Azure Cloud Administration Interview Questions

**## Basic Questions**

1. What is Microsoft Azure?

2. Name some key services offered by Azure.

3. What is a Virtual Machine (VM) in Azure?

4. What are Azure Resource Groups? Why are they important?

5. What is the Azure Portal?

6. How can you access Azure services?

7. What is Azure Active Directory (Azure AD)?

8. What is the difference between Azure AD and Active Directory Domain Services (AD DS)?

9. What is Azure Blob Storage? What are the different access tiers?

10. What is Azure Virtual Network (VNet)?

11. What are subnets in Azure VNet?

12. What is an Azure Network Security Group (NSG)? How does it work?

13. What is the purpose of Azure Firewall?

14. What is Azure DNS?

15. What is Azure Load Balancer? What are the different types?

16. What is Azure Application Gateway? How does it differ from Load Balancer?

17. What is Azure App Service?

18. What are Azure Functions (Serverless)?

19. What is Azure SQL Database?

20. What is Azure Cosmos DB?

21. What is Azure Backup?

22. What is Azure Site Recovery?

23. What is the Azure Marketplace?

24. What are Azure Policies?

25. What is Azure Advisor?

26. What is Azure Monitor?

27. What is Azure Cost Management?

28. What are Azure Reservations?

29. What are Azure Tags? Why are they useful?

30. What is the concept of scalability and elasticity in Azure?

31. What are Availability Zones in Azure?

32. What are Availability Sets in Azure?

33. What is Infrastructure as a Service (IaaS)?

34. What is Platform as a Service (PaaS)?

35. What is Software as a Service (SaaS)?

**## Intermediate Questions**

1. Explain the process of creating and configuring a Virtual Machine in Azure. What are the key considerations?

2. How do you manage and monitor the health and performance of Azure VMs?

3. Describe how to configure network connectivity between two Azure VNets. What are the different methods?

4. How do you secure Azure VNets? Explain the use of NSGs and Azure Firewall rules.

5. How do you implement a highly available web application using Azure App Service?

6. Explain the different scaling options available for Azure App Service.

7. How do you configure and manage Azure Blob Storage for different use cases (e.g., hot, cool, archive)?

8. Describe the steps involved in backing up and restoring an Azure VM.

9. How do you implement disaster recovery for Azure VMs using Azure Site Recovery?

10. Explain how to configure and manage Azure SQL Database, including backups and high availability.

11. How do you manage access and permissions in Azure using Azure RBAC (Role-Based Access Control)?

12. Describe how to create and manage custom roles in Azure RBAC.

13. How do you enforce organizational standards and compliance using Azure Policies?

14. Explain how to interpret and remediate recommendations from Azure Advisor.

15. How do you monitor Azure resources and set up alerts using Azure Monitor?

16. Describe how to analyze costs and optimize spending in Azure using Azure Cost Management.

17. How do you implement Azure Reservations to reduce costs?

18. Explain the use of Azure Automation for managing Azure resources.

19. How do you deploy and manage applications using Azure Resource Manager (ARM) templates?

20. What are the benefits of using ARM templates for infrastructure as code?

21. How do you integrate on-premises infrastructure with Azure using VPN or ExpressRoute?

22. Describe the different types of Azure Load Balancers and when to use each.

23. How do you configure health probes for Azure Load Balancers and Application Gateways?

24. Explain how to secure an Azure App Service application.

25. How do you manage and secure secrets and sensitive information in Azure? (e.g., Azure Key Vault)

26. Describe the process of deploying and managing containerized applications using Azure Container Instances (ACI) or Azure Kubernetes Service (AKS).

27. How do you implement hybrid identity using Azure AD Connect?

28. Explain the different authentication methods available for Azure AD.

29. How do you troubleshoot common connectivity issues in Azure Virtual Networks?

30. Describe how to monitor and troubleshoot the performance of Azure SQL Database.

31. How do you manage updates and patching for Azure Virtual Machines?

32. Explain the concept of Infrastructure as Code (IaC) and its benefits in Azure.

33. How do you implement blue-green deployments or canary releases in Azure?

34. What are the different ways to migrate workloads to Azure?

35. How do you ensure data security and compliance in Azure?

**## Advanced Questions**

1. Design a highly available and scalable architecture for a multi-tier web application in Azure, considering cost optimization and security best practices.

2. Explain the intricacies of network routing within Azure VNets and how to customize it using User-Defined Routes (UDRs).

3. Describe advanced scenarios for using Azure Network Security Groups and Azure Firewall together for comprehensive network security.

4. How do you implement advanced load balancing and traffic management using Azure Application Gateway, including WAF (Web Application Firewall) configuration?

5. Explain how to design and implement a robust backup and disaster recovery strategy for a complex Azure environment with various services.

6. Describe how to automate the deployment and management of Azure infrastructure using tools like Azure DevOps, Terraform, or PowerShell DSC.

7. How do you implement and manage a hybrid network environment connecting on-premises data centers with Azure using ExpressRoute with different routing configurations?

8. Explain advanced identity and access management scenarios using Azure AD, including Conditional Access policies, Privileged Identity Management (PIM), and Azure AD Domain Services.

9. Describe how to design and implement a secure and scalable data platform in Azure using services like Azure Data Lake Storage, Azure Synapse Analytics, and Azure Data Factory.

10. How do you troubleshoot complex performance issues in Azure Virtual Machines, considering factors like CPU, memory, disk I/O, and network latency?

11. Explain advanced monitoring and alerting strategies using Azure Monitor, including Log Analytics queries, custom metrics, and action groups.

12. Describe how to implement cost governance and optimization at scale in a large Azure environment with multiple subscriptions and resource groups.

13. How do you design and implement a secure and compliant environment for sensitive workloads in Azure, considering regulatory requirements?

14. Explain advanced networking concepts in Azure, such as service endpoints, private endpoints, and Azure Private Link.

15. Describe how to integrate Azure with other cloud providers or on-premises systems in a hybrid or multi-cloud scenario.

16. How do you manage and secure containerized applications at scale using Azure Kubernetes Service (AKS), including network policies, RBAC, and monitoring?

17. Explain how to implement and manage serverless architectures using Azure Functions and other Azure services, considering scalability, security, and monitoring.

18. Describe advanced backup and restore scenarios for Azure SQL Database, including point-in-time restore, geo-replication, and auto-failover groups.

19. How do you implement and manage Azure Cache for Redis for improving application performance and scalability?

20. Explain how to use Azure Security Center (Microsoft Defender for Cloud) for threat detection and security posture management in Azure.

21. Describe how to implement and manage Azure Policy at scale using management groups and policy assignments.

22. How do you troubleshoot complex deployment issues with ARM templates or other infrastructure-as-code tools?

23. Explain advanced automation scenarios using Azure Logic Apps or Azure Durable Functions.

24. Describe how to implement and manage Azure API Management for securing and managing APIs exposed through Azure.

25. How do you design and implement a multi-region Azure deployment for high availability and disaster recovery?

26. Explain the different Azure storage redundancy options and when to choose each.

27. Describe how to implement and manage Azure Front Door for global HTTP load balancing and security.

28. How do you perform capacity planning and right-sizing of Azure resources?

29. Explain how to leverage Azure Blueprints for repeatable and compliant environment deployments.

30. Describe advanced troubleshooting techniques for hybrid connectivity issues between on-premises and Azure.

31. How do you manage and secure data in transit and at rest in Azure? Explain various encryption options.

32. Explain the role of Azure Governance in managing a large Azure environment effectively.

33. Describe how to implement and manage Azure Sentinel for cloud-native SIEM and security orchestration.

34. How do you integrate third-party security tools and services with Azure?

35. Explain the considerations for migrating complex, legacy applications to Azure.

**## Scenario-Based Questions**

1. Your company has a web application hosted on a single Azure VM. The application is experiencing performance issues during peak hours. How would you diagnose and resolve this? What steps would you take to prevent this in the future?

2. A critical database server hosted on an Azure VM failed. Describe the steps you would take to restore the database and minimize downtime.

3. Your company needs to migrate a large number of on-premises servers to Azure with minimal disruption. Outline your migration strategy, including the tools and services you would use.

4. You need to secure a public-facing web application hosted on Azure App Service. Describe the security measures you would implement at the network, application, and data levels.

5. Your company wants to implement a cost-effective backup and disaster recovery solution for all its Azure resources. Design a solution that meets these requirements.

6. Developers in your team need to deploy and manage containerized applications in Azure. Recommend a suitable Azure service and explain how you would configure it.

7. Users are reporting slow access to files stored in Azure Blob Storage from different geographical locations. How would you improve the performance and availability of the file access?

8. Your company has multiple Azure subscriptions for different departments. How would you centrally manage policies and ensure compliance across all subscriptions?

9. You need to grant a third-party vendor temporary access to specific Azure resources. How would you do this securely and ensure the access is revoked automatically after a certain period?

10. You are receiving alerts about high CPU utilization on several Azure VMs. Describe the steps you would take to investigate the issue and identify the root cause.

11. Your company is implementing a hybrid cloud strategy and needs to connect its on-premises network to Azure. Explain the different connectivity options and when you would choose each.

12. A critical application hosted on Azure App Service is experiencing intermittent errors. How would you troubleshoot the issue and identify the cause?

13. Your company wants to implement Infrastructure as Code for managing its Azure environment. What tools and best practices would you recommend?

14. You need to ensure that all Azure VMs in a specific resource group are backed up daily. How would you automate this process?

15. Users are unable to access an application hosted behind an Azure Load Balancer. Describe the steps you would take to diagnose and resolve the connectivity issue.

16. Your company wants to monitor the cost of its Azure resources and set up alerts when spending exceeds a certain threshold. How would you achieve this?

17. You need to implement a solution to protect your Azure environment from distributed denial-of-service (DDoS) attacks. What Azure services would you use?

18. Your company has sensitive data stored in Azure SQL Database and needs to comply with strict security and compliance regulations. Describe the security measures you would implement.

19. You need to migrate a large on-premises SQL Server database to Azure with minimal downtime. Explain your migration strategy.

20. Developers need to access Azure resources securely from their local machines without using passwords. How would you configure this?

21. Your company wants to implement a highly available and scalable message queuing system in Azure. Recommend a suitable service and explain how you would configure it.

22. You need to implement a solution for centralized logging and analysis of all Azure resources. What Azure services would you use?

23. Your company is expanding its operations globally and needs to deploy its application to multiple Azure regions for better performance and resilience. Describe your deployment strategy.

24. You need to restrict network access to an Azure Storage Account to only specific virtual networks and subnets. How would you configure this?

25. Your company wants to automate the patching and updates of its Azure Virtual Machines. Describe how you would implement this.

26. You need to implement a solution for managing secrets and sensitive configuration data for your Azure applications. What Azure service would you use?

27. Your company wants to implement a blue/green deployment strategy for its Azure App Service application. Explain the steps involved.

28. You need to troubleshoot a scenario where an Azure Function is failing intermittently. What steps would you take to diagnose the issue?

29. Your company wants to implement a solution for monitoring the end-to-end performance of its web application hosted on Azure. What Azure services would you use?

30. You need to implement a solution for automatically scaling Azure App Service based on CPU utilization. How would you configure this?

31. A user accidentally deleted a critical Azure Resource Group. Describe the steps you would take to recover it, if possible.

32. Your company needs to ensure that all newly created Azure resources are tagged with specific metadata for cost tracking and management. How would you enforce this?

33. You need to implement a solution for securing access to Azure API Management. What authentication and authorization methods would you use?

34. Your company wants to implement a self-service portal for developers to provision their own Azure resources within defined guardrails. How would you approach this?

35. You are experiencing high latency in accessing an Azure SQL Database from an application hosted in a different Azure region. How would you diagnose and mitigate this?