https://www.edureka.co/blog/interview-questions/azure-interview-questions/

Section 1: General Cloud Questions

1. What are the different types of services offered in the cloud?

IAAS VS PAAS VS SAAS		
IAAS	PAAS	SAAS
In infrastructure as a service, you get the raw hardware from your cloud provider as a service i.e you get a server which you can configure with your own will.	Platform as a Service, gives you a platform to publish without giving the access to the underlying software or OS.	You get software as a service in Azure, i.e no infrastructure, no platform, simple software that you can use without purchasing it.
For Example: Azure VM, Amazon EC2.	For example: Web Apps, Mobile Apps in Azure.	For example: when you launch a VM on Azure, you are not buying the OS, you are basically renting it for the time you will be running that instance.

2. What is cloud computing?

Explanation: It is the use of servers on the internet to "store", "manage" and "process" data. The difference is, instead of using your own servers, you are using someone else's servers to do your task, paying them for the amount of time you use it for.

3. What are the different cloud deployment models?

Explanation: Following are the three cloud deployment models:

Public Cloud: The infrastructure is owned by your cloud provider and the server that you are using could be a multi-tenant system.

Private Cloud: The infrastructure is owned by you or your cloud provider gives you that service exclusively. For eg: Hosting your website on your servers, or hosting your website with the cloud provider on a dedicated server.

Hybrid Cloud: When you use both Public Cloud, Private Cloud together, it is called Hybrid Cloud. For Example: Using your in-house servers for confidential data, and the public cloud for hosting your company's public facing website. This type of setup would be a hybrid cloud.

4. I have some private servers on my premises, also I have distributed some of my workload on the public cloud, what is this architecture called?

A. Virtual Private Network
B. Private Cloud
C. Virtual Private Cloud
D. Hybrid Cloud

Answer: D. Hybrid Cloud

Explanation: This type of architecture would be a hybrid cloud. Why? Because we are using both, the public cloud, and on premises servers i.e the private cloud. To make this hybrid architecture easy to use, wouldn't it be better if your private and public cloud were all on the same network (virtually). This is established by including your public cloud servers in a virtual private cloud, and connecting virtual cloud with your on premise servers using a VPN (Virtual Private Network).

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Section 2: Basic Azure Questions

5. What is Microsoft Azure and why is it used?

Explanation: As discussed above, the companies which provide the cloud service are called the Cloud Providers. There are a lot of cloud providers out there, out of them one is Microsoft Azure. It is used for accessing Microsoft's infrastructure for cloud.

6. Which service in Azure is used to manage resources in Azure?

A. Application Insights
B. Azure Resource Manager
C. Azure Portal
D. Log Analytics

Answer: B Azure Resource Manager

Explanation: Azure Resource Manager is used to "manage" infrastructures which involve a no. of azure services. It can be used to deploy, manage and delete all the resources together using a simple JSON script.

7. Which of the following web applications can be deployed with Azure?

A. ASP.NET
B. PHP
C. WCF
D. All of the mentioned

Answer: D All of the mentioned

Explanation: Microsoft also has released SDKs for both Java and Ruby to allow applications written in those languages to place calls to the Azure Service Platform API to the AppFabric Service.

Section 3: Azure Interview Questions

8. What are Roles and why do we use them?

Explanation: Roles are nothing servers in layman terms. These servers are managed, load balanced, Platform as a Service virtual machines that work together to achieve a common goal.

There are 3 types of roles in Microsoft Azure:

- Web Role
- Worker Role
- VM Role

Let's discuss each of these roles in detail:

- Web Role – A web role is basically used to deploy a website, using languages supported by the IIS platform like, PHP, .NET etc. It is configured and customized to run web applications.
- Worker Role – A worker role is more like an help to the Web role, it used to execute background processes unlike the Web Role which is used to deploy the website.
- VM Role – The VM role is used by a user to schedule tasks and other windows services. This role can be used to customize the machines on which the web and worker role is running.

9. A _____ role is a virtual machine instance running Microsoft IIS Web server that can accept and respond to HTTP or HTTPS requests.

A. Web
B. Server
C. Worker
D. Client

Answer: A. Web

Explanation: The answer should be Web Roles, there are no roles such as Server or Client roles. Also, Worker roles can only communicate with Azure Storage or through direct connections to clients.

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10. Is it possible to create a Virtual Machine using Azure Resource Manager in a Virtual Network that was created using classic deployment?

Explanation: This is not supported. You cannot use Azure Resource Manager to deploy a virtual machine into a virtual network that was created using classic deployment.

11. What are virtual machine scale sets in Azure?

Explanation: Virtual machine scale sets are Azure compute resource that you can use to deploy and manage a set of identical VMs. With all the VMs configured the same, scale sets are designed to support true autoscale, and no pre-provisioning of VMs is required. So it's easier to build large-scale services that target big compute, big data, and containerized workloads.

12. Are data disks supported within scale sets?

Explanation: Yes. A scale set can define an attached data disk configuration that applies to all VMs in the set. Other options for storing data include:

- Azure files (SMB shared drives)
- OS drive
- Temp drive (local, not backed by Azure Storage)
- Azure data service (for example, Azure tables, Azure blobs)
- External data service (for example, remote database)

13. What is an Availability Set?

Explanation: An availability set is a logical grouping of VMs that allows Azure to understand how your application is built to provide redundancy and availability. It is recommended that two or more VMs are created within an availability set to provide for a highly available application and to meet the 99.95% Azure SLA. When a single VM is used with Azure Premium Storage, the Azure SLA applies for unplanned maintenance events.

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14. What are Fault Domains?

Explanation: A fault domain is a logical group of underlying hardware that share a common power source and network switch, similar to a rack within an on-premise data-centers. As you create VMs within an availability set, the Azure platform automatically distributes your VMs across these fault domains. This approach limits the impact of potential physical hardware failures, network outages, or power interruptions.

15. What are Update Domains?

Explanation: An update domain is a logical group of underlying hardware that can undergo maintenance or can be rebooted at the same time. As you create VMs within an availability set, the Azure platform automatically distributes your VMs across these update domains. This approach ensures that at least one instance of your application always remains running as the Azure platform undergoes periodic maintenance. The order of update domains being rebooted may not proceed sequentially during planned maintenance, but only one update domain is rebooted at a time.

16. What are Network Security Groups?

Explanation: A network security group (NSG) contains a list of Access Control List (ACL) rules that allow or deny network traffic to subnets, NICs, or both. NSGs can be associated with either subnets or individual NICs connected to a subnet. When an NSG is associated with a subnet, the ACL rules apply to all the VMs in that subnet. In addition, traffic to an individual NIC can be restricted by associating an NSG directly to a NIC.

17. Do scale sets work with Azure availability sets?

Explanation: Yes. A scale set is an implicit availability set with 5 fault domains and 5 update domains. Scale sets of more than 100 VMs span multiple *placement groups*, which are equivalent to multiple availability sets. An availability set of VMs can exist in the same virtual network as a scale set of VMs. A common configuration is to put control node VMs (which often require unique configuration) in an availability set and put data nodes in the scale set.

18. What is a break-fix issue?

Explanation: Technical problems are called break-fix issue, it is an industry term which refers to "work involved in supporting a technology when it fails in the normal course of its function, which requires intervention by a support organization to be restored to working order".

19. Why is Azure Active Directory used?

Explanation: Azure Active Directory is an Identity and Access Management system. It is used to grant access to your employees to specific products and services in your network. For example: Salesforce.com, twitter etc. Azure AD has some in-built support for applications in its gallery which can be added directly.

20. What happens when you exhaust the maximum failed attempts for authenticating yourself via Azure AD?

Explanation: We use a more sophisticated strategy to lock accounts. This is based on the IP address of the request and the passwords entered. The duration of the lockout also increases based on the likelihood that it is an attack.

21. Where can I find a list of applications that are pre-integrated with Azure AD and their capabilities?

Explanation: Azure AD has around 2600 pre-integrated applications. All pre-integrated applications support single sign-on (SSO). SSO let you use your organizational credentials to access your apps. Some of the applications also support automated provisioning and de-provisioning.

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22. How can I use applications with Azure AD that I'm using on-premises?

Explanation: Azure AD gives you an easy and secure way to connect to the web applications you choose. You can access these applications in the same way you access your SaaS apps in Azure AD, no need for a VPN to change your network infrastructure.

23. What is Azure Service Fabric?

Explanation: Azure Service Fabric is a distributed systems platform that makes it easy to package, deploy, and manage scalable and reliable micro-services. Service Fabric also addresses the significant challenges in developing and managing cloud applications. Developers and administrators can avoid complex infrastructure problems and focus on implementing mission-critical, demanding workloads that are scalable, reliable, and manageable. Service Fabric represents the next-generation middleware platform for building and managing these enterprise-class, tier-1, cloud-scale applications.

24. What is a VNet?

Explanation: VNet is a representation of your own network in the cloud. It logically isolates your instances launched in the cloud, from the rest of your resources.

25. What are the differences between Subscription Administrator and Directory Administrator?

Explanation: By default, one is assigned the Subscription Administrator role when he/she signs up for Azure. A subscription admin can use either a Microsoft account or a work or school account from the directory that the Azure subscription is associated with. This role is authorized to manage services in the Azure portal. If others need to sign in and access services by using the same subscription, you can add them as co-admins.

Azure AD has a different set of admin roles to manage the directory and identity-related features. These admins will have access to various features in the Azure portal or the Azure classic portal. The admin's role determines what they can do, like create or edit users, assign administrative roles to others, reset user passwords, manage user licenses, or manage domains.

26. Are there any scale limitations for customers using managed disks?

Explanation: Managed Disks eliminates the limits associated with storage accounts. However, the number of managed disks per subscription is limited to 2000 by default.

27. What is the difference between Service Bus Queues and Storage Queues?

Explanation: The Azure Storage Queue is simple and the developer experience is quite good. It uses the local Azure Storage Emulator and debugging is made quite easy. The tooling for Azure Storage Queues allows you to easily peek at the top 32 messages and if the messages are in XML or Json, you're able to visualize their contents directly from Visual Studio Furthermore, these queues can be purged of their contents, which is especially useful during development and QA efforts.

The Azure Service Bus Queues are evolved and surrounded by many useful mechanisms that make it enterprise worthy! They are built into the Service Bus and are able to forward messages to other

Queues and Topics. They have a built-in dead-letter queue and messages have a time to live that you control, hence messages don't automatically disappear after 7 days.

Furthermore, Azure Service Bus Queues have the ability of deleting themselves after a configurable amount of idle time. This feature is very practical when you create Queues for each user, because if a user hasn't interacted with a Queue for the past month, it automatically gets clean it up. Its also a great way to drive costs down. You shouldn't have to pay for storage that you don't need. These Queues are limited to a maximum of 80gb. Once you've reached this limit your application will start receiving exceptions.

28. What is Azure Redis Cache?

Redis is an open source (BSD licensed), in-memory data structure store, used as a database, cacheand message broker. Azure Redis Cache is based on the popular open-source Redis cache. It gives you access to a secure, dedicated Redis cache, managed by Microsoft, and accessible from any application within Azure. It supports data structures such as strings, hashes, lists, sets, sorted sets with range queries, bitmaps, hyperloglogs and geospatial indexes with radius queries.

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29. Why doesn't Azure Redis Cache have an MSDN class library reference like some of the other Azure services?

Explanation: Microsoft Azure Redis Cache is based on the popular open source Redis Cache and can be accessed by a wide variety of Redis clients for many programming languages. Each client has its own API that makes calls to the Redis cache instance using Redis commands.

Because each client is different, there is not one centralized class reference on MSDN, and each client maintains its own reference documentation. In addition to the reference documentation, there are several tutorials showing how to get started with Azure Redis Cache using different languages and cache clients. To access these tutorials, see How to use Azure Redis Cache and click the desired language from the language switcher at the top of the article.

30. What are Redis databases?
Explanation: Redis Databases are just a logical separation of data within the same Redis instance. The cache memory is shared between all the databases and actual memory consumption of a given database depends on the keys/values stored in that database. For example, a C6 cache has 53 GB of memory. You can choose to put all 53 GB into one database or you can split it up between multiple databases.

31. Is it possible to add an existing VM to an availability set?

Explanation: No. If you want your VM to be part of an availability set, you need to create the VM within the set. There currently no way to add a VM to an availability set after it has been created.

32. What are the username requirements when creating a VM?

Explanation: Usernames can be a maximum of 20 characters in length and cannot end in a period (“.”).

The following usernames are not allowed:

administrator	admin	user	user1
test	user2	test1	user3
admin1	1	123	a
actuser	adm	admin2	aspnet
backup	console	david	guest
john	owner	root	server
sql	support	support_388945a0	sys
test2	test3	user4	user5

33. What are the password requirements when creating a VM?

Explanation: Passwords must be 12 – 123 characters in length and meet 3 out of the following 4 complexity requirements:

- Have lower characters
- Have upper characters
- Have a digit
- Have a special character (Regex match [W_])

The following passwords are not allowed:

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34. How much storage can I use with a virtual machine?

Explanation: Each data disk can be up to 1 TB. The number of data disks which you can use depends on the size of the virtual machine.

Azure Managed Disks are the new and recommended disk storage offerings for use with Azure Virtual Machines for persistent storage of data. You can use multiple Managed Disks with each Virtual Machine. Managed Disks offer two types of durable storage options: Premium and Standard Managed Disks.

Azure storage accounts can also provide storage for the operating system disk and any data disks. Each disk is a .vhd file stored as a page blob.

35. How can one create a Virtual Machine in Powershell?

```
# Define a credential object
$cred = Get-Credential
# Create a virtual machine configuration
$vmConfig = New-AzureRmVMConfig -VMName myVM -VMSize Standard_DS2 |
` Set-AzureRmVMOperatingSystem -Windows -ComputerName myVM -Credential $cred |
` Set-AzureRmVMSourceImage -PublisherName MicrosoftWindowsServer -Offer WindowsServer `
-Skus 2016-Datacenter -Version latest | Add-AzureRmVMNetworkInterface -Id $nic.Id
```

36. How to create a Network Security Group and a Network Security Group Rule?

```
# Create an inbound network security group rule for port 3389
$nsgRuleRDP = New-AzureRmNetworkSecurityRuleConfig -Name myNetworkSecurityGroupRuleRDP -
Protocol Tcp `
 -Direction Inbound -Priority 1000 -SourceAddressPrefix * -SourcePortRange * -
DestinationAddressPrefix * `
 -DestinationPortRange 3389 -Access Allow

# Create an inbound network security group rule for port 80
$nsgRuleWeb = New-AzureRmNetworkSecurityRuleConfig -Name myNetworkSecurityGroupRuleWWW -
Protocol Tcp `
 -Direction Inbound -Priority 1001 -SourceAddressPrefix * -SourcePortRange * -
DestinationAddressPrefix * `
 -DestinationPortRange 80 -Access Allow

# Create a network security group
$nsg = New-AzureRmNetworkSecurityGroup -ResourceGroupName myResourceGroup -Location EastUS
`
 -Name myNetworkSecurityGroup -SecurityRules $nsgRuleRDP,$nsgRuleWeb
```

37. How to create a new storage account and container using Power Shell?

```
$storageName = "st" + (Get-Random)
New-AzureRmStorageAccount -ResourceGroupName "myResourceGroup" -AccountName $storageName -
Location "West US" -SkuName "Standard_LRS" -Kind Storage
$accountKey = (Get-AzureRmStorageAccountKey -ResourceGroupName myResourceGroup -Name
$storageName).Value[0]
$context = New-AzureStorageContext -StorageAccountName $storageName -StorageAccountKey
$accountKey
New-AzureStorageContainer -Name "templates" -Context $context -Permission Container
```

38. How can one create a VM in Azure CLI?

```
az vm create ` --resource-group myResourceGroup ` --name myVM --image win2016datacenter ` --admin-username azureuser ` --admin-password myPassword12
```

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39. What are the various power states of a VM?

40. How can you retrieve the state of a particular VM?

```
Get-AzureRmVM `
 -ResourceGroupName myResourceGroup `
 -Name myVM `
 -Status | Select @{n="Status"; e={$_.Statuses[1].Code}}
```

41. How can you stop a VM using Power Shell?

```
Stop-AzureRmVM -ResourceGroupName myResourceGroupVM -Name "myVM" -Force
```

42. Why was my client disconnected from the cache?

Explanation: The following are some common reason for a cache disconnect.

- Client-side causes
    - The client application was redeployed.

    - The client application performed a scaling operation.
    - In the case of Cloud Services or Web Apps, this may be due to auto-scaling.
    - The networking layer on the client side changed.
    - Transient errors occurred in the client or in the network nodes between the client and the server.
    - The bandwidth threshold limits were reached.
    - CPU bound operations took too long to complete.
- Server-side causes
    - On the standard cache offering, the Azure Redis Cache service initiated a fail-over from the primary node to the secondary node.
    - Azure was patching the instance where the cache was deployed
    - This can be for Redis server updates or general VM maintenance.

43. What is Azure Search?

Explanation: Azure Search is a cloud search-as-a-service solution that delegates server and infrastructure management to Microsoft, leaving you with a ready-to-use service that you can populate with your data and then use to add search to your web or mobile application. Azure Search allows you to easily add a robust search experience to your applications using a simple REST API or .NET SDK without managing search infrastructure or becoming an expert in search.

44. My web app still uses an old Docker container image after I've updated the image on Docker Hub. Does Azure support continuous integration/deployment of custom containers?

Explanation: Yes, it does. For private registries, you can update the container by stopping and then re-starting your web app. Alternatively, you can also change or add a dummy application setting to force an update of your container.

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45. What are the expected values for the Startup File section when I configure the runtime stack?

Explanation: For Node.Js, you specify the PM2 configuration file or your script file. For .NET Core, specify your compiled DLL name. For Ruby, you can specify the Ruby script that you want to initialize your app with.

46. How are Azure Marketplace subscriptions priced?

Explanation:

Pricing will vary based on product types. ISV software charges and Azure infrastructure costs are charged separately through your Azure subscription. Pricing models include:

BYOL Model: Bring-your-own-license. You obtain outside of the Azure Marketplace, the right to access or use the offering and are not charged Azure Marketplace fees for use of the offering in the Azure Marketplace.

Free: Free SKU. Customers are not charged Azure Marketplace fees for use of the offering.

Free Software Trial: Full-featured version of the offer that is promotionally free for a limited period of time. You will not be charged Azure Marketplace fees for use of the offering during a trial period. Upon expiration of the trial period, customers will automatically be charged based on standard rates for use of the offering.

Usage-Based: You are charged or billed based on the extent of your use of the offering. For Virtual Machines Images, you are charged an hourly Azure Marketplace fee. For Data Services, Developer services, and APIs, you are charged per unit of measurement as defined by the offering.

Monthly Fee: You are charged or billed a fixed monthly fee for a subscription to the offering (from the date of subscription start for that particular plan). The monthly fee is not prorated for mid-month cancellations or unused services.

47. What is the difference between “price,” “software price,” and “total price” in the cost structure for Virtual Machine offers in the Azure Marketplace?

Explanation: “Price” refers to the cost of the Azure Virtual Machine to run the software. “Software price” refers to the cost of the publisher software running on an Azure Virtual Machine. “Total price” refers to the combined total cost of the Azure Virtual Machine and the publisher software running on an Azure Virtual Machine.

48. What are stateful and stateless microservices for Service Fabric?

Explanation: Service Fabric enables you to build applications that consist of microservices. Stateless microservices (such as protocol gateways and web proxies) do not maintain a mutable state outside a request and its response from the service. Azure Cloud Services worker roles are an example of a stateless service. Stateful microservices (such as user accounts, databases, devices, shopping carts, and queues) maintain a mutable, authoritative state beyond the request and its response. Today’s Internet-scale applications consist of a combination of stateless and stateful microservices.

49. What is the meaning of application partitions?

Explanation: The application partitions are a part of the Active Directory system and having said so, they are directory partitions which are replicated to domain controllers. Usually, domain controllers that are included in the process of directory partitions hold a replica of that directory partition. The attributes and values of application partitions is that you can replicated them to any specific domain controller in a forest, meaning that it could lessen replication traffic. While the domain directory partitions transfer all their data to all of the domains, the application partitions

can focus on only one in the domain area. This makes application partitions redundant and more available.

50. What are special Azure Regions?

Explanation: Azure has some special regions that you may wish to use when buildingyour applications for compliance or legal purposes. These special regions include:

- US Gov Virginia and US Gov Iowa
  - A physical and logical network-isolated instance of Azure for US government agencies and partners, operated by screened US persons. Includes additional compliance certifications such as FedRAMP and DISA.
- China East and China North
  - These regions are available through a unique partnership between Microsoft and 21Vianet, whereby Microsoft does not directly maintain the datacenters.
- Germany Central and Germany Northeast
  - These regions are available via a data trustee model whereby customer data remains in Germany under control of T-Systems, a Deutsche Telekom company, acting as the German data trustee.

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Microsoft Azure Tutorial for Beginners: Learn in 1 Day
https://www.guru99.com/microsoft-azure-tutorial.html

What is Cloud Computing?

Cloud computing is a term referred to storing and accessing of data over the internet. It doesn't store any data on the hard disk of your personal computer. In cloud computing, you access data from a remote server.

What is Microsoft Azure?

Azure is a cloud computing platform which was launched by Microsoft in February 2010. It is an open and flexible cloud platform which helps in development, data storage, service hosting, and service management. The Azure tool hosts web applications over the internet with the help of Microsoft data centers.

In this tutorial, you will learn:

- What is Cloud Computing?
- What is Microsoft Azure?
- Types of Azure Clouds
- Azure key Concepts
- Azure Domains (Components)
- Traditional vs. Azure Cloud Model
- Applications of Azure
- Advantages of Azure
- DisAdvantages of Azure

Types of Azure Clouds

There are mainly three types of clouds in Microsoft Azure are:

1. PAAS
2. SAAS
3. IASS

Azure as IaaS

IaaS(Infrastructure as a Service) is the foundational cloud platform layer. This Azure service is used by IT administrators for processing, storage, networks or any other fundamental computer operations. It allows users to run arbitrary software.

Advantages:

- It offers efficient design time portability
- It is advisable for the application which needs complete control
- IaaS offers quick transition of services to clouds
- The apparent benefit of IaaS is that it frees you from the concerns of setting up many physical or virtual machines.
- Helps you to access, monitor and manage datacenters

Disadvantages of Iaas:

- Plenty of security risks from unpatched servers
- Some companies have defined processes for testing and updating on-premise servers vulnerabilities. This cannot be done with Azure.

Azure as PaaS

PaaS is a computing platform which includes an operating system, programming language execution environment, database or web services. This Azure service is used by developers and application providers.

As its name suggests, this platform is provided to the client to develop and deploy software. It allows the client to focus on application development instead of worrying about hardware and infrastructure. It also takes care of operating systems, networking and servers issues.

Advantages:

- The total cost is low as the resources are allocated on demand and servers are automatically added or subtracted.
- Azure is less vulnerable because servers are automatically checked for all known security issues
- The entire process is not visible to the developer, so it does not have a risk of a data breach

Disadvantages:

- Portability issues can occur when you use PaaS services
- There may be different environment at Azure, so the application needs to adapt accordingly.

Azure As SaaS

SaaS (Software as a Service) is software which is centrally hosted and managed. It is a single version of the application is used for all customers. You can scale out to multiple instances. This helps you to ensure the best performance in all locations. The software is licensed through a monthly or annual subscription. MS Exchange, Office, Dynamics are offered as a SaaS

Azure key Concepts

Concept Name	Description
Regions	Azure is a global cloud platform which is available across various regions around the world. When you request a service, application, or VM in Azure, you are first asked to specify a region. The selected region represents datacenter where your application runs.
Datacenter	In Azure, you can deploy your applications into a variety of data centers around the globe. So, it is advisable to select a region which is closer to most of your customers. It helps you to reduce latency in network requests.
Azure portal	The Azure portal is a web-based application which can be used to create, manage and remove Azure resource and services. It is located at https://portal.azure.com.
Resources	Azure resource is an individual computer, networking data or app hosting services which charged individually. Some common resources are virtual machines(VM), storage account, or SQL databases.
Resource groups	An Azure resource group is a container which holds related resource for an Azure solution. It may include every resource or just resource which you wants to manage.
Resource Manager	It is a JSON which defines one or more resource to deploy to a resource group. It also

templates	establishes dependencies between deployed resources.
Automation:	Azure allows you to automate the process of creating, managing and deleting resource by using PowerShell or the Azure command-line Interface(CLI).
Azure PowerShell	PowerShell is a set of modules that offer cmdlets to manage Azure. In most cases, you are allowed to use, the cmdlets command for the same tasks which you are performing in the Azure portal.
Azure command-line interface(CLI)	The Azure CLI is a tool that you can use to create, manage, and remove Azure resources from the command line.
REST APIs	Azure is built on a set of REST APIs help you perform the same operation that you do in Azure portal Ul. It allows your Azure resources and apps to be manipulated via any third party software application.

Azure Domains (Components)

Key Azure Components

Compute

It offers computing operations like app hosting, development, and deployment in Azure Platform. It has the following components:

- Virtual Machine: Allows you to deploy any language, workload in any operating system
- Virtual Machine Scale Sets: Allows you to create thousands of similar virtual machines in minutes
- Azure Container Service: Create a container hosting solution which is optimized for Azure. You scale and arrange applications using Kube, DC/OS, Swarm or Docker
- Azure Container Registry: This service store and manage container images across all types of Azure deployments
- Functions: Let's you write code regardless of infrastructure and provisioning of servers. In the situation when your functions call rate scales up.
- Batch: Batch processing helps you scale to tens, hundreds or thousands of virtual machines and execute computer pipelines.
- Service Fabric: Simplify microservice-based application development and lifecycle management. It supports Java, PHP, Node.js, Python, and Ruby.

Storage

Azure store is a cloud storage solution for modern applications. It is designed to meet the needs of their customer's demand for scalability. It allows you to store and process hundreds of terabytes of data. It has the following components:

- Blob Storage: Azure Blob storage is a service which stores unstructured data in the cloud as objects/blobs. You can store any type of text or binary data, such as a document, media file, or application installer.
- Queue Storage: It provides cloud messaging between application components. It delivers asynchronous messaging to establish communication between application components.
- File Storage: Using Azure File storage, you can migrate legacy applications. It relies on file shares to Azure quickly and without costly rewrites.
- Table Storage: Azure Table storage stores semi-structured NoSQL data in the cloud. It provides a key/attribute store with a schema-less design

Database

This category includes Database as a Service (DBaaS) which offers SQL and NoSQL tools. It also includes databases like Azure Cosmos DB and Azure Database for PostgreSQL. It has the following components:

- SQL Database: It is a relational database service in the Microsoft cloud based on the market-leading Microsoft SQL Server engine.
- DocumentDB: It is a fully managed NoSQL database service which is It built for fast and predictable performance and ease of development.
- Redis Cache: It is a secure and highly advanced key-value store. It stores data structures like strings, hashes, lists, etc.

Content Delivery Network

Content Delivery Network (CDN) caches static web content at strategically placed locations. This helps you to offer speed for delivering content to users. It has the following components:

- VPN Gateway: VPN Gateway sends encrypted traffic across a public connection.
- Traffic Manager: It helps you to control and allows you to do the distribution of user traffic for services like WebApps, VM, Azure, and cloud services in different Datacenters
- Express Route: Helps you to extend your on-premises networks into the Microsoft cloud over a dedicated private connection to Microsoft Azure, Office 365, and CRM Online.

Security + Identify sevices

It provides capabilities to identify and respond to cloud security threats. It also helps you to manage encryption keys and other sensitive assets. It has the following components:

- Key Vault: Azure Key Vault allows you to safeguard cryptographic keys and helps you to create secrets used by cloud applications and services.
- Azure Active Directory: Azure Active Directory and identity management service. This includes multi-factor authentication, device registration, etc.
- Azure AD B2C: Azure AD B2C is a cloud identity management solution for your consumer-facing web and mobile applications. It allows you to scales hundreds of millions of consumer identities.

Enterprise Integration Services:

- Service Bus: Service Bus is an information delivery service which works on the third-party communication system.
- SQL Server Stretch Database: This service helps you migrates any cold data securely and transparently to the Microsoft Azure cloud

- Azure AD Domain Services: It offers managed domain services like domain join, group policy, LDAP, etc. This authentication which is compatible with Windows Server Active Directory.
- Multi-Factor Authentication: Azure Multi-Factor Authentication (MFA) is two-step verification. It helps you to access data and applications to offers a simple sign-in process.

Monitoring + Management Services

These services allow easy management of Azure deployment.

- Azure Resource Manager: It makes it easy for you to manage and visualize resource in your app. You can even control who is your organization can act on the resources.
- Automation: Microsoft Azure Automation is a way to automate the manual, long-running, error-free, and constantly repeated tasks. These tasks are commonly performed in a cloud and enterprise environment.

Azure Networking

- Virtual Network: Perform Network isolation and segmentation. It offers filter and Route network traffic.
- Load Balancer: Offers high availability and network performance of any application. Load balance information Internet traffic to Virtual machines.
- Application Gateway: It is a dedicated virtual appliance that offers an Application Delivery Controller (ADC) as a service.
- Azure DNS: Azure DNS hosting service offers name resolution using Microsoft Azure infrastructure.

Web and Mobile Services:

- Web Apps: Web Apps allows you to build and host websites in the programming language of your choice without the need to manage its infrastructure.
- Mobile Apps: Mobile Apps Service offers a highly scalable, globally available mobile app development platform for users.
- API Apps: API apps make it easier to develop, host and consume APIs in the cloud and on-premises.
- Logic Apps: Logic Apps helps you to simplify and implement scalable integrations

Workflows in the cloud

It provides a visual designer to create and automate your process as a series of steps known as a workflow

- Notification Hubs: Azure Notification Hubs offers an easy-to-use, multi-platform, scaled-out push engine
- Event Hubs: Azure Event Hubs is data streaming platform which can manage millions of events per second. Data sent to an event hub can be transformed and stored using any real-time analytics offers batching/storage adapters.
- Azure Search: It is a cloud search-as-a-service solution which offers server and infrastructure management. It offers ready-to-use service that you can populate with your data. This can be used to add search to your web or mobile application.

Migration

Migration tools help an organization estimate workload migration costs. It also helps to perform the migration of workloads from your local data centers to the Azure cloud.

Traditional vs. Azure Cloud Model

Traditional	Azure Cloud Model
Dedicated infrastructure for each application	Loosely coupled apps and micro-services
Purpose-built hardware	Industry-standard hardware
Distinct infrastructure and operations teams	Service-focused DevOps teams
Customized processes & configurations	Standardized processes & configurations

Applications of Azure

Microsoft Azure is used in a broad spectrum of applications like:

- Infrastructure Services
- Mobile Apps
- Web Applications
- Cloud Services
- Storage, Backup, and Recovery
- Data Management
- Media Services

Advantages of Azure

Here, are advantages of using Azure:

- Azure infrastructure will cost-effectively enhance your business continuity strategy
- It allows you to access the application without buying a license for the individual machine
- Windows Azure offers the best solution for your data needs, from SQL database to blobs to tables
- Offers scalability, flexibility, and cost-effectiveness
- Helps you to maintain consistency across clouds with familiar tools and resources
- Allows you to extend data center with a consistent management toolset and familiar development and identity solutions.
- You can deploy premium virtual machines in minutes which also include Linux and Windows servers
- Helps you to scale your IT resources up and down based on your needs
- You are not required to run the high-powered and high-priced computer to run cloud computing's web-based applications.
- You will not require processing power or hard disk space if you are using Azure
- Cloud computing offers virtually limitless storage
- If your personal computer or laptop crashes, all your data is still out there in the cloud, and it is still accessible
- Sharing documents leads directly to better collaboration
- If you change your device your computers, applications and documents follow you through the cloud

DisAdvantages of Azure

- Cloud computing is not possible if you can't connect to the Internet
- Azure is a web-based application which requires a lot of bandwidth to download, as do large documents

- Web-based applications can sometimes be slower compared to accessing a similar software program on your desktop PC

Summary

- Cloud computing is a term referred to storing and accessing of data over the internet
- Azure is a cloud computing platform which was launched by Microsoft in February 2010
- There are mainly three types of clouds in Microsoft Azure: 1)PAAS 2) SAAS 3) IASS
- IaaS(Infrastructure as a Service) is the foundational cloud platform layer.
- PaaS is a computing platform which includes an operating system, programming language execution environment, database or web services
- SaaS (Software as a Service) is software which is centrally hosted and managed.
- Datacentres and regions, Azure portal, Resources, Resource groups, Resource Manager templates, Azure PowerShell, Azure command-line interface(CLI) are some of the key terms used in Azure
- Important components of Microsoft Azure are Compute, Storage, Database, Monitoring & management services, Content Delivery Network, Azure Networking, Web & Mobile services, etc.
- Traditional model used purpose-built hardware while Azure cloud model uses Industry-standard hardware
- Important applications of Microsoft Azure are: Infrastructure Services, Mobile Apps, Web Applications, Cloud Services, Storage, Backup, and Recovery, Data Management, and Media Services
- The biggest advantage of Microsoft Azure infrastructure is that it will cost-effectively enhance your business continuity strategy
- Web-based applications like Azure can sometimes be slower compared to accessing a similar software program on your desktop PC

Top 50 Azure Interview Questions and Answers

https://www.guru99.com/azure-interview-questions-answers.html

Following are frequently asked questions in interviews for freshers as well as experienced Azure professionals.

1. What is Cloud Computing?

Cloud computing is a term referred to storing and accessing data over the internet. It doesn't store any data on the hard disk of your personal computer. In cloud computing, you are allowed accessing data from a remote server.

2. What is Microsoft Azure?

Azure is a cloud computing platform which was launched by Microsoft in Feb 2010. It is a highly flexible cloud platform that offers development, data storage, service hosting, and service management.

3. Explain the Importance of the role and how many types of roles are available in Windows Azure?

Roles are a very important concept in Windows Azure, and learning them is the base for further programming.

Three types of roles in Windows Azure are:

- Web Role: It is used to deploy website by using langue which is supported by the IIS platform customized to run the web apps.
- Worker Role: It helps you to execute the process that runs in the background by
- VM Role: It helps you to schedule the windows services and task.

4. Why should you use Azure CDN?

Azure CDN should be used to reduce load time and bandwidth as well as speed the responsiveness.

5. Name some important applications of Microsoft Azure

Most important application of Microsoft Azure are:

Infrastructure Services, Mobile Apps, Web Applications, Cloud Services, Storage, Media Services, etc.

6. What is Azure as PaaS?

PaaS is a computing platform that includes an operating system, programming language execution environment, database, or web services. Developers and application providers use this type of Azure services.

7. Explain the crucial benefits of Traffic Manager

Traffic management offers many advantages for the user:

- Increase the performance
- No Downtime required for update or Maintenance
- You can easily configure Azure Traffic manager on Windows Azure portal.

8. What are Break-bix issues in Microsoft Azure?

In, Microsoft Azure, all the technical problem is called break-fix issues. This term uses when "work involved in support a technology when it fails in the normal course of its function.

9. Explain Diagnostics in Windows Azure

Windows Azure Diagnostic offers the facility to store diagnostic data. In Azure, some diagnostics data is stored in the table, while some are stored in a blob. The diagnostic monitor runs in Windows Azure as well as in the computer's emulator for collecting data for a role instance.

10. State the difference between repetitive and minimal monitoring.

Verbose monitoring collects metrics based on performance. It allows a close analysis of data fed during the process of application.

On the other hand, minimal monitoring is a default configuration method. It makes the user of performance counters gathered from the operating system of the host.

11. What is the main difference between the repository and the powerhouse server?

The main difference between them is that repository servers are instead of the integrity, consistency, and uniformity while powerhouse server governs the integration of different aspects of the database repository.

12. Explain command task in Microsoft Azure

Command task is an operational window which set off the flow of either single or multiple common whiles when the system is running.

13. What are unconnected lookups?

Unconnected lookup the input ins take by the LKP operation. In this type of lookup method, User-defined values are disregarded in the unconnected lookups.

14.Explain Cmdlet command of Microsoft Azure

A cmdlet is a command which is utilized as a part of the Microsoft PowerShell environment. The cmdlet is called by the Windows PowerShell to automate the scripts which are in the command line.

15. What is the use of the Migration Assistant tool in Azure Websites?

Migration Assistant tool helps you to examine your IIS installation. It helps you to recognize which site can be migrated to the cloud. It is also featuring components which are either not migrated or unsupported on the Azure platform.

16. What is the use of Azure Active Directory?

Azure Active Directory is an identify and access management system. It is very much similar to the active directories. It allows you to grant your employee in accessing specific products and services within the network.

17. What is HDInsight in Microsoft Azure?

HDInsight is a could service which that makes it easy. It is fast and cost-effective to process a massive amount of data using with the help of open-source frameworks like Spark, Hadoop, Hive, Storm and R. HDInsight offers various type of scenarios which includes ETL, data warehousing, and Machine Learning.

18. Explain role instance in Microsoft Azure

A role instance is a virtual instance on which the application code and role configuration run. A role can have multiple instances, which are defined in the service configuration file.

19. Explain the term 'service fabric' in Azure

Service fabric is a middleware platform which gives more scalable outcome. It mostly renders with a more managed and reliable enterprise.

20. Explain Availability Set

It is a logical grouping of Virtual Machines. It allows the Azure cloud to build understand how the application for a user is built to provide availability and redundancy.

21. Name the types of web application which can be deployed with Azure

ASP.Net, PHP, WCF are a type of web application which can be deployed with SQL Azure.

22. How many customers subscriptions allowed in managed disks?

The number of managed disks subscription is limited to 2000.

23. Explain the service definition file

The course service definition file (.csdef) defines the service mode. It includes a number of roles.

24. State the difference between copy and shortcut

Copied means transferring an object from one to another folder which takes double space. The shortcut is a dynamic Link on an object which saves the space which shows changes in the original object.

25. Name the services which are used to manage resources in Azure

- Application Insights
- Azure Portal
- Azure Resource manager
- Log Analytics

26. Explain enterprise warehousing

Enterprise warehousing is the phenomenon where the data is developed by the organization having access at a single point throughout the globe. The warehousing allows serving to get linked to a single point with the assistance of periodic handling.

27. What are the important drawbacks of using Microsoft Azure?

- Cloud computing is not possible if you are not able to connect to the Internet.
- Azure is a web-based app which needs a lot of bandwidth to download, as do large documents.
- Web-based applications can sometimes be slower compared accessing similar software program on your desktop PC.

28. What is MOSS?

Microsoft SharePoint Server (MOSS) that consist of a complete version of the portal platform. It allows a user to manage, share and even create the document.

29. What is the step you need to perform when drive failure occurs?

When there is an instance that the drive has failed, the following step should be performed:

- The drive should be not mounted, which allows the object Azure storage to function without fail.
- The second scenario is replacing the drive in which the desired step will remounting, formatting the drive.

30. What it's the difference between PROC MEANS and PROC SUMMARY?

- PROC MEANS: It refers to the subgroup of statist created in the persistence of the BY statement.
- PROC SUMMARY: It is the support statistic giving all varieties of information running simultaneously.

31. State the difference between a library and a list

The library is an interface which allows to manage and store a document which can be created using Word, Excel, or PowerPoint.

On the other hand, the list is the representation of the item in a tabular format using column and rows. It can be attached with documents.

32. Can you create VM by using Microsoft Azure Resource Manager in a Virtual Network?

No, it is not possible to create a virtual machine using the Azure Resource Manager.

33. What is the use of VNET?

With the help of VNET, you can represent your network within the cloud. It could insulate the instance logically which are launched within the cloud.

34. What the important requirements when creating a new Virtual Machine?

The length of the user name should not more than 20 characters, and it should not end with a period.

35. Name various power states of a Virtual Machine.

Various power states of a Virtual Machine are: Running, Starting, Stopping, Deallocating, etc.

36. Explain lookup transformation

Lookup transformation helps you to finds outsource qualifier. It may be either active/passive lookup transformation.

37. What are the three main components of the Windows Azure platform?

Three most important components of the Windows Azure platform are:

- Compute
- Storage
- AppFabric

38. Explain cspack in Microsoft Azure

Cspack is a command-line tool which generates a service package file. It also helps you to prepares an application for deployment, either in compute emulator or Microsoft Windows Azure.

39. What is the purpose of using an application partition scheme in Azure?

An application partition aims to reduce the replication traffic within a specific domain area.

40. Explain Azure Service Level Agreement

The Service ensures that when you send two or more roles instances for each role, access to your cloud service will be maintained 9 out of 10 times. Moreover, identification re-correction activity will be stared when the procedure of a role instance is not running.

41. What do you mean by the network security groups?

A network security group allows you to manage the network traffic to NIC or subnets etc. If it is connected in the best possible way, then the network load will be distributed wisely.

42. What happens when you exhaust the maximum failed attempts by authenticating yourself using Azure AD?

We use a more method to lock accounts. This is based on the IP address of the request and the passwords entered by the user.

43. Explain the concept of the table in Windows Azure

A table is one kind of Azure store. In which you can store your information.

Below given are the key concepts of the table:

- Tables allow structure data storage
- There can be 0 to n table in a storage account.
- An element has an essential key and properties as a key-value pair.

44. What is the use of Temp Drive in VM?

Temp Drive is used for Paging in Azure. However, it is a short drive, and you should not use it for storage.

45. Explain guest OS in Microsoft Azure

Guest OS is an operating system which runs on the virtual machine which allows you to hosts an instance of a role.

46. When will you find the list of built-in app with ADD?

The Azure Active Directory has more than 2500 built-in app. It allows you to access the application more securely.

47. Are data disks provide support within scale sets?

Yes, a scale allows you to define an attached data disk configuration which applies to all VMs In the set. Other options for data storing are:

- Azure files
- Azure Data services
- OS drive

- External data service

48. State the difference pricing model of Microsoft Azure

Here, are different pricing model of Microsoft Azure:

BYOL Model: It brings your license model. It is just right to access model. You can obtain it outside of the Azure Marketplace. This model is not charged any fees.

Free Software Trial: It is a full-featured version which is promotionally free for a limited period of time. However, for excessive use, you need to pay fees.

Usage-based: This is a widely used model of Microsoft Azure. Here, user are changed for only that service which is used by them.

Monthly fee: Here, you need to pay a fixed monthly payment for a subscription.

49. What is csrun?

Csrun is a command-line tool that deploys a packaged application to the Windows Azure compute emulator and manages the running service.

50. Name two blobs used in Microsoft Azure

Two types of blobs offer in Azure are:

1. Block Blob
2. Page Blob

51. How much storage can a user with a virtual machine use?

Each data disk on the VM can be up to 1 TB. However, the number of data disks, which you can use depends on the size of the virtual machine.

52. Name three types of Disks used by VMs

Three types of disk used in VMs are:

- Operating system disk
- Temporary disk
- Data disk

53. Name two types of cloud services

Two most common could services are:

- Public cloud
- Private cloud