

Questions likely to be on the exam

1 Describe Cloud concepts

1.1 Describe the benefits and considerations of using cloud services

1. Describe terms such as High Availability, Scalability, Elasticity, Agility, Fault Tolerance, and Disaster Recovery

Solution:

High Availability - Available all the time and everywhere

Scalability - Adding more or removing resources when needed

Elasticity - Automatically adding more resources to handle traffic

Agility - Fast to set up

Fault Tolerance - Able to continue running despite a fault

Disaster recovery - Able to recover data after an issue

2. Describe the principles of economies of scale

Solution:

By purchasing and using in larger quantities, a discount is available, making costs less

3. Describe the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx)

Solution:

Capital expenditure is spending on equipment, such as servers. Operational expenditure is spending that continues throughout the usage of a product, such as power costs

4. Describe the consumption-based model

Solution:

A user will only pay for what they use

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

5. Describe Infrastructure-as-a-Service (IaaS)

Solution:

Gives control over hardware, user is responsible for everything but the running of the hardware

6. Describe Platform-as-a-Service (PaaS)

Solution:

Don't have to manage the infrastructure, provides an environment for building, testing and deploying software applications

7. Describe Software-as-a-Service (SaaS)

Solution:

Only responsible for the data and access.

8. Compare and contrast the three different service types

Solution:

All service types have no upfront costs.

Software as a Service is cheapest, then platform, then infrastructure as the users have greater control.

1.3 Describe the differences between Public, Private and Hybrid cloud models

9. Describe Public cloud

Solution:

No local hardware, all running on the cloud providers hardware

10. Describe Private cloud

Solution:

Cloud set up in own datacenter

11. Describe Hybrid cloud

Solution:

Combining public and private clouds

12. Compare and contrast the three different cloud models

Solution:

Hybrid cloud is the most expensive, but also offers the greatest flexibility.

Private and hybrid clouds are best for when compliance is important.

Private and hybrid clouds also are good for when legacy systems need to keep going

Public cloud is best for when scalability and agility is important.

2 Describe Core Azure Services

2.1 Describe the core Azure architectural components

13. Describe Regions

Solution:

A geographical area on the planet containing at least one, but potentially multiple datacenters networked together

14. Describe Availability Zones

Solution:

Physically separate datacenters within an Azure Region

15. Describe Resource Groups

Solution:

A logical container for resources deployed on Azure

16. Describe Azure Resource Manager

Solution:

A service for managing resources within Azure

17. Describe the benefits and usage of core Azure architectural components

Solution:

Regions - Used to ensure the data is kept close to users to increase performance

Availability Zones - Allow for backup to ensure data is kept online

Resource groups - Allow for managing resource use

Azure Resource Manager - Ensure the correct amount of resources are allocated to services

2.2 Describe some of the core products available in Azure

18. Describe products available for compute

Solution:

Virtual Machines - Windows or Linux simulated machines
Virtual Machine scale sets - Scaling for Azure Virtual Machines
Azure Container Instances - Run containerised apps on Azure without provisioning servers or VMs
Azure Kubernetes Service - Enables management of a cluster of VMs that run containerised services

19. Describe products available for Networking

Solution:

Virtual Network - Connecting VMs to incoming VPN connections
Load Balancer - Balances inbound and outbound connections to apps or service endpoints
VPN gateway - Access Azure Virtual Networks through VPN gateways
Application gateway - Optimizes app delivery while increasing security
Content Delivery Network - Provides high bandwidth content to customers

20. Describe products available for Storage

Solution:

Blob storage - Storage for very large objects
Disk storage - Disks for Virtual Machines
File storage - File shares you can access like a file storage
Archive storage - Storage that is not accessed frequently

21. Describe products available for Databases

Solution:

CosmosDB - NoSQL database
Azure SQL Database - Fully managed relational database
Azure Database for MySQL - Fully managed MySQL database
Azure Database for PostgreSQL - Fully managed PostgreSQL database
Azure Database Migration service - Migrate databases to the cloud

22. Describe the Azure Marketplace and its usage scenarios

Solution:

Azure Marketplace allows you to purchase third party services which integrate with Azure

2.3 Describe some of the solutions available on Azure

23. Describe IoT Products on Azure

Solution:

IoT Hub - Messaging hub for IoT devices
IoT central - IoT Software as a Service

24. Describe Big data and Analytics Products on Azure

Solution:

Azure Synapse Analytics - Fully managed data warehouse
HDInsight - Process data with Hadoop in the cloud
Azure Databricks - Collaborative Apache Spark based analytics

25. Describe AI Products on Azure

Solution:

Azure Machine Learning Service - In depth machine learning
Azure Machine Learning Studio - Drag and drop machine learning

26. Describe Serverless Products on Azure

Solution:

Azure Functions - Event driven, serverless compute service
Logic Apps - Execute workflows designed to automate business scenarios from blocks Event Grid - Want to do multiple things based on the information that is coming in

27. Describe DevOps Products on Azure

Solution:

Azure DevOps - Git Repos and Kanban boards
Azure DevTest Labs - Windows and Linux environments for testing

2.4 Describe Azure Management tools

28. Describe Azure Tools

Solution:

Azure Portal - Access with any web browser
Azure Powershell - Module for windows powershell or powershell core
Azure CLI - Cross platform including with bash
Cloud Shell - Browser accessible shell

3 Describe Security, Privacy, Compliance and Trust

3.1 Describe securing network connectivity in Azure

29. Describe Network Security Groups

Solution:

This allows or denies inbound network traffic to your Azure Resources in a similar way to a firewall

30. Describe Application Security Groups

Solution:

Allows you to group computers by name to manage them easier

31. Describe User Defined Routes

Solution:

Static routes in Azure to override Azure's default system routes

32. Describe Azure Firewall

Solution:

A firewall to protect Azure apps

33. Describe Azure DDoS protection

Solution:

Protection for Azure Apps against DDoS attacks

3.2 Describe core Azure Identity Services

34. Describe the difference between Authentication and Authorisation

Solution:

Authentication - Establish the identity of a person or service looking to access a resource
Authorization - Establish what level of access an authenticated person or service has

35. Describe Azure Active Directory

Solution:

Azure Active directory is a service to manage identity in Azure. Including Authentication.

36. Describe Azure Multi Factor Authentication

Solution:

Authentication with something you know, something you are and something you have

3.3 Describe the security tools and features of Azure

37. Describe Azure Security Center

Solution:

This provides security recommendations and monitors services for security vulnerabilities

38. Describe Azure Key Vault

Solution:

This is a place to store secrets such as keys and passwords

39. Describe Azure Information Protection

Solution:

This is a solution to classify and optionally protect documents by applying labels

40. Describe Azure Advanced Threat Protection

Solution:

This is a solution to identify, protect and help to investigate threats

3.4 Describe Azure Governance Methodologies

41. Describe Policies and Initiatives with Azure Policy

Solution:

Policy - A rule applied to a scope of resources

Initiative - A group of policies to help track compliance

42. Describe Role Based Access Control

Solution:

Giving users or services permissions based on roles provided to them

43. Describe Locks

Solution:

This is a solution to prevent the accidental deletion of a resource

44. Describe Azure Advisor security assistance

Solution:

Get proactive, actionable and personalised best practice recommendations

45. Describe Azure Blueprints

Solution:

A declarative way to orchestrate the deployment of various resource templates and other artefacts

3.5 Describe monitoring and reporting options in Azure

46. Describe Azure Monitor

Solution:

Maximising the availability and performance of applications using telemetry

47. Describe Azure Service Health

Solution:

Provides guidance when issues with Azure affect you

48. Describe the use cases and benefits of Azure Monitor and Azure Service Health

Solution:

Azure Monitor - Your configuration could be improved
Azure Service Health - An Azure problem is going to affect your service

3.6 Describe privacy, compliance and data protection standards in Azure

49. Describe industry compliance terms such as GDPR, ISO and NIST

Solution:

GDPR - Data stored has to have a reason and can be requested to be deleted
ISO - Range of compliances, notably 27001 for information security management
NIST - Government standards

50. Describe the Microsoft Privacy Statement

Solution:

A statement saying what Microsoft is doing with you data in Azure

51. Describe the Trust Center

Solution:

Details as to how Microsoft implements and supports security, privacy, compliance and transparency

52. Describe the Service Trust Portal

Solution:

Hosts the compliance manager service and contains Microsoft audit reports

53. Describe the Compliance Manager

Solution:

Allows you to ensure that you are compliant

54. Describe Azure Government Cloud Services

Solution:

Azure services for the US Government with dedicated datacenters and different levels of compliance

55. Describe Azure China cloud services

Solution:

Azure provided within China in partnership with 21Vianet

4 Describe Azure Pricing, Service Level agreements and Lifecycles

4.1 Describe Azure subscriptions

56. Describe an Azure Subscription

Solution:

A logical container for resources in Azure

57. Describe the uses and options with Azure subscriptions such access control and offer types

Solution:

Access Control - Subscriptions can be managed with RBAC so only certain users can access them
Offer types - Monthly credits given in partnership with a Visual studio subscription

58. Describe subscription management using Management groups

Solution:

Management groups allow you to order your Azure resources hierarchically into collections, which provide a further level of classification that is above the level of subscriptions

4.2 Describing planning and management of costs

59. Describe options for Purchasing Azure products and services

Solution:

You can purchase directly on the web, enter an enterprise agreement or an agreement with a CSP (Cloud Solution Provider)

60. Describe options around Azure Free account

Solution:

You can have a 12 month trial, including \$300 in credits, then some services are always free after that

61. Describe the factors affecting costs

Solution:

Resource types - Larger VMs will cost more etc
Services - Your pricing depends on how you purchase Azure
Locations - Some areas are more expensive than others
Ingress and egress traffic - The more traffic you have, the greater the costs

62. Describe Zones for billing purposes

Solution:

There are zones that it costs a certain amount to send data between

63. Describe the pricing calculator

Solution:

This allows you to configure and estimate the costs for Azure products and features for your specific resources

64. Describe the Total Cost of Ownership Calculator

Solution:

This allows you to estimate the savings you would get by transferring services from on premises to Azure

65. Describe best practices for minimizing Azure costs

Solution:

Spending limits and quotas - Get notification when spending gets to a certain level
Tags - Tag resources so you know how much projects cost
Azure reservations - Reserve a resource for 1 or 3 years for a saving
Azure Advisor Recommendations - Such as scaling down an underutilized VM

4.3 Describe Azure Service Level agreements

66. Describe a Service Level Agreement

Solution:

A performance target to a product or service

67. Describe Composite SLAs

Solution:

The SLA of a range of applications working together

4.4 Describe Service Lifecycle in Azure

68. Describe Public and Private Preview features

Solution:

Public - Available to all users
Private - Invitation only

69. Describe General Availability

Solution:

When a feature is released as part of Azure's default product set after evaluation and testing

70. Describe how to monitor feature updates and product changes

Solution:

Use the Azure updates page or the What's new link in the help menu