs.microsoft.com/en-us/azure/architecture/guide/design-principles/scale-out>
- <https://docs.microsoft.com/en-us/azure/architecture/best-practices/auto-scaling>
- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/strategy/business-outcomes/agility-outcomes>
- <https://docs.microsoft.com/en-us/azure/architecture/framework/resiliency/monitoring>
- <https://docs.microsoft.com/en-us/azure/architecture/resiliency/recovery-loss-azure-region>

- identify the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx)

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/strategy/business-outcomes/fiscal-outcomes#capital-expenses-and-operating-expenses>

- describe the consumption-based model

- <https://docs.microsoft.com/en-us/azure/architecture/framework/cost/design-price>

Describe the differences between categories of cloud services

- describe the shared responsibility model

- <https://docs.microsoft.com/en-us/azure/architecture/framework/security/role-of-security>

- describe Infrastructure-as-a-Service (IaaS)

- <https://azure.microsoft.com/en-us/overview/what-is-azure/iaas/>

- describe Platform-as-a-Service (PaaS)

- <https://azure.microsoft.com/en-us/overview/what-is-paas/>

- <https://docs.microsoft.com/en-us/azure/architecture/framework/cost/design-paas>

- describe serverless computing

- <https://azure.microsoft.com/en-us/overview/serverless-computing/>

- describe Software-as-a-Service (SaaS)
- <https://azure.microsoft.com/en-us/overview/what-is-saas/>
- identify a service type based on a use case
- <https://azure.microsoft.com/en-us/overview/types-of-cloud-computing/>
- <https://azure.microsoft.com/en-in/blog/how-i-choose-which-services-to-use-in-azure/>

Describe the differences between types of cloud computing

- define cloud computing
- <https://azure.microsoft.com/en-us/overview/what-is-the-cloud/>
- <https://azure.microsoft.com/en-us/overview/examples-of-cloud-computing/>
- describe Public cloud
- <https://azure.microsoft.com/en-us/overview/what-is-a-public-cloud/>
- describe Private cloud
- <https://azure.microsoft.com/en-us/overview/what-is-a-private-cloud/>
- describe Hybrid cloud
- <https://azure.microsoft.com/en-us/overview/what-is-hybrid-cloud-computing/>
- compare and contrast the three types of cloud computing
- <https://azure.microsoft.com/en-us/overview/what-are-private-public-hybrid-clouds/>

Describe Core Azure Services (15-20%)

Describe the core Azure architectural components

- describe the benefits and usage of Regions and Region Pairs
- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#region>
- <https://azure.microsoft.com/en-us/global-infrastructure/geographies/>
- <https://docs.microsoft.com/en-us/azure/best-practices-availability-paired-regions>
- describe the benefits and usage of Availability Zones
- <https://docs.microsoft.com/en-us/azure/availability-zones/az-overview>
- <https://docs.microsoft.com/en-us/azure/availability-zones/az-region>
- describe the benefits and usage of Resource Groups
- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#resource-group>

- <https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resource-groups-portal>

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/govern/resource-consistency/resource-access-management#what-is-an-azure-resource-group>

- describe the benefits and usage of Subscriptions

- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#subscription>

- <https://docs.microsoft.com/en-us/microsoft-365/enterprise/subscriptions-licenses-accounts-and-tenants-for-microsoft-cloud-offerings?view=o365-worldwide>

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/govern/resource-consistency/resource-access-management#what-is-an-azure-subscription>

- describe the benefits and usage of Management Groups

- <https://docs.microsoft.com/en-us/azure/governance/management-groups/overview>

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/decision-guides/subscriptions/>

- describe the benefits and usage of Azure Resource Manager

- <https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/overview>

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/govern/resource-consistency/resource-access-management#what-is-azure-resource-manager>

- explain Azure resources

- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#resource>

- <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/govern/resource-consistency/resource-access-management#what-is-an-azure-resource>

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

- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#vm>

- <https://azure.microsoft.com/en-us/overview/what-is-a-virtual-machine/>

- <https://docs.microsoft.com/en-us/azure/azure-glossary-cloud-terminology#web-app>

- <https://docs.microsoft.com/en-us/azure/app-service/overview>

- <https://docs.microsoft.com/en-us/azure/container-instances/container-instances-overview>

- <https://docs.microsoft.com/en-us/azure/aks/intro-kubernetes>

- <https://docs.microsoft.com/en-us/azure/virtual-desktop/overview>

- describe the benefits and usage of Virtual Networks, VPN Gateway, Virtual Network peering, and ExpressRoute
 - <https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-overview>
 - <https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-vpngateways>
 - <https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview>
 - <https://docs.microsoft.com/en-us/azure/expressroute/expressroute-introduction>
- describe the benefits and usage of Container (Blob) Storage, Disk Storage, File Storage, and storage tiers
 - <https://docs.microsoft.com/en-us/azure/storage/common/storage-account-overview>
 - <https://docs.microsoft.com/en-us/azure/virtual-machines/managed-disks-overview>
 - <https://docs.microsoft.com/en-us/azure/storage/files/storage-files-introduction>
 - <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers?tabs=azure-portal>
- describe the benefits and usage of Cosmos DB, Azure SQL Database, Azure Database for MySQL, Azure Database for PostgreSQL, and SQL Managed Instance
 - <https://docs.microsoft.com/en-us/azure/cosmos-db/introduction>
 - <https://docs.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview>
 - <https://docs.microsoft.com/en-us/azure/azure-sql/database/sql-database-paas-overview>
 - <https://docs.microsoft.com/en-us/azure/mysql/overview>
 - <https://docs.microsoft.com/en-us/azure/postgresql/overview>
 - <https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/>
- describe the benefits and usage of Azure Marketplace
 - <https://azuremarketplace.microsoft.com/en-us>
 - <https://azuremarketplace.microsoft.com/en-us/about>

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

Describe core solutions available in Azure

- describe the benefits and usage of the Internet of Things (IoT) Hub, IoT Central, and Azure Sphere
 - <https://docs.microsoft.com/en-us/azure/iot-fundamentals/iot-introduction>
 - <https://docs.microsoft.com/en-us/azure/iot-fundamentals/iot-services-and-technologies>

- <https://docs.microsoft.com/en-us/azure/iot-hub/about-iot-hub>
- <https://apps.azureiotcentral.com/>
- <https://docs.microsoft.com/en-us/azure/iot-central/core/overview-iot-central>
- <https://docs.microsoft.com/en-us/azure-sphere/product-overview/what-is-azure-sphere>
- describe the benefits and usage of Azure Synapse Analytics, HDInsight, and Azure Databricks
- <https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-overview-what-is>
- <https://docs.microsoft.com/en-us/azure/hdinsight/hdinsight-overview>
- <https://docs.microsoft.com/en-us/azure/databricks/scenarios/what-is-azure-databricks>
- describe the benefits and usage of Azure Machine Learning, Cognitive Services and Azure Bot Service
- <https://docs.microsoft.com/en-us/azure/machine-learning/overview-what-is-azure-ml>
- <https://docs.microsoft.com/en-us/azure/machine-learning/overview-what-is-machine-learning-studio>
- <https://docs.microsoft.com/en-us/azure/machine-learning/concept-azure-machine-learning-architecture>
- <https://docs.microsoft.com/en-us/azure/cognitive-services/welcome>
- <https://dev.botframework.com/>
- describe the benefits and usage of serverless computing solutions that include Azure Functions and Logic Apps
- <https://docs.microsoft.com/en-us/azure/azure-functions/functions-overview>
- <https://docs.microsoft.com/en-us/azure/azure-functions/functions-compare-logic-apps-ms-flow-webjobs>
- <https://docs.microsoft.com/en-us/azure/logic-apps/logic-apps-serverless-overview>
- describe the benefits and usage of Azure DevOps, GitHub, GitHub Actions, and Azure DevTest Labs
- <https://docs.microsoft.com/en-us/azure/devops/user-guide/what-is-azure-devops?view=azure-devops>
- <https://azure.microsoft.com/en-us/products/github/>
- <https://docs.microsoft.com/en-us/azure/developer/github/github-actions>
- <https://docs.microsoft.com/en-us/azure/devtest-labs/devtest-lab-overview>
- <https://docs.microsoft.com/en-us/azure/devtest-labs/devtest-lab-concepts>

Describe Azure management tools

- describe the functionality and usage of the Azure Portal, Azure PowerShell, Azure CLI, Cloud Shell, and Azure Mobile App

- <https://azure.microsoft.com/en-us/features/azure-portal/>
- <https://azure.microsoft.com/en-us/features/azure-portal/mobile-app/>
- <https://docs.microsoft.com/en-us/azure/azure-portal/azure-portal-overview>
- <https://docs.microsoft.com/en-us/powershell/scripting/overview?view=powershell-7>
- <https://docs.microsoft.com/en-us/cli/azure/what-is-azure-cli?view=azure-cli-latest>
- <https://docs.microsoft.com/en-us/azure/cloud-shell/overview>
- <https://azure.microsoft.com/en-us/features/azure-portal/mobile-app/>

- describe the functionality and usage of Azure Advisor

- <https://docs.microsoft.com/en-us/azure/advisor/advisor-overview>

- describe the functionality and usage of Azure Resource Manager (ARM) templates

- <https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/overview>

- describe the functionality and usage of Azure Monitor

- <https://docs.microsoft.com/en-us/azure/azure-monitor/overview>

- describe the functionality and usage of Azure Service Health

- <https://docs.microsoft.com/en-us/azure/service-health/overview>

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

- <https://docs.microsoft.com/en-us/azure/security-center/security-center-intro>
- <https://docs.microsoft.com/en-us/azure/security-center/security-center-services?tabs=features-windows>
- <https://docs.microsoft.com/en-us/azure/security-center/features-paas>
- <https://docs.microsoft.com/en-us/azure/security-center/secure-score-security-controls>
- <https://docs.microsoft.com/en-us/azure/security-center/security-center-alerts-overview>
- <https://azure.microsoft.com/en-us/blog/introducing-the-redesigned-security-center-overview-dashboard/>
- describe the functionality and usage of Key Vault
- <https://docs.microsoft.com/en-us/azure/key-vault/general/basic-concepts>

- <https://docs.microsoft.com/en-us/azure/key-vault/general/overview>
- describe the functionality and usage of Azure Sentinel
- <https://docs.microsoft.com/en-us/azure/sentinel/overview>
- describe the functionality and usage of Azure Dedicated Hosts
- <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/dedicated-hosts>
- <https://azure.microsoft.com/en-us/blog/introducing-azure-dedicated-host/>

Describe Azure network security

- describe the concept of defense in depth
- <https://azure.microsoft.com/en-us/resources/videos/defense-in-depth-security-in-azure/>
- describe the functionality and usage of Network Security Groups (NSG)
- <https://docs.microsoft.com/en-us/azure/virtual-network/security-overview>
- describe the functionality and usage of Azure Firewall
- <https://docs.microsoft.com/en-us/azure/firewall/overview>
- describe the functionality and usage of Azure DDoS protection
- <https://docs.microsoft.com/en-us/azure/virtual-network/ddos-protection-overview>

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

Describe core Azure identity services

- explain the difference between authentication and authorization
- <https://docs.microsoft.com/en-us/azure/active-directory/develop/authentication-vs-authorization>
- define Azure Active Directory
- <https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-overview>
- describe the functionality and usage of Azure Active Directory
- <https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-what-is>
- <https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-compare-azure-ad-to-ad>
- describe the functionality and usage of Conditional Access, Multi-Factor Authentication (MFA), and Single Sign-On (SSO)
- <https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/concept-fundamentals-mfa-get-started>
- <https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-conditional-access-dev-guide>
- <https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/what-is-single-sign-on>

Describe Azure governance features

- describe the functionality and usage of Role-Based Access Control (RBAC)
 - <https://docs.microsoft.com/en-us/azure/role-based-access-control/overview>
 - <https://docs.microsoft.com/en-us/azure/role-based-access-control/rbac-and-directory-admin-roles>
- describe the functionality and usage of resource locks
 - <https://docs.microsoft.com/en-us/azure/governance/blueprints/concepts/resource-locking>
 - <https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/lock-resources>
- describe the functionality and usage of tags
 - <https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/tag-resources>
- describe the functionality and usage of Azure Policy
 - <https://docs.microsoft.com/en-us/azure/governance/policy/overview>
- describe the functionality and usage of Azure Blueprints
 - <https://docs.microsoft.com/en-us/azure/governance/blueprints/overview>
- describe the Cloud Adoption Framework for Azure
 - <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/>
 - <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/overview>

Describe privacy and compliance resources

- describe the Microsoft core tenets of Security, Privacy, and Compliance
 - <https://go.microsoft.com/fwlink/?LinkId=392408&clcid=0x1009>
- describe the purpose of the Microsoft Privacy Statement, Online Services Terms (OST) and Data Protection Amendment (DPA)
 - <https://privacy.microsoft.com/en-us/privacystatement>
 - <https://www.microsoft.com/en-ca/licensing/product-licensing/products?rtc=1>
 - <https://docs.microsoft.com/en-ca/legal/gdpr>
- describe the purpose of the Trust Center
 - <https://www.microsoft.com/en-ca/trust-center/product-overview>
- describe the purpose of the Azure compliance documentation
 - <https://www.microsoft.com/en-ca/trust-center/compliance/compliance-overview>
- describe the purpose of Azure Sovereign Regions (Azure Government cloud services and Azure China cloud services)
 - <https://docs.microsoft.com/en-us/azure/azure-government/documentation-government-welcome>
 - <https://docs.microsoft.com/en-us/azure/china/overview-operations>

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)

- <https://docs.microsoft.com/en-us/azure/cost-management-billing/reservations/save-compute-costs-reservations>

- <https://azure.microsoft.com/en-us/pricing/hybrid-benefit/>

- <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/hybrid-use-benefit-licensing>

- describe the functionality and usage of the Pricing calculator and the Total Cost of Ownership (TCO) calculator

- <https://azure.microsoft.com/en-us/pricing/calculator/>

- <https://azure.microsoft.com/en-us/pricing/tco/calculator/>

- describe the functionality and usage of Azure Cost Management

- <https://docs.microsoft.com/en-us/azure/cost-management-billing/cost-management-billing-overview>

Describe Azure Service Level Agreements (SLAs) and service lifecycles

- describe the purpose of an Azure Service Level Agreement (SLA)

- <https://azure.microsoft.com/en-us/support/legal/sla/summary/>

- identify actions that can impact an SLA (i.e. Availability Zones)

- https://azure.microsoft.com/en-us/support/legal/sla/virtual-machines/v1_9/