**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-onsistency/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-whatis>

○ <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-issingle-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/>