AZ-900 Reading Guide - Sept 2020

Document v1.0, researched by Scott Duffy

Don't forget that you can watch videos on each of these topics in my very reasonably priced ***AZ-900: Microsoft Azure Fundamentals Exam Prep*** course on Udemy:
https://www.udemy.com/course/az900-azure/?referralCode=CBB97C39131AE1062B29

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-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-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/
- describe the service lifecycle in Azure (Public Preview and General Availability)

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https://www.udemy.com/course/az900-azure/?referralCode=CBB97C39131AE1062B29