Section 1: General Cloud Questions

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

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).

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

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.

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 a 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.

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

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 auto scale, 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.

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.

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, **cache** and 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.

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

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:

abc@123	P@$$w0rd	P@ssw0rd	P@ssword123	Pa$$word
pass@word1	Password!	Password1	Password22	iloveyou!

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
```

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

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

Power states

Power State	Description
Starting	Indicates the virtual machine is being started.
Running	Indicates that the virtual machine is running.
Stopping	Indicates that the virtual machine is being stopped.
Stopped	Indicates that the virtual machine is stopped. Note that virtual machines in the stopped state still incur compute charges.
Deallocating	Indicates that the virtual machine is being deallocated.
Deallocated	Indicates that the virtual machine is completely removed from the hypervisor but still available in the control plane. Virtual machines in the Deallocated state do not incur compute charges.
-	Indicates that the power state of the virtual machine is unknown.

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.

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

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.

Apart from this Azure Interview Questions Blog, if you want to get trained from professionals on this technology, you can opt for a structured training from edureka! Click below to know more.

Q1) What is Azure Cloud Service?

By creating a cloud service, you can deploy a multi-tier web application in Azure, defining multiple roles to distribute processing and allow flexible scaling of your application. A cloud service consists of one or more web roles and/or worker roles, each with its own application files and configuration. Azure Websites and Virtual Machines also enable web applications on Azure. The main advantage of cloud services is the ability to support more complex multi-tier architectures

Q2) What is a cloud service role?

A cloud service role is comprised of application files and a configuration. A cloud service can have two types of roles.

Q3) What is link a resource?

To show your cloud service's dependencies on other resources, such as an Azure SQL Database instance, you can "link" the resource to the cloud service. In the Preview Management Portal, you can view linked resources on the Linked Resources page, view their status on the dashboard, and scale a linked SQL Database instance along with the service roles on the Scale page. Linking a resource in this sense does not connect the resource to the application; you must configure the connections in the application code.

Q4) What is scale a cloud service?

A cloud service is scaled out by increasing the number of role instances (virtual machines) deployed for a role. A cloud service is scaled in by decreasing role instances. In the Preview Management Portal, you can also scale a linked SQL Database instance, by changing the SQL Database edition and the maximum database size, when you scale your service roles.

Q5) What is a web role?

A web role provides a dedicated Internet Information Services (IIS) web-server used for hosting front-end web applications.

Q6) What is a worker role?

Applications hosted within worker roles can run asynchronous, long-running or perpetual tasks independent of user interaction or input.

Q7) What is a role instance?

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

Q8) What is a guest operating system?

The guest operating system for a cloud service is the operating system installed on the role instances (virtual machines) on which your application code runs.

Q9) What is a cloud service component?

Three components are required in order to deploy an application as a cloud service in Azure:

Q10) What is deployment environments?

Azure offers two deployment environments for cloud services: a staging environment in which you can test your deployment before you promote it to the production environment. The two environments are distinguished only by the virtual IP addresses (VIPs) by which the cloud service is accessed. In the staging environment, the cloud service's globally unique identifier (GUID) identifies it in URLs (GUID.cloudapp.net). In the production environment, the URL is based on the friendlier DNS prefix assigned to the cloud service (for example, myservice.cloudapp.net).

Q11) What is swap deployments?

To promote a deployment in the Azure staging environment to the production environment, you can "swap" the deployments by switching the VIPs by which the two deployments are accessed. After the deployment, the DNS name for the cloud service points to the deployment that had been in the staging environment.

Q12) What is minimal vs. verbose monitoring?

Minimal monitoring, which is configured by default for a cloud service, uses performance counters gathered from the host operating systems for role instances (virtual machines).

Verbose monitoring gathers additional metrics based on performance data within the role instances to enable closer analysis of issues that occur during application processing. For more information

Q13) What is a service definition file?

The cloud service definition file (.csdef) defines the service model, including the number of roles.

Q14) What is a service configuration file?
The cloud service configuration file (.cscfg) provides configuration settings for the cloud service and individual roles, including the number of role instances.

Q15) What is a service package?

The service package (.cspkg) contains the application code and the service definition file.

Q16) What is a cloud service deployment?

A cloud service deployment is an instance of a cloud service deployed to the Azure staging or production environment. You can maintain deployments in both staging and production.

Q17) What is Azure Diagnostics?

Azure Diagnostics is the API that enables you to collect diagnostic data from applications running in Azure. Azure Diagnostics must be enabled for cloud service roles for verbose monitoring to be turned on.

Q18) What is Azure Service Level Agreement (SLA)?

The Azure Compute SLA guarantees that, when you deploy two or more role instances for every role, access to your cloud service will be maintained at least 99.95 percent of the time. Also, detection and corrective action will be initiated 99.9 percent of the time when a role instance's process is not running.

Q19) What is Cloud Computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet).

Q20) What are the Service Model in Cloud Computing?

Cloud computing providers offer their services according to three fundamental models: Infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models.
Examples of IaaS include: Amazon CloudFormation (and underlying services such as Amazon EC2), Rack space Cloud, Terremark, Windows Azure Virtual Machines, Google Compute Engine.   and   Joyent.
Examples of PaaS include: Amazon Elastic Beanstalk, Cloud Foundry, Heroku, Force.com,

EngineYard, Mendix, Google App Engine, Windows Azure Compute and OrangeScape. Examples of SaaS include: Google Apps, Microsoft Office 365, and Onlive.

Q21) How many types of deployment models are used in cloud?

There are 4 types of deployment models used in cloud:

1. Public cloud
2. Private cloud
3. Community cloud
4. Hybrid cloud

Q22) What is Windows Azure Platform?

A collective name of Microsoft's Platform as a Service (PaaS) offering which provides a programming platform, a deployment vehicle, and a runtime environment of cloud computing hosted in Microsoft data centers.

Q23) What are the roles available in Windows Azure?

All three roles (web, worker, VM) are essentially Windows Server 2008. Web and Worker roles are nearly identical: With Web and Worker roles, the OS and related patches are taken care for you; you build your app's components without having to manage a VM

Q24) What is the difference between Windows Azure Platform and Windows Azure?

The former is Microsoft's PaaS offering including Windows Azure, SQL Azure, and Appfabric; while the latter is part of the offering and the Microsoft's cloud OS.

Q25) What are the three main components of Windows Azure Platform?

1. Compute
2. Storage
3. AppFabric

Q26) What is Windows Azure compute emulator?

The compute emulator is a local emulator of Windows Azure that you can use to build and test your application before deploying it to Windows Azure.

Q27) What is fabric?

In the Windows Azure cloud fabric is nothing but a combination of many virtualized instances which run the client application

Q28) How many instances of a Role should be deployed to satisfy Azure SLA (service level agreement)? And what's the benefit of Azure SLA?

TWO. And if we do so, the role would have external connectivity at least 99.95% of the time.

Q29) What are the options to manage session state in Windows Azure?

- Windows Azure Caching
- SQL Azure
- Azure Table

Q30) What is cspack?

It is a command-line tool that generates a service package file (.cspkg) and prepares an application for deployment, either to Windows Azure or to the compute emulator.

Q31) What is csrun?

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

Q32) What is guest OS?

It is the operating system that runs on the virtual machine that hosts an instance of a role.

Q33) How to programmatically scale out Azure Worker Role instances?

Using AutoScaling Application Block

Q34) What is the difference between Public Cloud and Private Cloud?

Public cloud is used as a service via Internet by the users, whereas a private cloud, as the name conveys is deployed within certain boundaries like firewall settings and is completely managed and monitored by the users working on it in an organization.

Q35) How to design applications to handle connection failure in windows Azure?

The Transient Fault Handling Application Block supports various standard ways of generating the retry delay time interval, including fixed interval, incremental interval (the interval increases by a standard amount), and exponential back-off (the interval doubles with some random variation).
static RetryPolicy policy = new RetryPolicy(5, TimeSpan.FromSeconds(2), TimeSpan.FromSeconds(2)); policy.ExecuteAction(() => { try { string federationCmdText = @"USE FEDERATION Customer_Federation(ShardId =" + shardId + "() WITH RESET, FILTERING=ON"; customerEntity.Connection.Open(); customerEntity.ExecuteStoreCommand(federationCmdText); } catch (Exception e) { customerEntity.Connection.Close(); SqlConnection.ClearAllPools(); } });

Q36) What is windows Azure Diagnostics?

Windows Azure Diagnostics enables you to collect diagnostic data from an application running in Windows Azure. You can use diagnostic data for debugging and troubleshooting, measuring performance, monitoring resource usage, traffic analysis and capacity planning, and auditing.

Q37) What is Blob?

BLOB stands for Binary Large Object. Blob is file of any type and size. The Azure Blob Storage offers two types of blobs –

1. Block Blob
2. Page Blob

URL format: Blobs are addressable using the following URL format:

Q38) What is the difference between Block Blob vs Page Blob?

Block blobs are comprised of blocks, each of which is identified by a block ID. You create or modify a block blob by uploading a set of blocks and committing them by their block   IDs.
If you are uploading a block blob that is no more than 64 MB in size, you can also upload it in its entirety with a single Put Blob operation. -Each block can be a maximum of 4 MB in size. The maximum size for a block blob in version 2009-09-19 is 200 GB, or up to 50,000 blocks.
Page blobs are a collection of pages. A page is a range of data that is identified by its offset from the start of the blob. To create a page blob, you initialize the page blob by calling Put Blob   and   specifying   its   maximum   size.
-The maximum size for a page blob is 1 TB. A page written to a page blob may be up to 1 TB in   size.
what to use block blobs for: streaming video. "The application must provide random read/write access" which is supported by Page Blobs

Q39) What is the difference between Windows Azure Queues and Windows Azure Service Bus Queues?

Windows Azure supports two types of queue mechanisms: Windows Azure Queues and Service   Bus   Queues.
Windows Azure Queues, which are part of the Windows Azure storage infrastructure, feature a simple REST-based Get/Put/Peek interface, providing reliable, persistent messaging within and   between   services.
Service Bus Queues are part of a broader Windows Azure messaging infrastructure dead-letterrts queuing as well as publish/subscribe, Web service remoting, and integration patterns.

Q40) What is DeadLetter queue?

1. Messages are placed on the dead-letter sub-queue by the messaging system in the following scenarios.
2. When a message expires and dead-lettering for expired messages is set to true in a queue or subscription.

3. When the max delivery count for a message is exceeded on a queue or subscription.
4. When a filter evaluation exception occurs in a subscription and dead-lettering is enabled on filter evaluation exceptions.

Q41) What are instance sizes of Azure?

Windows Azure will handle the load balancing for all of the instances that are created. The VM sizes are as follows:

Compute Instance Size	CPU	Memory	Instance Storage	I/O Performance
Extra Small	1.0 Ghz	768 MB	20 GB	Low
Small	1.6 GHz	1.75 GB	225 GB	Moderate
Medium	2 x 1.6 GHz	3.5 GB	490 GB	High
Large	4 x 1.6 GHz	7 GB	1,000 GB	High
Extra large	8 x 1.6 GHz	14 GB	2,040 GB	High

Related Page: Azure Active Directory

Q42) What is table storage in Windows Azure?

The Windows Azure Table storage service stores large amounts of structured data. The service is a NoSQL datastore which accepts authenticated calls from inside and outside the Windows Azure cloud. Windows Azure tables are ideal for storing structured, non-relational data

Table: A table is a collection of entities. Tables don't enforce a schema on entities, which means a single table can contain entities that have different sets of properties. An account can contain many tables

Entity: An entity is a set of properties, similar to a database row. An entity can be up to 1MB in size.

Properties: A property is a name-value pair. Each entity can include up to 252 properties to store data. Each entity also has 3 system properties that specify a partition key, a row key, and a timestamp.

Entities with the same partition key can be queried more quickly, and inserted/updated in atomic operations. An entity's row key is its unique identifier within a partition.

1. What are the three main components of Windows Azure Platform?

- Compute
- Storage
- AppFabric

2. What are the Service Model in Cloud Computing?

Cloud computing providers offer their services according to three fundamental models: Infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models.

Examples of IaaS include: Amazon CloudFormation (and underlying services such as Amazon EC2), Rackspace Cloud, Terremark, Windows Azure Virtual Machines, Google Compute Engine. and Joyent.

Examples of PaaS include: Amazon Elastic Beanstalk, Cloud Foundry, Heroku, Force.com, EngineYard, Mendix, Google App Engine, Windows Azure Compute and OrangeScape.

Examples of SaaS include: Google Apps, Microsoft Office 365, and Onlive.

3. How many types of deployment models are used in cloud?

There are 4 types of deployment models used in cloud:

- Public cloud
- Private cloud
- Community cloud
- Hybrid cloud

4. What is Windows Azure Platform?

A collective name of Microsoft's Platform as a Service (PaaS) offering which provides a programming platform, a deployment vehicle, and a runtime environment of cloud computing hosted in Microsoft datacenters.

5. What are the roles available in Windows Azure?

All three roles (web, worker, VM) are essentially Windows Server 2008. Web and Worker roles are nearly identical: With Web and Worker roles, the OS and related patches are taken care for you; you build your app's components without having to manage a VM

6. How would you categorize Windows Azure? (IaaS/PaaS/SaaS)

PaaS (Platform as a Service)

7. What are the three types of roles in Compute component in Windows Azure?

1. WEB
2. Worker
3. VM

8. What is Windows Azure compute emulator?

The compute emulator is a local emulator of Windows Azure that you can use to build and test your application before deploying it to Windows Azure.

9. What is fabric?

In the Windows Azure cloud fabric is nothing but a combination of many virtualized instances which run client application

10. How many instances of a Role should be deployed to satisfy Azure SLA (service level agreement) ? And what's the benefit of Azure SLA?

TWO. And if we do so, the role would have external connectivity at least 99.95% of the time.

11. What are the options to manage session state in Windows Azure?

- Windows Azure Caching
- SQL Azure
- Azure Table

12. What is cspack?

It is a command-line tool that generates a service package file (.cspkg) and prepares an application for deployment, either to Windows Azure or to the compute emulator.

13. What is csrun?

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

14. What is guest OS?

It is the operating system that runs on the virtual machine that hosts an instance of a role.

15. What is guest OS?

It is the operating system that runs on the virtual machine that hosts an instance of a role.

16. How to programmatically scale out Azure Worker Role instances?

Using AutoScaling Application Block

17. what is web role in Windows Azure?

Web roles in Windows Azure are special purpose, and provide a dedicated Internet Information Services (IIS) web-server used for hosting front-end web applications. You can quickly and easily deploy web applications to Web Roles and then scale your Compute capabilities up or down to meet demand.

18. What is the difference between Public Cloud and Private Cloud?

Public cloud is used as a service via Internet by the users, whereas a private cloud, as the name conveys is deployed within certain boundaries like firewall settings and is completely managed and monitored by the users working on it in an organization.

19. What are the three types of roles in Compute component in Windows Azure?

Web, Worker and VM.

Web and worker roles are essentially same except that web roles have IIS enabled on them.

20. What is windows Azure Diagnostics?

Windows Azure Diagnostics enables you to collect diagnostic data from an application running in Windows Azure. You can use diagnostic data for debugging and troubleshooting, measuring performance, monitoring resource usage, traffic analysis and capacity planning, and auditing.

21. What is Blob?

BLOB stands for Binary Large Object. Blob is file of any type and size.

The Azure Blob Storage offers two types of blobs –

- Block Blob
- Page Blob

URL format: Blobs are addressable using the following URL format:

http://.blob.core.windows.net//

22. What is the difference between Block Blob vs Page Blob?

Block blobs are comprised of blocks, each of which is identified by a block ID.

You create or modify a block blob by uploading a set of blocks and committing them by their block IDs.

If you are uploading a block blob that is no more than 64 MB in size, you can also upload it in its entirety with a single Put Blob operation. -Each block can be a maximum of 4 MB in size. The maximum size for a block blob in version 2009-09-19 is 200 GB, or up to 50,000 blocks.

Page blobs are a collection of pages. A page is a range of data that is identified by its offset from the start of the blob.

To create a page blob, you initialize the page blob by calling Put Blob and specifying its maximum size.

The maximum size for a page blob is 1 TB. A page written to a page blob may be up to 1 TB in size.
what to use block blobs for: streaming video. "The application must provide random read/write access" which is supported by Page Blobs

23. What is the difference between Windows Azure Queues and Windows Azure Service Bus Queues?

Windows Azure supports two types of queue mechanisms: Windows Azure Queues and Service Bus Queues.

Windows Azure Queues, which are part of the Windows Azure storage infrastructure, feature a simple REST-based Get/Put/Peek interface, providing reliable, persistent messaging within and between services.

Service Bus Queues are part of a broader Windows Azure messaging infrastructure that supports queuing as well as publish/subscribe, Web service remoting, and integration patterns.

[Communication in Windows Azure](#)

http://msdn.microsoft.com/en-us/library/windowsazure/hh767287.aspx

24. What is DeadLetter queue?

Messages are placed on the deadletter sub-queue by the messaging system in the following scenarios.

- When a message expires and deadlettering for expired messages is set to true in a queue or subscription.
- When the max delivery count for a message is exceeded on a queue or subscription.
- When a filter evaluation exception occurs in a subscription and deadlettering is enabled on filter evaluation exceptions.

25. What are instance sizes of Azure?

Windows Azure will handle the load balancing for all of the instances that are created. The VM sizes are as follows:

Compute Instance	Size CPU	Memory Instance	Storage I/O	Performance
Extra Small	1.0 Ghz	768 MB	20 GB	Low
Small	1.6 GHz	1.75 GB	225 GB	Moderate
Medium	2 x 1.6 GHz	3.5 GB	490 GB	High
Large	4 x 1.6 GHz	7 GB	1,000 GB	High
Extra large	8 x 1.6 GHz	14 GB	2,040 GB	High

26. What is table storoage in Windows Azure?

The Windows Azure Table storage service stores large amounts of structured data. The service is a NoSQL datastore which accepts authenticated calls from inside and outside the Windows Azure cloud.

Windows Azure tables are ideal for storing structured, non-relational data

Table: A table is a collection of entities. Tables don't enforce a schema on entities, which means a single table can contain entities that have different sets of properties. An account can contain many tables

Entity: An entity is a set of properties, similar to a database row. An entity can be up to 1MB in size.

Properties: A property is a name-value pair. Each entity can include up to 252 properties to store data. Each entity also has 3 system properties that specify a partition key, a row key, and a timestamp.

Entities with the same partition key can be queried more quickly, and inserted/updated in atomic operations. An entity's row key is its unique identifier within a partition.

27. Difference between Web and Worker Roles in Windows Azure?

The main difference between the two is that an instance of a web role runs IIS, while an instance of a worker role does not. Both are managed in the same way, however, and it's common for an application to use both.For example, a web role instance might accept requests from users, then pass them to a worker role instance for processing.

28. What is Azure Fabric Controller?

The Windows Azure Fabric Controller is a resource provisioning and management layer that manages the hardware, and provides resource allocation, deployment/upgrade, and management for cloud services on the Windows Azure platform.

29. What is AutoScaling?

Scaling by adding additional instances is often referred to as scaling out. Windows Azure also supports scaling up by using larger role instances instead of more role instances.

By adding and removing role instances to your Windows Azure application while it is running, you can balance the performance of the application against its running costs.

An autoscaling solution reduces the amount of manual work involved in dynamically scaling an application.

30. what is VM role in Windows Azure?

Virtual Machine (VM) roles, now in Beta, enable you to deploy a custom Windows Server 2008 R2 (Enterprise or Standard) image to Windows Azure. You can use the VM role when your application requires a large number of server OS customizations and cannot be automated. The VM Role gives you full control over your application environment and lets you migrate existing applications to the cloud.

31. Apart from .Net framework, Name other three language/framework that can be used to develop Windows Azure applications?

php, node.js, java

32. Briefly explain scalability Targets for a Single Storage Account of Azure

Individual Storage Accounts	
Capacity	Upto 200 TB
Transactions	Up to 20,000 entities/messages/blobs per second
Bandwidth for a Geo-Redundant Storage Account	
Ingress	Up to 5Gbps
Egress	Up to 10Gbps
Bandwidth for a Locally Redundant Storage Account	
Ingress	Up to 10Gbps
Egress	Up to 15Gbps

Question 1: What is Cloud Computing?

Answer

Cloud computing is internet-based computing whereby shared resources, software, and information are provided to computers and other devices on-demand, like the electricity grid.

Cloud computing is a culmination of numerous attempts at large-scale computing with seamless access to virtually limitless resources.

Cloud Computing = Software as a Service + Platform as a Service + Infrastructure as a Service.

A number of characteristics define cloud data, applications services, and infrastructure:

- **Remotely hosted:** Services or data are hosted on a remote infrastructure.
- **Ubiquitous:** Services or data are available from anywhere.
- **Commodified:** The result is a utility computing model similar to traditional utilities, like gas and electricity; you pay for what you need!

Cloud computing can be categorized into three parts:

1. Platform as a Service (PaaS)
2. Infrastructure as a Service (IaaS)
3. Software as a Service (SaaS)

Question 2: What are the components of Cloud Computing?

Answer

Components in a cloud refer to the platforms, like front end, back end, and cloud-based delivery and the network used. All together it forms an architecture for cloud computing. With the main components like SAAS, PAAS and IAAS there are 11 more major categories in cloud computing that are:

- **Storage-as-a-Service:** This is the component where we can use or request storage. It is also called disk space on demand.

- **Database-as-a-Service:** This component acts as a live database from remote.

- **Information-as-a-Service:** Information that can be accessed remotely from anywhere is called Information-as-a-Service.

- **Process-as-a-Service:** This component combines various resources such as data and services. This happens either hosted within the same cloud computing resource or remote.

- **Application-as-a-Service:** Application-as-a-Service (also known as SAAS) is the complete application built ready for use by the client.

- **Platform-as-a-Service:** This is the component where the app is being developed and the database is being created, implemented, stored and tested.

- **Integration-as-a-Service:** Integration-as-a-Service deals with the components of an application that has been built but must be integrated with other applications.

- **Security-as-a-Service:** This is the main component many customers require. There are three-dimensional securities found in cloud platforms.

- **Management-as-a-service:** This is a component that is mainly useful for management of the clouds, like resource utilization, virtualization and server up and down time management.

- **Testing-as-a-Service:** Testing-as-a-Service refers to the testing of the applications that are hosted remotely.

- **Infrastructure-as-a-Service:** This is called as nearly as possible the taking of all the hardware, software, servers and networking that is completely virtual.

Question 3: What is the Service Model in Cloud Computing?

Answer

This is the **service model** on which you will host your application(s), for example **IaaS**, **PaaS** or **SaaS**. Each of these service models requires various levels of support and responsibilities once a system is deployed to the platform. To resolve the future challenges that you might encounter you need to understand the models carefully. Other than the service model, the second, you need to decide whether you want a **Private** or **On-Premise cloud**, or you want your application to be deployed on a Public Cloud.

Every service model offers you some kind of resource required to operate the most web-enabled systems imaginable.

Service Model	Short Description
1. IaaS (Infrastructure as a Service)	Allows to Set up and configure Operating Systems, Applications and it's settings.
2. PaaS (Platform as a Service)	Allows to configure Applications and it's settings.
3. SaaS (Software as a Service)	Allows to configure Application Settings only.

For more details visit the following link:

- [Cloud Computing: Service Models](#)

Question 4: What are the kind of cloud storage and why is cloud computing is so popular?

Answer

Data is centrally stored in the cloud and available across the internet. There are various storage options available or we can classify them broadly in the following three categories:
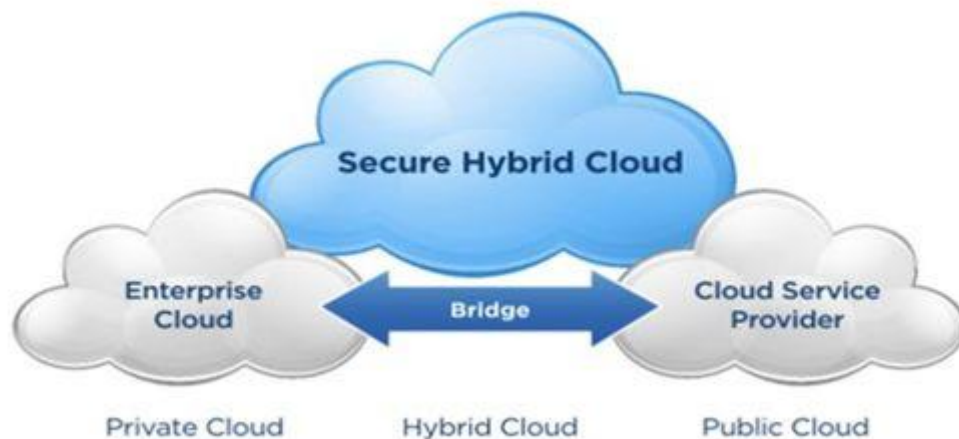
Public Cloud

In this model a service provider makes resources, such as application and storage, available to the general public over the internet. Public cloud services may be free or offered on a pay-per-usage model.

Private Cloud

A private cloud provides more control over the company's data and under the control of the company's IT department.

Hybrid Cloud

A hybrid cloud is a combination of public cloud storage and private cloud storage, where some critical data resides in the enterprise's private cloud and other data is stored and accessible from a public cloud storage provider.

Benefits of a cloud:

- Lower costs, "Pay as you use"
- Software updates
- Backups
- Data hosted centrally
- Scalability
- Fail over
- Monitoring services
- Data storage

There are many reasons why cloud computing is so widely popular:

- Reduction of costs
- Universal access
- Software updates
- Scalability
- Flexibility

For more details visit the following on link:

- [Basics of Cloud Computing](#)

Question 5: What is the Windows Azure Platform?

Answer

The Windows [Azure](#) Platform lays the foundation for running applications and keeping data on the cloud. It contains computer services, storage services and the fabric. Windows Azure affords a wide range of capabilities in the form of computing services to run applications, storage services and creating a framework that supports several applications, as well as host services and manage them centrally. This platform readily stipulates an internet infrastructure for deploying distributed applications and services since we can develop a cloud service in Visual Studio .NET and deploy it into the Azure cloud right from on-premise tools. The Azure platform is a group of three cloud technologies as in the following:
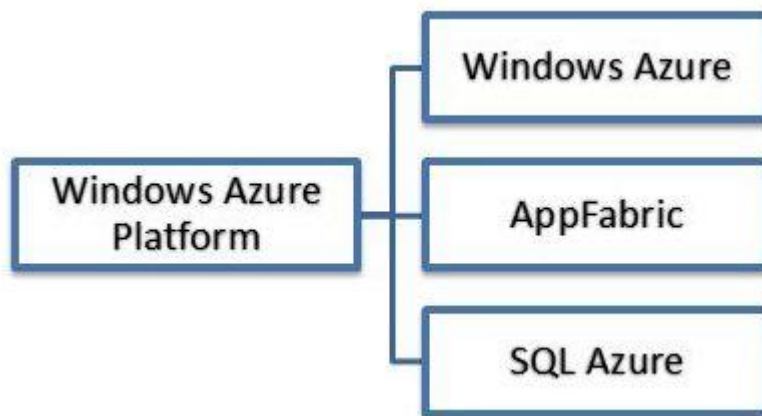
For more details visit the following link:

- [Introduction to Microsoft Azure: Part 1](#)

Question 6: What is Windows Azure and explain its services?

Answer

Windows Azure is created by Microsoft, it is a cloud computing infrastructure and platform. It is designed for working on the global network of Microsoft. It is for building, managing and deploying services and applications. Windows Azure supports various programming languages, tools, and frameworks. It can be included in both Microsoft specific and third party systems and software. It provides an infrastructure of services and platforms as services. It is also an open and flexible cloud platform that makes it easy to work on the global network. It helps us to quickly create, manage and deploy applications on the global network.

Features of Windows Azure

Windows Azure runs and stores the data on Microsoft datacenters. There are many features that are specified here:

1. Websites allows the developers to build the sites using ASP.NET, PHP, etc and deploy these websites using FTP, Git etc.

2. SQL Database, formally known as Azure database creates, extends and scales the application into the cloud using Microsoft SQL Server.

3. This is Microsoft's platform as a service that supports the Multi-tier applications and automated deployment.
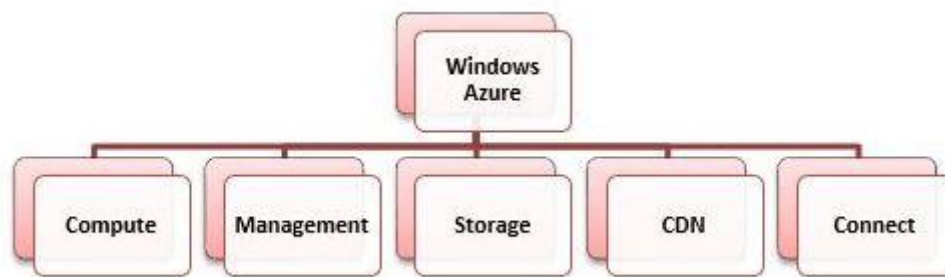
Windows Azure Services

There are various types of services that are provided by Windows Azure:

- Web Sites
- Cloud services
- Virtual Machine
- Data Management

  SQL Database.
  Tables.

- Business Analytics

  SQL Reporting.
  Data Marketplace.

For more details visit the following link:

- [Introduction and Implementation of Windows Azure in ASP.NET Web API](#)

Question 7: What are the roles available in Windows Azure?

Answer

Roles are an important concept in Windows Azure and learning them is the base for further programming. There are mainly three roles in Windows Azure.

- Web Role
- Worker Role
- VM Role

Web Role:

It provides a web front-end solution. This is similar to an ASP.NET application. While under hosting Azure provides IIS and required services.
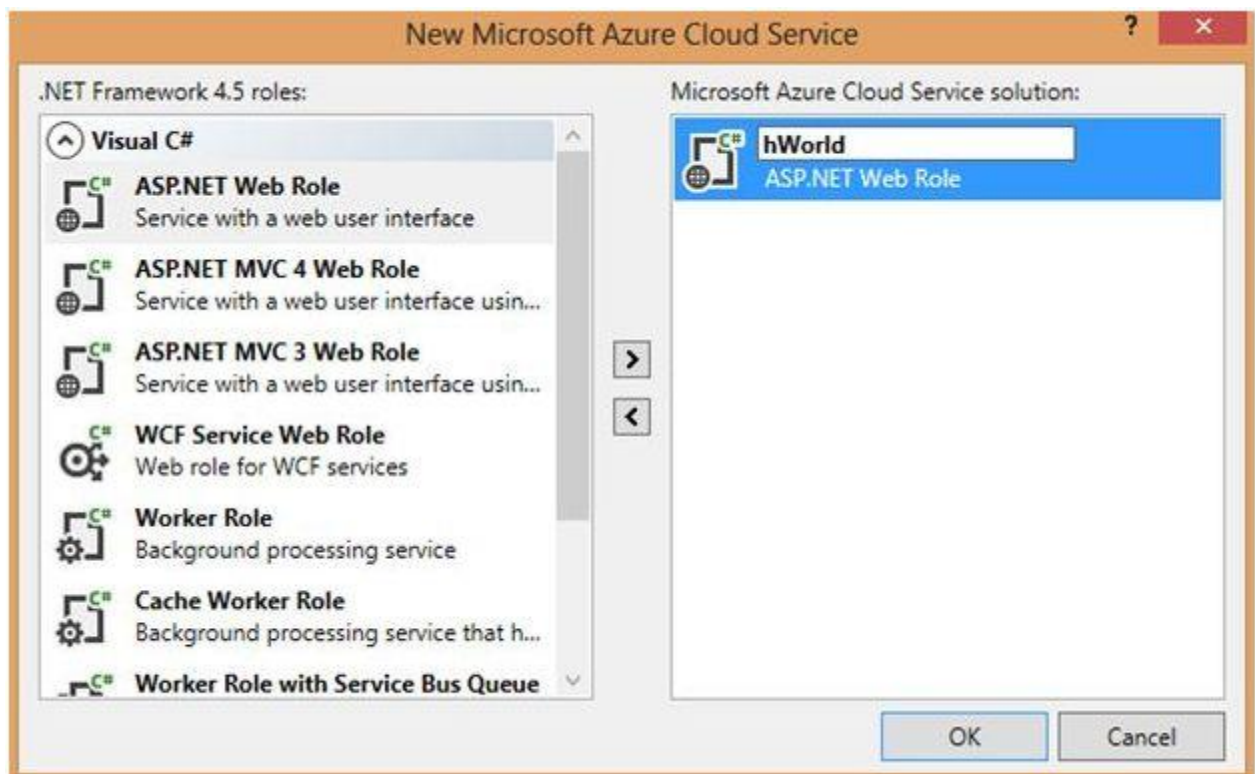
Worker Role:

It provides a background service solution. This can be thought as a windows service application. We can use this role to run background operations like database management tasks, report generation, etc. It can run lengthy operations.

According to MSDN, the Web Role can be considered as a Worker role loaded with IIS. Similarly the worker role can be used to host other application platforms.

VM Role (Virtual Machine Role):

The Web Role and Worker Role are executed on virtual machines. The Virtual Machine Roles provides the user the ability to customize the virtual machine on which the web and worker roles are running. The VM role runs a virtual hard disk (VHD) image which can be created and uploaded by the user. Through the VM role the customers can run scheduled tasks and other windows services.

For more details visit the following link:

- Windows Azure: Introducing Roles, Visual Studio Setup, Online Portal

Question 8: What is Windows Azure Portal and also explain the Azure Fabric?

Answer

Windows Azure Portal:To run an application, a developer accesses the Windows Azure portal through her Web browser, signing in with a Windows Live ID. She then chooses

whether to create a hosting account for running applications, a storage account for storing data, or both.

Once the developer has a hosting account, the developer can use a Windows Azure portal to submit applications to Windows Azure.

When the user sends a request to an application hosted on Azure (that can be passed by protocols like HTTP, HTTPS or TCP), the request will be received from the load balancer. The Load balancer balances the load across all the instances of the role (Web, Worker, and VM).

Azure Fabric:

The Azure fabric is the main core concept over here. It provides a service called the Azure Fabric Controller. It is called as OS for the Azure. Because it handles/manages:

1. All roles (computing) and resources.
2. Deployment and activating services.
3. Health monitoring for all services.
4. Allocating, releasing of resources.
5. Provisioning VM, terminating etc.
6. Updating patches for installed OS on VM automatically.

So there would be better to have two instances of roles and also no need to worry about software updates for user.
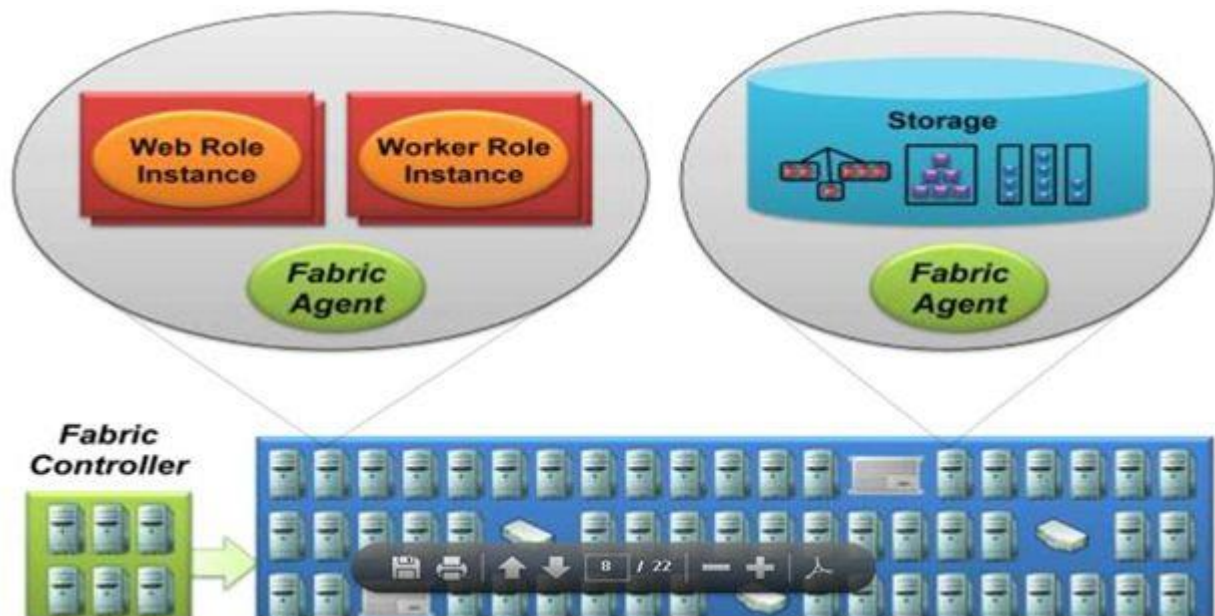
For more details visit the following link:

- [A Walk Through on Windows Azure](#)

Question 9: What are the three main components of Windows Azure Platform?

Answer

Windows Azure provides platform and infrastructure by providing a scalable and cost-effective computing, storage, and networking resources on demand.

Windows Azure has three main components in Azure: **Compute**, **Storage** and **Fabric**.

1. Windows Azure Compute

Windows Azure provides a hosting environment for managed code. It provides computation service through roles. Windows azure supports 3 types of roles:

- Web roles used for web application programming and supported by IIS7.
- Worker roles used for background processing of web roles.
- Virtual Machine (VM) roles used for migrating windows server applications to Windows azure in an easy way.

2. Windows Azure Storage

Windows azure provides storage in cloud. It provides 4 types of storage services:

- **Queues** for messaging between web roles and worker roles.
- **Tables** for storing structural data.
- **BLOBs** (Binary Large Objects) to store text, files or large data.
- **Windows Azure Drives (VHD)** to mount a page blob. These can be uploaded and downloaded via blobs.

3. Windows Azure AppFabric

AppFabric provides infrastructure services for developing, deploying and managing Windows azure application. It provides 5 services:

- Service bus
- Access
- Caching
- Integration
- Composite

For more details visit the following link:

- [Overview of Windows Azure](#)

Question 10: What are the differences between a public cloud and a private cloud?

Answer

Private clouds are those that are built exclusively for an individual enterprise. They allow the

firm to host applications in the cloud, while addressing concerns regarding data security and control that is often lacking in a public cloud environment. It is also known as an internal or enterprise cloud and resides on the company's intranet or hosted data center where all of your data is protected behind a firewall.

Public Cloud

- Pay for whatever resource you need at whatever time period.
- These are provided commercially.
- Supports heavy workloads without disturbing any functionality.
- It is very cheap for the consumers, since the hardware, application and other costs are handled by the providers.
- There is no wasted resource because consumers are charged for what they use.
- Scalability is always met here.

Private Cloud

- It is owned by a specific private group for their own use of employed, partners and their own customers.
- Highly controlled and not accessible by anyone other than allowed.
- Security, governance and compliance is highly automated.
- Similarly, the features are like a Public Cloud irrespective of security and maintenance.
- The cost is very high.
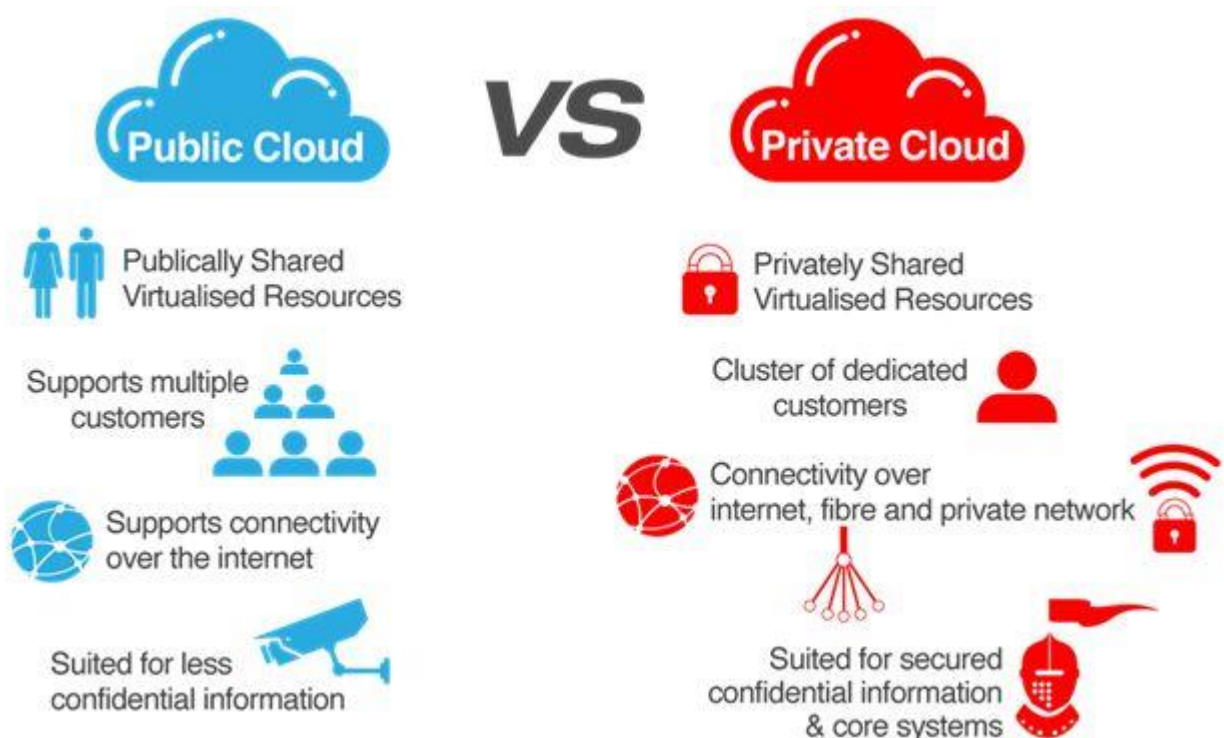
For more details visit the following link:

- Cloud Computing: Service Models

Question 11: What do you understand about Hybrid Cloud? Explain in detail.

Answer

A hybrid cloud is a mixture of internal and external cloud services, a combination of a private cloud combined with the use of public cloud services. This type of cloud is most suitable when you want to keep the confidential data at your premise (private cloud) and consume the other services from a public cloud.

Pros of Hybrid Cloud

- **Scalability:**

  Usually the Private Cloud services will have a lesser scalability due to its security, cost and compliance whereas the Public Cloud has a high scalability and moving non-sensitive data from the private to the public will free up resources in the data centers in the Private Cloud and that increases a very high scalability for a Hybrid Cloud.

- **Cost effective:**

  Similarly the Public Cloud is very cost effective rather than Private Cloud and here the Hybrid Cloud provides cost effectiveness with the data and other sensitive operations secured.

- **Security:**

  Since there is a Private Cloud used; the data and sensitive operations are secured highly in the Hybrid Cloud.

- **Flexibility:**

  We can easilyove out m the non-sensitive data and manage large scalability using a Public Cloud service along with the Private Cloud. So with the availability of a large scalability using Public Cloud and security using Private Cloud an enterprise has a vast opportunity in developing for new needs.

Cons of Hybrid Cloud

- Infrastructure dependency
- Networking
- Security compliance

For more details visit the following link:

- [An Overview of Hybrid Clouds](#)

Question 12: What is Diagnostics in Windows Azure?

Answer

Windows Azure diagnostics provides facility to store diagnostics data. Some diagnostics data is stored in a table, while some is stored in a blob. For collecting diagnostics data, we must initialize the Windows Azure diagnostic monitor. The Windows Azure diagnostic monitor runs in Windows Azure and in the computer's emulator and collects diagnostic data for a role instance.

Following diagnostics data is stored in table storage:

Data Source	Table name in Azure Storage	Detail
Windows Azure Logs	WADLogsTable	These are the application logs dumped from the application.
Windows Azure Diagnostics Infrastructure Logs	WADDiagnosticInfrastructureLogsTable	These are the logs about running of diagnostics service.
Windows Event logs	WADWindowsEventLogsTable	These are the logs generated on the instance where logs are running.
Performance counters	WADPerformanceCountersTable	These are the performance matrices like memory utilization, processor utilization, response time etc.

Following diagnostics data is stored in blob storage:

Data Source	Container name in azure storage	Detail
IIS Logs	wad-iis-logfiles	These are the IIS logs generated by role instances.
Failed Request Logs	wad-iis-failedreqlogfiles	These are the IIS failed requests logs generated by role instances.
Crash Dumps	wad-crash-dumps	These are the logs generated on the application crash.

For more details visit the following link:

- [Understanding diagnostics in Windows Azure](#)

Question 13: What is Azure Queues?

Answer

The main reason for using queues is to provide loose connectivity among various components. For example, we have two components of an application to exchange data. Here one of them is on-premise and one exists in the cloud. Here if we use a web service to exchange data we have the following issues:

- Both components should be online simultaneously; if one partner is down, then the communication will not work.
- It's difficult to scale up if more work is present.

In Azure Queues you have a queue as mediator that connects the two components, so when the receiver is down, the sender can still insert messages into the queue, once a receiver comes online it can receive message from that queue. And for scale up we just need to add more receivers and your queue is processed in parallel.

The following are the drawbacks of using a queue:

- Queues has some charges, however these are minimal.
- Your queue is doing mediator work here. If your queue is down, devices will not able to communicate with each other.

For more details visit the following link:

- [Deep Dive into Azure Storage Queue vs Azure Service Bus Queue](#)

## Question 13: What is the difference between Windows Azure Queues and Windows Azure Service Bus Queues?

Answer

Windows Azure Queues:

Windows Azure Queue Storage is a service for storing a large number of messages that can be accessed from anywhere using HTTP or HTTPS. A single message can be up to 64KB in size. So, a queue may contain millions of messages. It is basically a part of Windows Azure Storage and enabled with a REST based architecture.

Service Bus Queues:

- Service Bus queues support brokered messaging communication.

- Queues provide First In, First Out (FIFO) message delivery, in other words messages are received and processed by the receivers in the order they were added to the queue.

- Each message is received and processed by only one message receiver.
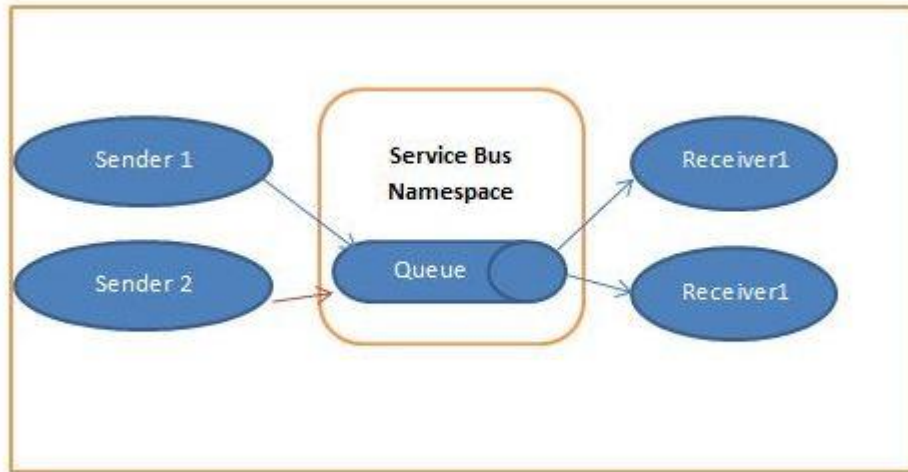
For more details visit the following link:

- [Windows Azure Queues And Windows Azure Service Bus Queues](#)

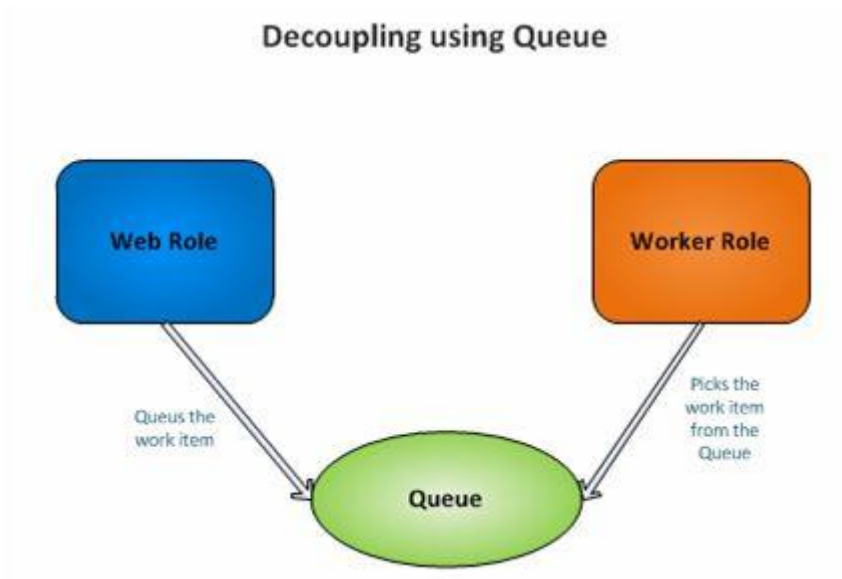## Question 14: How can you create a Queue in storage account?

Answer

Queue is a one type of Azure Storage, where you can store your data as storage. *Blobs are stored in container, Entity in table and Message in Queue.*

Following are the key concepts in queue.

- FIFO implementation
- Messages are added to end of the Queue and processed from the front
- Queues provides a good way of Front end and Back end decoupling

In the real world example the user can queue a job through the web role (front end) and the job can be processed by a worker role (back end). This gives an opportunity to decouple the web role and worker role.

Decoupling using Queue

1. Place a new label control on the aspx page and add the following code in the page load event.
2. protected void Page_Load(object sender, EventArgs e)
3. {
4.   StorageCredentialsAccountAndKey accountAndKey = newStorageCredentialsAccountAndKey("account", "key");
5.   CloudStorageAccount account = new CloudStorageAccount(accountAndKey, true);
6.   CloudQueueClient client = account.CreateCloudQueueClient();
7.   CloudQueue queue = client.GetQueueReference("workitems");
8.   queue.CreateIfNotExist();
9.   CloudQueueMessage message = new CloudQueueMessage("Test Work Item");
10.   queue.AddMessage(message);
11.   // Populate the messages
12.   message = queue.GetMessage();
13.   if (message != null) Label1.Text = "Message in Queue: " + message.AsString;
14. }

For more details visit the following link:

- Windows Azure - Create Queue in Storage Account

Question 15: What is a Storage keys?

Answer

Storage keys or Access Keys are used as an authentication mode for accessing the storage services account to manipulate information based on our requirements. In Windows Azure we have an option to provide a Primary Access Key and a Secondary Access Key, even though we will use a single access key to authenticate our application to the storage. The

main reason to provide the secondary access key is to avoid downtime to the application. If we need to change the application access key by regenerating the access key it takes quite some time to take effect; this provides a downtime.

To avoid this type of situation, a secondary access key is provided so that if the primary needs to be changed or regenerated we can map the secondary temporarily to the storage and regenerate the primary. Let us see step by step of how to get the Access Keys using Windows Azure Management Portal.

For more details visit the following link:

- [Windows Azure - Get Access Keys For Azure Storage Account](#)

Question 16: What is the concept of the table in Windows Azure?

Answer

Table is a one type of Azure Storage, where you can store your data as storage. Blobs are stored in container and Entity in table.

Following are the key concepts in table.

- Tables allow structure data storage
- There can be 0..n tables in a storage account
- Table store data as a collection of entities
- Entity have a primary key and properties as key value pair

For more details visit the following link:

- [Windows Azure - Create Table in Storage Account](#)

Question 17: How to send messages to a Queue and how to receive messages from a Queue?

Answer

Send Messages to a Queue

The code below demonstrates how to create a *QueueClient* object for the "*TestQueue*" queue created above using the *CreateFromConnectionString* API call:

1. string connectionString =
2. CloudConfigurationManager.GetSetting("Microsoft.ServiceBus.ConnectionString");
3. QueueClient Client =
4. QueueClient.CreateFromConnectionString(connectionString, "TestQueue");
5. Client.Send(new BrokeredMessage());

Messages sent to (and received from) Service Bus queues are instances of the *BrokeredMessage class.BrokeredMessage* objects have a set of standard properties (such as

Label and TimeToLive), a dictionary that is used to hold custom application specific properties, and a body of arbitrary application data. An application can set the body of the message by passing any serializable object into the constructor of the BrokeredMessage, and the appropriate DataContractSerializer will then be used to serialize the object. Alternatively, a System.IO.Stream can be provided.

Receive Messages from a Queue

The easiest way to receive messages from a queue is to use a *QueueClient* object. These objects can work in two different modes: *ReceiveAndDelete* and *PeekLock*.

When using the *ReceiveAndDelete* mode, reception is a single-shot operation; that is, when the Service Bus receives a read request for a message in a queue, it marks the message as consumed, and returns it to the application.

The *ReceiveAndDelete* mode is the simplest model and works best for scenarios in which an application can tolerate not processing a message in the event of a failure. To understand this, consider a scenario in which the consumer issues the receive request and then crashes before processing it. Because the Service Bus will have marked the message as being consumed, when the application restarts and begins consuming messages again, it will have missed the message that was consumed prior to the crash.

This example creates an infinite loop and processes messages as they arrive in the "**TestQueue**":

```
1.  Client.Receive();
2.  // Continuously process messages sent to the "TestQueue"
3.  while (true)
4.  {
5.      BrokeredMessage message = Client.Receive();
6.      if (message != null)
7.      {
8.          try
9.          {
10.             Console.WriteLine("Body: " + message.GetBody < string > ());
11.             Console.WriteLine("MessageID: " + message.MessageId);
12.             Console.WriteLine("Test Property: " + message.Properties["TestProperty"]);
13.             // Remove message from queue
14.             message.Complete();
15.         }
16.         catch (Exception)
17.         {
18.             // Indicate a problem, unlock message in queue
19.             message.Abandon();
20.         }
21.     }
22. }
```

For more details visit the following link:

- [Windows Azure Cloud Service And Service Bus Queues](#)

Question 18: What are the Storages in Windows Azure?

Answer

Windows Azure data storage enables users to store, access, analyze and protect their data while making it available from anywhere and at any time. Windows Azure provides various services from storing data in SQL databases in the cloud for analysis and reporting to meet the needs of your business. Windows Azure ensures data security with high throughput of application data in the cloud. Windows Azure typically offers the following three types of storage in the cloud atmosphere.

- **BLOB:** BLOBs offer a mechanism for storing large amounts of text or binary data, such as images, audio and visual files. It can scale up to 200 terabytes and can be accessed using REST APIs. We can move BLOB data as a single volume between private and public clouds using Windows Azure Drive.

- **Table:** Tables represent storage locations across machines for data that reside in the form of entities and properties on the cloud. Tables store large amounts of unstructured data that can be accessed either using REST APIs from within a service running in Windows Azure or directly over the Internet using HTTP/HTTPS.

- **Queue:** The sole objective of a Queue is to enable communication between Web and Worker Role instances. They aid in storing messages that may be accessed by a client. Web Role instances can initiate user requests that need to be processed in the background. On the other side a Worker Role observers the queue to process the request and respond back via queue to the Web Role instance.

For more details visit the following link:

- [Practicing Microsoft Azure: Part 6 (Cloud Computing)](#)

Question 19: What is Federation inSQL Azure?
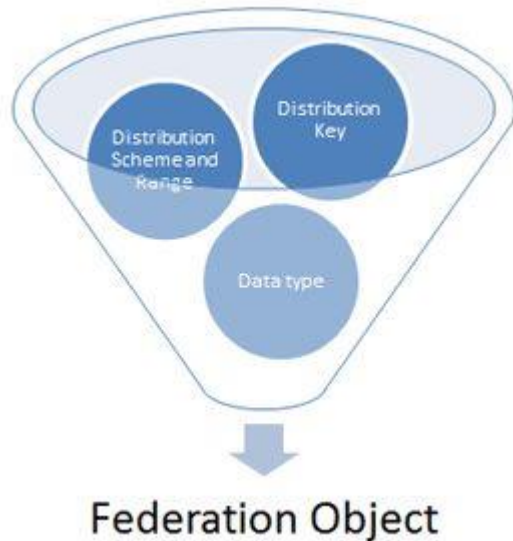
Answer

Federation is introduced in SQL Azure for scalability. Federation helps both administrators and developers to scale data. It helps administrators by making repartitioning and redistributing of data easier. It helps developers in the routing layer and sharding of data. It helps in routing without application downtime.

Federation does basic scaling of objects in a SQL Azure Database. Federations are the partioned data. There can be multiple Federations within a database. And each Federation represents a different distribution scheme.

We create a Federation with a different distribution scheme and requirement. Student and Grades tables of a School Database may have a different distribution requirement so they are

put into different Federations.

Each Federation object scales out data to many system managed nodes. A Federation object contains:


Federation Object

For more details visit the following link:

- [Scalability in SQL Azure](#)

Question 20: What is SQL Azure Database?

Answer

SQL Azure database is simply a way to get connected in Cloud Services where we can store our database into Cloud. Microsoft SQL Services and Microsoft SQL Data Services are now known as Microsoft SQL Azure and SQL Azure Database. Microsoft Azure is the best way to use **PAAS (Platform as a Service)** where we can host multiple databases on the same Account.
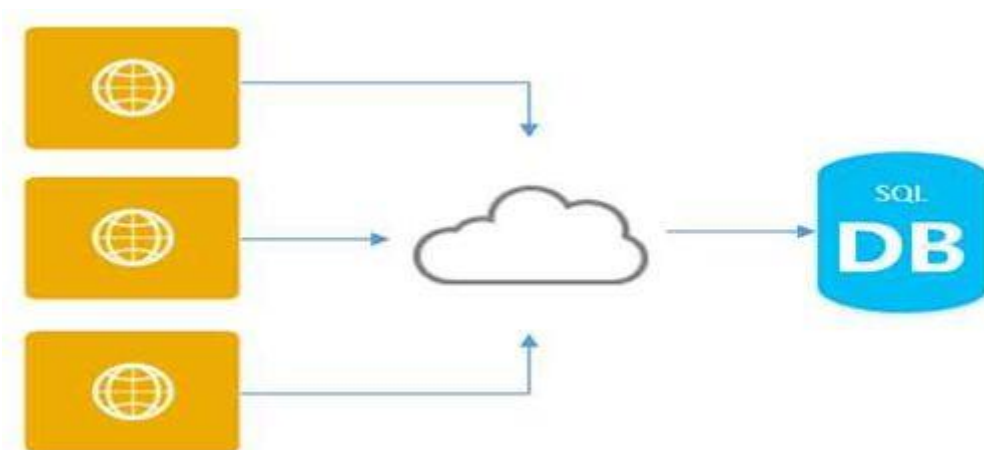
Microsoft SQL Azure has the same feature of SQL Server, i.e. high availability, scalability and security in the core.

Microsoft Azure SQL Database have a feature, it automatically creates backups of every active database. Every hour a backup is taken and geo-replicated to enable the 1 hour recovery point objective (RPO) for Geo-Restore. Additionally, transaction log backups are taken every 5 minutes to enable Point in Time Restore.

For more details visit the following link:

- [Use of SQL Azure In Visual Studio 2015 Step By Step Guide](#)

Question 21: What are SQL Azure firewall rules?

Answer

SQL Azure firewall rules are provided to protect the data and to prevent access restrictions to the SQL Azure database. Firewall grants access to the originating IP's from which we are trying to access the database. In order to configure the firewall we need to configure a range of acceptable IP addresses upon which we try to connect to the SQL Azure server using the Management Portal or with the SQL Server Management Studio. Let us see the step by step process of adding and deleting rules as per our IP configurations.

All access to SQL azure is blocked by firewall.

By default Database created in SQL Azure is blocked by firewall for security reasons. Any attempt from external access or access from any azure application is blocked by firewall.
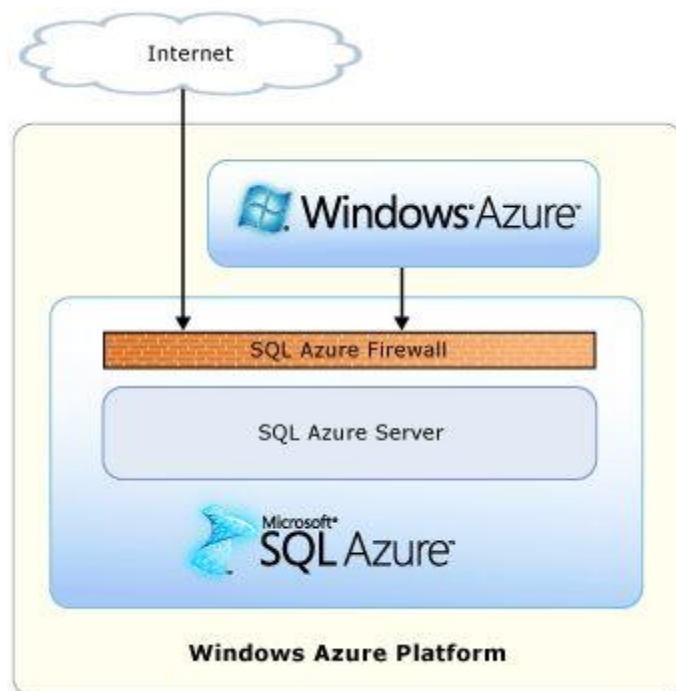
For more details visit the following link:

- [Creating Firewall Rule for SQL Azure](#)

Question 22: What is Windows Azure Traffic Manager? What are its benefits?

Answer

Traffic Manager Name is itself self-explanatory. It allows users to control the distribution of user traffic of deployed Azure cloud services, Azure websites or any other endpoint. In this the distribution of traffic includes Azure cloud services, Azure web sites and other endpoints. There are 3 different load balancing methods provided by Azure. The Traffic Manager works by applying an intelligent routing policy engine to the Domain Name Service (DNS) queries on your domain names and maps the DNS routes to the appropriate instances of your applications.

Benefits of Azure Traffic Manager

- **Increase Performance:** Can increase performance of your application that includes faster page loading and better user experience. This applies to the serving of users with the hosted service closest to them.

- **High Availability:** You can use the Traffic Manager to improve application availability by enabling automatic customer traffic fail-over scenarios in the event of issues with one of your application instances.

- **No Downtime Required for Upgrade / Maintenance:** Once you have configured the Traffic Manager you don't need downtime for application maintenance, patch purgation or complete new package deployment.

- **Easy to configure (Quick Setup):** It's very easy to configure Azure Traffic Manager on Widows Azure portal. If you have already hosted your application on Windows Azure (a cloud service, Azure website) you can easily configure this Traffic Manager with a simple procedure (setting routing policy).

For more details visit the following link:

- [What is Windows Azure Traffic Manager and How it Works](#)

Question 22: What are the data synchronize services in Azure?

Answer

Sync Services is provided by Microsoft Azure where you can keep a SQL Azure database synchronized with another database. You can take a backup of a database from one region to another region. There is a simple procedure you need to follow to configure this service. If not a complete database then you can at least keep selected tables or selected rows of tables synchronized.

This service provides the following two ways to synchronize:

1. Synchronize a SQL Azure database from one SQL Azure server to another SQL Azure server.
2. Synchronize a SQL Azure Database from an Azure Server to a Local Server database.

For more details visit the following link:

- [How to Sync Two SQL Azure Databases](#)

Question 23: How can you manage SQL Azure security?

Answer

SQL Azure also has a security management system very similar to the SQL on-premises versions. It basically consists of the following:

1. **Logins:** Server level.
2. **Users:** Database level, mapped to server logins.
3. **Schemas:** Database level, authorized/owned by a user or another schema.
4. **Roles:** Database level, authorized/owned by a user or another role.
5. **Permissions:** Database level, permission like SELECT, DELETE, ALTER and so on for objects/schemas granted to users/roles.

When you create a server in SQL Azure, it asks you to create a login at the same time. That login acts as the administrative login that has access to all the databases in that server. However, you might want to create other logins with less privilege. As of now, the SQL Azure portal doesn't have any UI to create these extra logins. So you'll need to resort to running T-SQL statements.

Note: All of the following procedures are done using the administrative login mentioned above.

Creating Logins

Login to the master database and run the following T-SQL statement.

1. CREATE LOGIN MyServerLogin WITH password='My#Password123'

This statement creates a login ID in the server. This a a normal login ID that doesn't have access to any of the databases in that server. So if you try to login to the Azure server with this account (either from SQL Server Management Studio 2008 R2 - SSMS or from Azure Portal) you would get an error saying this user doesn't have access to the master database. So the next step is to map this login to the required databases, not necessarily to the master db.

For more details visit the following link:

- [Manage SQL Azure Security](#)

Question 24: What are the different types of databases in SQL Azure?

Answer

In the SQL Azure there are two types of databases:

- Web Edition
- Business Edition

The Web Edition Relational Database includes:

- Up to 5 GB of a T-SQL based relational database*
- Self-managed DB, auto high availability and fault tolerance
- Supported by existing tools like Visual Studio, SSMS, SSIS, BCP
- Best suited for Web application, Departmental custom applications.

Business Edition DB includes:

- Up to 50 GB of T-SQL based relational database*
- Self-managed DB, auto high availability and fault tolerance
- Additional features in the future like auto-partition, CLR, fanouts etc
- Supported by existing tools like Visual Studio, SSMS, SSIS, BCP
- Best suited for Saas ISV applications, custom Web application, Departmental applications.
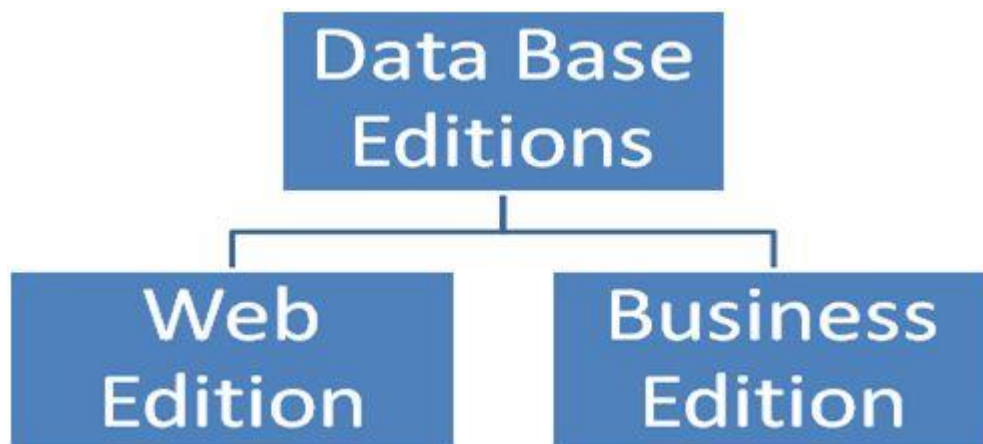
For more details visit the following link:

- [Different Data Base Editions in SQL Azure](#)

Question 25: What is TFS build system in Azure?

Answer

A Build is nothing but the output of a solution. In the case of Azure projects, you generally get the file with a **.cspkg** extension that means a Cloud Service Package is used for the deployment of your cloud services.

Build Servers

In layman's terms a build server acts as the machine where you put your deployment packages.

To use Team Foundation Build, you must have at least one build machine. This machine can be a physical machine or a virtual machine.

Build Controllers

Build Controllers are the element in the build system that accepts the build requests from any project inside the team project collection. Each build controller is dedicated to a single-team project collection. So there is a one-to-one relationship between a team project collection and a build controller.

Build Agents

Build agents are elements in the build system that does more processor-intensive work.

Build Definitions

A Build definition is nothing but the process that the build controller using to deploy your packages to a target site. Using Team Explorer you should be able to create a new build definition where you will need to associate the build controller and define process as well as trigger a point for the definition.

Once the build definition is in place, you will be able to queue new builds using it.

Typical Build System Topology
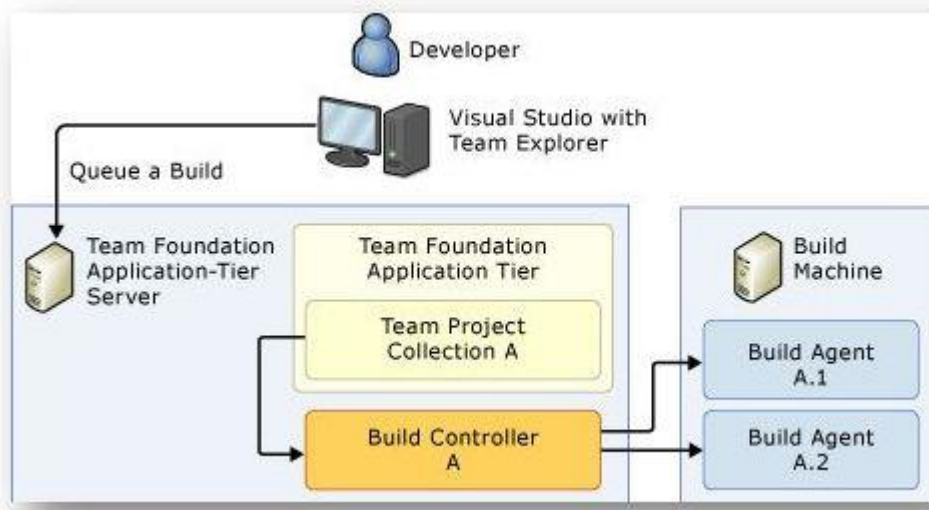
For more details visit the following link:

- [Basics of TFS Build System and Integrating it With Azure Cloud Services](#)

Question 26: What is the difference between IaaS and PaaS in Cloud?

Answer

Infrastructure as a Service (IaaS): is in effect much like building a set of services and virtual machines and networks in a Cloud as the user would On-Premises.

Platform as a Service (PaaS): A Platform is a cloud that gives the user various frameworks, tools and services on the cloud and the user are building the application in the cloud leveraging these various tools, services and components within the application.

	IaaS	PaaS
Granularity of Control of Virtual Machines	The user can remote into virtual machine running in the cloud using IDP. The user has the same level of control as the user would with a virtual machine on-premises. This means the user can get into the registry, install custom software the user want to install on that virtual machine.	The PaaS provider takes care of running the application. It means that the user doesn't get access to registry and neither can the user install custom software necessarily in that application or in the location where it runs. PaaS providers provide the infrastructure and the platforms.
Control over the environment configuration	The user can choose a certain number of virtual cores, virtual CPUs, RAM, networking set up, how many different networks, virtual VPNs, separate subnets, extensions to on-premises networks and load-balancing across multiple VMs.	PaaS can be thought of as the next step of IaaS where the configurations is also done for the user by the provider.
Maintenance	The user is responsible for the O/S, patching, firewall management, security, data, runtime, applications, middleware and everything that's running inside of the VM because the user is responsible for that virtual machine. The only difference is the location of the VM; instead of on-premise it is in the cloud. The user still gets to do all the configurations but the user is relieved of doing the physical hardware things.	The provider is responsible for application/services on PaaS. The user is just managing the various services.
Scalability	The user is responsible for scalability.	Scalability is the responsibility of the PaaS provider.
Pricing	Subscription Model.	Subscription Model, but it includes the cost of hardware for the installation of PaaS.

Both IaaS and PaaS help organizations to minimize operational costs and increase their productivity as they get faster time to market and require no up-front investments.

For more details visit the following link:

- [IaaS and PaaS in Cloud](#)

Question 27: What is the Azure App Service? What are the advantages of App Service over Mobile Service?

Answer

Azure App Service is a fully managed Platform as a Service (PaaS) offering for professional developers that brings a rich set of capabilities to web, mobile and integration scenarios. Mobile Apps in Azure App Service offer a highly scalable, globally available mobile application development platform for Enterprise Developers and System Integrators that brings a rich set of capabilities to mobile developers.

Advantages of App Service:

- Simpler, easier and more cost effective offering for apps that include both web and mobile clients.
- New host features including Web Jobs, custom CNames, better monitoring.
- Turnkey integration with Office 365, Dynamics CRM, Salesforce, and other vital SaaS APIs.
- Support for Java and PHP backend code, in addition to Node.js and .NET.
- Turnkey integration with Traffic Manager.
- Connectivity to your on-premise resources and VPNs using VNet in addition to Hybrid Connections.
- Monitoring and troubleshooting for your app using NewRelic or AppInsights, as well as alerts.
- Richer spectrum of the underlying compute resources, e.g. VM sizes.
- Built-in auto scale, load balancing, and performance monitoring.
- Built-in staging, backup, roll-back, and testing-in-production capabilities.

For more details visit the following link:

- [Connecting Windows Apps Using Azure App Service - Part 1](#)

Question 28: How can you demonstrate between Azure mobile service and Web API?

Answer:

Web API: Web API is used only for that client who uses HTTP enabled services. There is a problem with Web API, if you want to create a Web API service, then you need knowledge of ASP.NET solution and you need to be familiar with .Net.

There are more benefits of Web API over Node.js. Web API uses HTTP request and process them using the HTTP verbs. Actually, Web API is fully REST service. As per my thinking Web API is better approach to create APIs.

Azure Mobile Services: Windows Azure Mobile Service is a tool that can integrated with the Windows Azure cloud. This tool will help you to connect a cloud backend to your Windows 8 application. The goal of the Windows Azure Mobile Service is to make Windows Azure the obvious choice for the Windows 8 Metro style application developer. Currently we

can only use the Windows Azure Mobile Service in Metro style applications but in the near future the mobile service can also work with iOS, Android and Windows Phone.

Mobile services can only be run on demand or you can schedule the service when it will start and when it will stop.

To use Windows Azure Mobile Services, you need to use any Source Control where you can take the backup.

For more detail visit the following link:

- [Windows Azure Mobile Service Vs WEB API](#)

Question 29: What is Google Cloud Platform?

Answer

Google Cloud Platform is a new way to use cloud computing platform in real time. It is developed by Google and offers every developer the chance to host their Web API's and Cloud Storage and many more things on the same supporting infrastructure that is used by Google itself internally in their products, such as Google Search, Google Play Store, Gmail and YouTube. Also for every product by Google, Google Cloud Platform provides developer products to build application and a range of programs from simple websites to complex applications. Google use Load Balancer technique that allows distributing cloud data into multiple data centers all over the world. With the help of Google Cloud **BigQuery** we can execute billions of queries per second.

Google Cloud Platform is specially designed for enterprise solutions from Google for Work and provides a set of modular cloud-based services with a host of development tools, test, and deploy applications on Google's highly-scalable and reliable infrastructure for your web, mobile and backend solutions. For example:

- Hosting and computing

    o App Engine.
    o Compute Engine.

- Cloud storage

    o Cloud Storage.
    o Cloud Store.
    o Cloud SQL

- BigData

    o BigQuery

- Services

o Cloud Endpoints.
o Translate API.
o Prediction API.

For more details visit the following link:

- [Getting Started With Google Cloud Platform](#)

Question 30: What is the VM (Role) and VM (Pass)?

Answer

VM Role: VM role is a kind of role in the Azure platform which helps to maintain service packs, patches, updates and applications already installed, to Windows Azure automatically.

We can use a VM Role in the case of:

1. Long-Running Setup: If the application requires a long-running setup.
2. Error-Prone Application: Application in which you expect more errors/risks while installing it.

VM (IaaS): These are literally VMs as we understood then from the On-Premise running in the Azure Microsoft Data Center.

Advantages of VM over VM role:

1. VM is durable.
2. IaaS VMs is that you can take just about any on-premises application, whether it makes changes to the local file system or not (even if the OS is one of the supported Linux distributions) and deploy it to the cloud for a few cents per hour.

Disadvantages:

1. Provisioning time will be increased.
2. Automatic OS/software updates will be there in the (IaaS) VM.

For more detail visit the following link:

- [Differences Between VM Role (Platform as a Service) and VM (Infrastructure as a Service)](#)

Question 31: What is Virtual Machine in Azure?

Answer

Google Cloud Platform Compute Engine is Google's Infrastructure-as-a-Service (IaaS), which is used to run large-scale workloads on virtual machines hosted on Google's infrastructure. It is used by Google itself for their end user products, such as Google search, YouTube and for all products of Google. Allows you to choose a VM with a specific requirement of hardware configurations with a list of server operating systems and now it

also allow Windows Server.

Azure Virtual Machines could be your choice if you want frequent modifications and changes in your web server environment. It provides you rich set of features; however, correctly configuring, securing and maintaining VMs require much more time and more IT expertise compared to Azure Cloud Services and Azure Websites. You will need to make more effort on frequent maintenance and update patches to manage the VM environment.

For more detail visit the following link:

- [Compute Engine (Virtual Machines) In Google Cloud](#)

Question 32: How to create a Virtual Machine in Azure?

Answer

Here are following steps to create a Virtual Machine in Cloud:

Step 1: Log in to your Azure management portal.

Step 2: Click New.

Step 3: Select "Compute" -> "Virtual Machine" -> "From Gallery".

Step 4: Select the Operating System that you would like to install on the VM. In this scenario we will install a Ubuntu server 13.04 because then it will be easy for me to continue with the later posts on creating a PHP app on our new VM.

Step 5: The next window will ask you about user details, VM RAM and number of cores and a name for the VM. Fill them in as you wish. I will use a password instead of a SSH key.

Step 6: Next window ask you about cloud configuration (DNS Setting) and Storage account and Region. Except for region leave the rest as it is unless you know what you are doing.

Step 7: Now we will need to create end points for us to access the VM. For now let's keep SSH access only.

Step 8: Then the VM will be created and will be running after a few minutes. You can see it in your Azure portal.

For more details visit the following link:

- [How to Create a Virtual Machine in Azure](#)

  OR

- [Create Virtual Machine (VM) In Microsoft Azure (Step By Step)](#)

Question 33: What is Autoscaling in Azure?

Answer

Autoscaling Application Blocks can automatically scale the Windows Azure application based on the rules defined specifically for the application.

The Autoscaling Application Block supports two autoscaling mechanisms:

1. Instance Autoscaling, where the block changes the number of role instances based on constraint and reactive rules.

2. Throttling, where the application modifies its own behavior to change its resource utilization based on a set of reactive rules. For example switching off non-essential features, or gracefully degrading its UI.

So, there are two types of rules:

1. **Constraint rules:** Constraint rules set the upper and lower bounds on the number of instances. For example, in the evening between 6:00 and 8:00, you need a minimum of 3 instances and a maximum of 7 instances, then use the constraint rule.

2. **Reactive rules:** Reactive rules enable the number of role instances to change in response to unpredictable changes in demand. For example, if the workload increases then increase the number of role instances by 1. The reactive rules can use a variety of techniques like performance counters, or the Windows Azure queue length to monitor and control the application's workload. A reactive rule makes changes to the number of role instances only if a constraint rule applies at the same time. It is easy to create a default constraint rule that always applies.
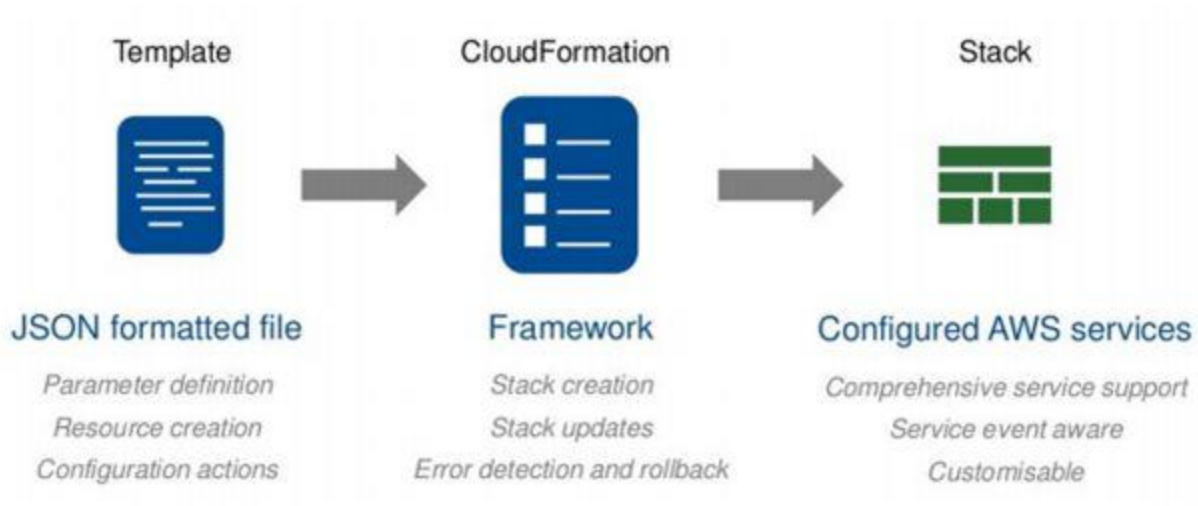
For more details visit the following link:

- [Autoscaling Application Blocks WIndows Azure](#)

Question 34: What is AWS Cloud Formation?

Answer

AWS Cloud Formation is a cloud builder service that helps you model and set up your Amazon Web Services resources so that you can spend less time managing those resources and more time focusing on your applications that run in AWS. For this you need to create a template that describes all the AWS resources that you want, like Amazon EC2 instances that you want, Amazon VPC and subnet details and so on. AWS CloudFormation takes care of provisioning and configuring those resources for you. You don't need to individually create and configure AWS resources and figure out what's dependent on what, AWS CloudFormation handles all of that.

AWS CloudFormation is available at no additional charge. You will be billed only the normal rates for the AWS resources like EC2, RDS, LB and so on that AWS CloudFormation creates and your application and resources use.

For more details visit the following link:

- [AWS Cloud Formation](#)

Question 35: What is profiling in Azure?

Answer

Profiling is nothing but a process of measuring the performance analysis of an application. It is usually done to ensure that the application is stable enough and can sustain heavy traffic.

Visual Studio provides us various tools to do it by gathering the performance data from the application that also helps in the troubleshooting issues.

Once the profiling wizard is run, it establishes the performance session and collects the sampling data, then generates report files that can be opened and analyzed in Visual Studio.

The profiling reports can help us to:

- Determine the longest running methods within the application.
- Measure the execution time of each method in the call stack.
- Evaluate memory allocation.
- Analyze concurrency issues (usually for multi-threaded code).

For more details visit the following link:

- [Profiling Azure Cloud Services](#)

Question 36: How can you connect an Azure Hosted website to FTP?

Answer

Here are some steps:

- **Stop:** Stopping the virtual server.

- **Restart:** It will restart the server if something gone wrong.
- **Mange Domains:** If upgrade from free account to basic or standard account you can manage your domains here.
- **Delete:** It will delete entire website.
- **WebMatrix:** To link website to WebMatrix.

If you click on website you will be taken in dashboard where different operations are available,

- **Monitor:** Graphical representation of request, cuptime, data in, data out.
- **Configure:** Change the language setting version used.
- **WebJobs:** Automatic task that are scheduled will be discussed in upcoming articles.
- **Scaling:** More than one instance of website can be created to balance load.

Linked Resources:

This will show how the resources are attached. You will see the cleardb database if you click on it will redirect you to cleardb website and you will be automatically logged into account created by azure for you. You can view performance and other configurations of your database.

Connecting FTP

If we want to view files of our WordPress in order to change configuration setting, upload content or to make backup.

For this we have to set some deployment credentials in Microsoft Azure so that Azure verifies that we are authorized to make changes.

For this go to Management portal select website. Dashboard of app will be opened. If not, click on setup deployment credentials.

For more details visit the following link:

- Connecting Azure Hosted Website To FTP

Question 37: What is Cmdlet in Azure?

Answer

A **cmdlet** is a lightweight command that is used in the Microsoft PowerShell environment. The Windows PowerShell runtime invokes these cmdlets within the context of automation scripts that are provided at the command line. The Windows PowerShell runtime also invokes them programmatically through Windows PowerShell APIs.

A cmdlet is a compiled piece of .NET code. Cmdlets handle object input and output as well as usually playing nice and well with the (object-based) pipeline. Cmdlets have no direct representation in the file system, as they are not programs or similar. They exist solely within PowerShell. You can use the **Get-Command** Cmdlet to query all available Cmdlets, functions, etc.

How to Start with Windows Azure Automation using Cmdlets:

- Go to Microsoft Azure home page.
- Click the Downloads link on the page (See at the very bottom of the page)
- Click the link for Command Line Tools
- The installation can take several minutes because there is a dependency on the Microsoft Azure SDK, which has its own set of dependencies.

For more details visit the following link:

- [Microsoft Azure Automation And Cmdlets](#)

Question 38: What is Azure Explorer?

Answer

Azure Explorer is a free Microsoft Azure storage tool; in this we can manage all our Microsoft Azure blobs at a common place or one place. Azure Storage Explorer is a useful GUI tool for inspecting and altering the data.

In Azure Explorer, we have "**Azure Storage Account**", and in the Azure Storage Account, we can manage more than one Blob Container, in Blob Container we can create page blob as well as new folders to store our files.

Step 1: For the installation of Azure Explorer we need go to its download link, After going to above link, you will see the following window. Click "**DOWNLOAD AZURE EXPLORER**".

For more details visit the following link:

- [Installation Of Azure SDK And Blob Storage In Azure: Part 1](#)

Question 39: What is Service Fabric in Azure?

Answer

Azure Service Fabric is a next-generation middleware cloud platform to build scalable, reliable, and managed enterprise applications. Microsoft is already using Service Fabric powers in many of its products, including Azure SQL Database, Azure DocumentDB, Cortana, and Power BI.

- Develop massively scalable applications that are self-healing.

- Develop with a "**datacenter on your machine**" approach. The local development environment is the same code that runs in the Azure datacenters.

- Develop applications composed of microservices, executables, and other application frameworks of your choice, such as ASP.NET, Node.js, etc.

- Develop stateless and stateful (micro)services and make these highly reliable.

- Simplify the design of your application by using stateful (micro)services in place of caches and queues.

- Deploy applications in seconds.

- Deploy to Azure or to on-premises clouds running Windows Server with zero code changes. Write once and then deploy to any Service Fabric cluster.

- Deploy applications at higher density than virtual machines, deploying hundreds or thousands of applications per machine.

- Deploy different versions of the same application side by side, each independently upgradable.

- Manage the lifecycle of your stateful applications without any downtime, including breaking and nonbreaking upgrades.

For More details visit on following link:

- [Creating A Service Fabric App](#)

Question 40: What is Windows Azure Scheduler?

Answer

Windows Azure Scheduler allow you to invoke actions – such as calling HTTP/S endpoints or posting a message to a storage queue on any schedule. With Scheduler, you create jobs in the cloud that reliably call services both inside and outside of Windows Azure and run those jobs on demand, on a regularly recurring schedule, or designate them for a future date.

Scheduling is the history details of your apps in the cloud; it gives information of the particular application, means its status, its start time and its end time.

For more details visit the following link:

- [Windows Azure Scheduler](#)
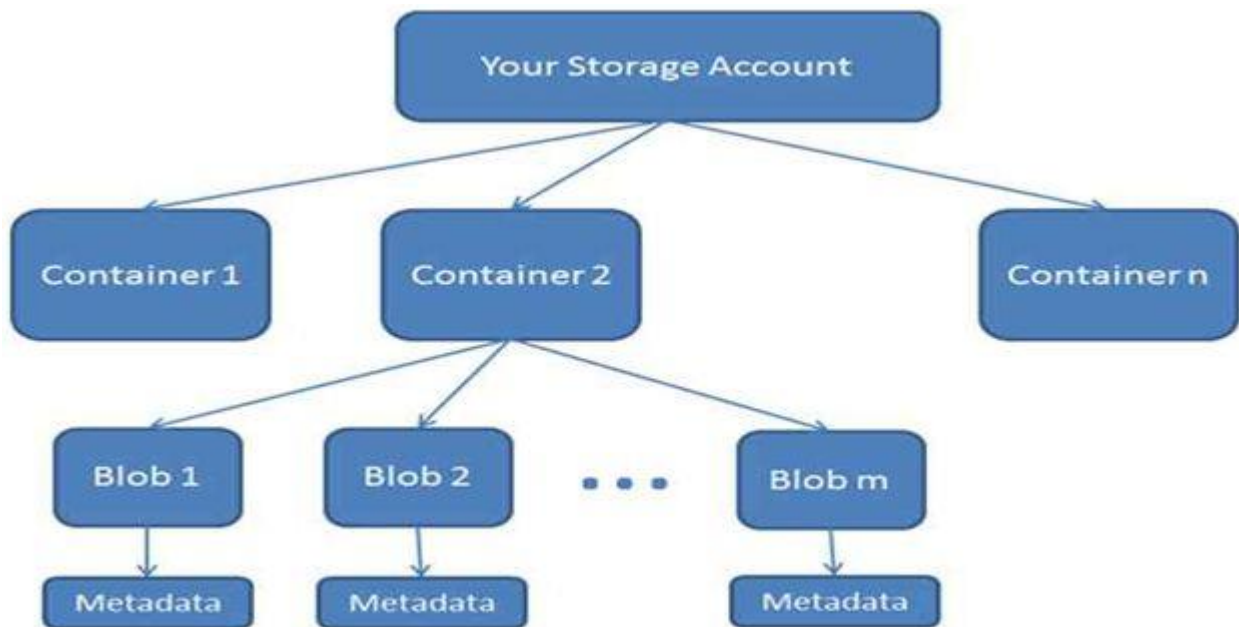
Question 41: What is Blob Storage in Azure?

Answer

Windows Azure Blob Storage can store hundreds of terabytes data in one account. As you know you can create multiple blob storage accounts, so definitely you can store multiple hundreds of terabytes data with Windows Azure Blob Storage.

We don't require taking tension about the backup of the data which is stored on blob storage. It is because it automatically takes the backed up data. You can increase your storage as per requirement and you need to pay only which you have used and what you have used.

One more thing, that you don't need to take headache about how to manage your data, your VM or any other things; actually Windows Azure manages everything automatically.

You can use Blob Storage as REST API and can use with any language like Java, .NET, etc. Actually technology doesn't matter with blob storage. It means all kinds of client can be accessible to this storage.

For more details visit the following link:

- [Upload Image In Azure Blob Storage With ASP.NET MVC](#)

Question 42: Why do you go with Microsoft Windows Azure?

Answer

There are many regions that people want to go with Microsoft Windows Azure:

- **Flexibility:** Windows Azure supports wide range of Operating System that makes it reachable to wide range of customers. It also supports different kinds of programming language like PHP, .NET, JAVA, etc. You can use different kinds of frameworks and tools for building your Apps. So, basically it provides us flexibility to choose existing one which will help us to create variety of applications with Windows Azure.

- **Extendable:** Windows Azure easily integrates with your existing environment using largest network with secure private connectivity. It also provides database, storage which is extendable on demand. Windows Azure can run with your data center.

- **Scalable:** You can scale up and down your services as per your demand. Services, storage and performance also will be same if you scale up or down. So, small client can take benefit of Windows Azure and their services.

- **Protection:** Everyone is worried about their data. They need protection for their data, nobody can rely on some vendor for their data. Windows Azure has launched Azure Government for believing you that your data is secure with Windows Azure. It commits for securing, protecting and privacy of your data.

- **Trusted:** Today Windows Azure is used by top clients worldwide. They are using Windows Azure Services for a long time and they believe in it.

For more details visit the following link:

- [Why Go With Microsoft Windows Azure](#)

Question 43: What is Azure Mobile Service?

Answer

Microsoft Azure Mobile Service gives you the power to create a cloud service mobile application. This will make your work more flexible and gives your application more portability in an efficient way. This is a short introduction of Azure Mobile service. You will get to know, how to create and integrate new mobile service in your new or existing application. So let's get crack in Azure Mobile Service with Universal Windows Platform.

For more details visit the following link:

- [Brief About Windows Azure Storage](#)

Question 44: What is the difference between Table, Queue, and Blob storage?

Answer

To use Azure Storage, you just need to have an Azure Storage Account. Using this account you can access the service of the Azure Storage. Actually Azure Storage provides two types of the storage account.

1. Standard Storage Account: It is for Blob, Table, and Queue Storage.
2. Premium Storage Account: It is for Azure Virtual Machine Disks Only.

BLOB STORAGE: It can store any type of data; data can be a document file, media file, exe or dll, images, text file or any other data file. So, basically it is used for storing the objects. So, as the definition says, we can store large amount of the unstructured data into the blob storage.

TABLE STORAGE: It is like a table inside the SQL Server. So, it is used to store the structured data. Table storage is a NoSQL key-attribute data store. It means every data stored into the table is stored with typed property name. It is very fast when you are working with large number of data. It doesn't use schema for developing the table.

QUEUE STORAGE: Sometimes, it is required to transfer the data in the format of the message over the internet between the two cloud services. In that scenario we prefer to use

the queue storage. You can create large number of the queues to process your data. Every queue contains large number of the message and every message size may be up to 64 KB.

For more details visit the following link:

- [Brief About Windows Azure Storag](#)

Question 45: What isthe Migration Assistant tool in Azure Websites?

Answer

The migration Assistant tool will help to analyze your IIS installation and identify which sites can be migrated to the cloud, highlighting any elements which cannot be migrated or are unsupported on the platform.

Once analyzed this tool will also create websites and databases provided under given azure subscription.

Automated Assessment and Migration

- This tool will provide a high level readiness assessment.
- The report outlines sites which are ready to move, elements which may need changes and highlights unsupported features.
- The detailed report offers expert guidance and advice tailored to your environment.
- The tool creates any Website(s) and associated database(s), if applicable, automatically and synchronizes your content.

For more details visit the following link:

- [Azure Websites Migration Assistant Tool](#)

Question 46: What is Azure Mobile Engagement?

Answer

Azure Mobile Engagement is a SaaS-delivered, data-driven user engagement platform that enables real-time fine-grain user segmentation, app user analytics, and contextually-aware smart push notifications and in-app messaging across all connected devices.

With Azure Mobile Engagement, Application publishers and marketing professionals can create cutting edge interactions like the following,

- Real Time actionable analytics to increase app usage.
- Push Notification and Communication Platform.
- Open API's and Ease of integration.
- Data Protection & Privacy across globe.

Azure Mobile Engagement is available across all major mobile platforms including Android, iOS and Windows.

For more details visit the following link:

- [Azure Mobile Engagement - Windows Phone 8.1 Silverlight](#)

Question 47: What is WordPress in Microsoft Azure?

Answer

WordPress is Web software you can use to create a Web sites, blog, or apps. The core software is built by hundreds of community volunteers, and when you're ready for more, there are thousands of plugins and themes available to transform your site into almost anything you can imagine.

We can install WordPress on our local computers to develop Web sites, blogs, or theme plugins; or we can install it on the cloud where everyone can access our Web sites. Installing and Running WordPress.

- Login to [manage.windowsazure.com](#) to access you Azure portal.
- Click on **CREATE A WEB APP** or +**NEW** button in the portal.
- You can select **QUICK CREATE** and then upload it from your computer.

On clicking Gallery the model window will appear where you can find WordPress by scrolling (or navigating to **BLOGS**, then **WordPress**).

- Select the WordPress and click next. Fill the required Information.
- Fill the URL, database, region and deployment setting details.
- **Click on Next:** Fill in information about MySQL database. Azure will choose the unique name of your database and region to place the database physically.

For more details visit the following link:

- [Installing And Running WordPress With Microsoft Azure](#)

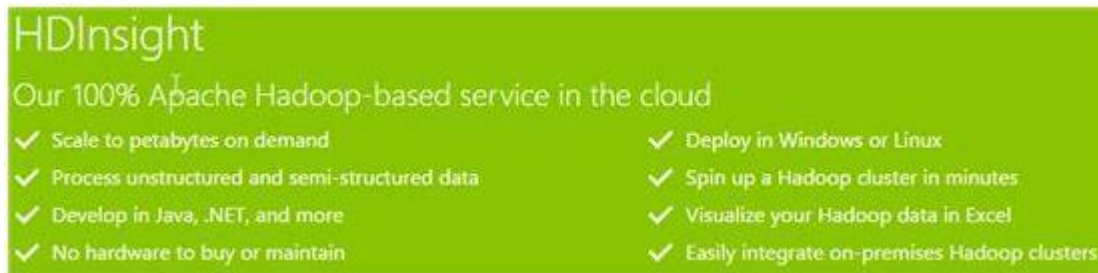## Question 48: What is Azure HDInsight?

Answer

Azure HDInsight deploys and provisions Apache Hadoop clusters in the cloud, providing a software framework designed to manage, analyze, and report on big data.

With the September 2015 release of HDInsight, now customers configure these clusters to run using both a Windows Server Operating System as well as an Ubuntu based Linux Operating System.

HDInsight on Linux enables even broader support for Hadoop ecosystem users to run in HDInsight providing you even greater choice of preferred tools and applications for running Hadoop workloads.

Both Linux and Windows clusters in HDInsight are built on the same standard Hadoop

distribution and offer the same set of rich capabilities.

For more details visit the following link:

- [Running Hadoop on Linux using Azure HDInsight](#)

Question 49: How can you create a HDInsight Cluster in Azure?

Answer

To create an Azure HDInsight Cluster, open the Azure portal then click on New, Data Services, then HDInsight.

The following options are available:

a. Hadoop is the default and native implementation of Apache Hadoop.

b. HBase is an Apache open-source NoSQL database built on Hadoop that provides random access and strong consistency for large amounts of unstructured data.

c. Storm is a distributed, fault-tolerant, open-source computation system that allows you to process data in real time.

The next step is to add a cluster name, select the cluster size, add a password, select a storage and click on create HDInsight cluster.

Enable Remote Desktop on the Cluster:

Once the cluster has been created, its jobs and contents can be viewed by remote connection. To enable remote connection to the cluster, use the following procedure:

1. Click HDINSIGHT on the left pane. You will see a list of deployed HDInsight clusters.
2. Click the HDInsight cluster that you want to connect to.
3. From the top of the page, click CONFIGURATION.
4. From the bottom of the page, click ENABLE REMOTE.

In the Configure Remote Desktop wizard, enter a user name and password for the remote desktop. Note that the user name must be different from the one used to create the cluster (admin by default with the Quick Create option). Enter an expiration date in the EXPIRES ON box.

For more details visit the following link:

- [Introduction to Big Data Analytics Using Microsoft Azure](#)

Question 50: What is Text Analytics API in Azure Machine?

Answer

Text Analytics API is a suite of text analytics web services built with Azure Machine Learning. The API can be used to analyze unstructured text for tasks such as sentiment analysis and key phrase extraction.

The API returns a numeric score between 0 & 1. Scores close to 1 indicate positive sentiment, while scores close to 0 indicate negative sentiment.

The advantage of this API is that a new model need not be designed and trained, the user only needs to bring the data and call the service to get the sentiment results.

However, because this is only the initial release of this service only English is supported right now.

1. What is Azure Cloud Service?

Cloud service can convey a multiple web application in Azure, characterizing a number of parts to disseminate handling and permit adaptable scaling of your application. A cloud service comprises of a minimum of one web pars as well as specialist parts, each with its own particular application documents and design.The fundamental favourable position of cloud service is the capacity to help more complex multi-level structures.

2. Differences between Microsoft Azure and AWS?

Features	Microsoft Azure	Amazon Web Services (AWS)
Analytics	Azure Stream Analytics	Amazon Kinesis
Backup Options	Azure Backup	Amazon Glacier
Compliance	Azure Trust Center	AWS CLoudHSM
Content Delivery Network (CDN)	Azure CDN	Amazon CloudFront
Data Orchestration	Azure Data Factory	AWS Data Pipeline
Hybrid Cloud Storage	StorSimple	AWS Storage Gateway
Monitoring	Azure Operational Insights	Amazon CloudTrail
NoSQL Database Options	Azure DocumentDB	Amazon Dynamo DB

3. What are the roles implemented in Windows Azure?

There are three roles in Windows Azure.

- Web Role

- Worker Role

- Virtual Machine Role

Web Role : It gives a web solution that is front-end. This is like an ASP.NET application. While under facilitating Azure gives IIS and required services.

Worker Role : It gives a solutions of background service. It can run long activities.

Virtual Machine Role : The roles of both web and worker are executed on virtual machines. The Virtual Machine Roles gives the client the capacity to modify the virtual machine on which the web and worker roles are running.

4. What are the three principle segments of Windows Azure Platform?

Windows Azure has three principle segments in Azure: Compute,Storage and Fabric.

A. Windows Azure Compute

Windows Azure gives a code that can be managed by the hosting environment. It gives calculation benefit through parts. Windows Azure backs 3 types of roles:

- Web roles utilized for web application programming and upheld by IIS7.

- Worker roles utilized for foundation handling of web roles.

- Virtual Machine (VM) roles utilized for moving windows server applications to Windows Azure in a simple way.

B. Windows Azure Storage

It gives 4 types of storage services:

- Queues for informing between web parts and worker roles.

- Tables for storing structural data.

- BLOBs (Binary Large Objects) to store content, records or vast information.

- Windows Azure Drives (VHD) to mount a page blob. These can be transferred and downloaded by means of blobs.

C. Windows Azure AppFabric

AppFabric provides 5 services:

- Service bus

- Access

- Caching

- Integration

- Composite

5. Windows Azure AppFabric

Windows Azure Diagnostics empowers you to gather diagnostic data from an application running in Windows Azure. diagnostic data is used for capacity planning, and evaluating.

6. What is the distinction between Windows Azure Queues and Windows Azure Service Bus Queues?

Azure Queues gives a solid, diligent messaging between and within the services. it also highlights a very straight forward rest- based get/put/peek interface

Bus Queues are a part of a more extensive Windows Azure messaging framework that supports queuing.

7. What is table storage in Windows Azure?

The Windows Azure Table storage service stores a lot of organized information. Windows Azure tables are perfect for putting away organized, non-relational data

Table: A table is a collection of entities.Tables don't uphold a blueprint on elements, which implies a solitary table can contain substances that have distinctive arrangements of properties. A record can contain numerous tables

Entity: An entity is an arrangement of properties, like a database row. An entity can be upto 1MB in size.

Properties: A property is a name-value pair. Every entity can incorporate up to 252 properties to store data. Every entity likewise has 3 system properties that determine a segment key, a row key, and a timestamp.

8. What is AutoScaling in Azure?

Scaling by including extra instances is frequently referred to as scaling out. Windows Azure likewise supports scaling up by utilizing bigger role rather than more role instances.By adding and expelling role instances to your Windows Azure application while it is running, you can adjust the execution of the application against its running costs.

An autoscaling solution reduces the amount of manual work engaged in dynamically scaling an application.

9. What are the Features of Windows Azure?

Windows Azure runs and stores the information on Microsoft datacenters.

The main Features are :

1. Websites enable the designers to assemble the sites utilizing ASP.NET, PHP, etc and send these websites utilizing FTP, Git and etc
2. QL Database, formally known as Azure database makes, broadens and scales the application into the cloud utilizing Microsoft SQL Server.
3. This is Microsoft's platform as a service that supports the Multi-level applications and automated deployment.

10. What are the differences between an public cloud and a private cloud?

Private clouds are those that are constructed solely for an individual enterprise. They enable the firm to have applications in the cloud while tending to concerns with respect to data security and control that is frequently ailing in an public cloud environment. It is otherwise called an internal cloud or enterprise cloud and dwells on the organization's intranet or hosted data center where the data is protected.

11. What is table storage in Windows Azure?

It is a NoSQL datastore which acknowledges verified calls from inside and outside the Windows Azure cloud. Windows Azure tables are perfect for putting away organized, non-relational data

Table: A table is an accumulation of elements. Tables don't implement a pattern on elements, which implies a solitary table can contain substances that have distinctive arrangements of properties. A record can contain numerous tables.

12. What is Windows Azure Portal?

Windows Azure Portal:To run an application, a designer gets to the Windows Azure portal through his Web program, by logging in with a Windows Live ID. The User at that point picks whether to create a host account for running applications, a storage account for storing data or both.

Once the designer has a host account, He can utilize a Windows Azure portal to submit applications to Windows Azure.

13. Explain Azure Fabric?

The Azure Fabric is the principle core concept. It gives a service called the Azure Fabric Controller. It is called as OS for the Azure. Since it handles/oversees:

- All roles (processing) and resources.
- Sending and activating services.
- Monitoring the health for all services.
- Releasing and allocating of resources.
- Provisioning VM, terminating etc.
- Patches gets updated for installed OS on VM in the most automated form.

14. What do you comprehend about Hybrid Cloud?

A Hybrid cloud is a blend of internal and external cloud services, a mix of a private cloud joined with the utilization of public cloud services. This kind of cloud is most appropriate when you need to keep the classified information at your vicinity (private cloud) and consume alternate services from a public cloud.

15. What is a Storage keys?

Storage keys or Access Keys are utilized as a validation mode for accessing to the storage services account to control data based on our prerequisites. In Windows Azure we have an alternative to give a Primary Access Key and a Secondary Access Key, despite the fact that we will utilize a solitary access key to confirm our application to the storage. The primary reason to give the secondary access key is to avoid downtime to the application.

16. What is Windows Azure Traffic Manager?

It enables Users to control the distribution of user traffic of installed Azure cloud services.There are 3 distinctive load balancing strategies provided by Azure. The Manager who works on traffic apply's a routing policy to the Domain Name Service (DNS) questions on your domain names and maps the DNS courses to the apt instances of your applications.

17. What is Federation in SQL Azure?

Organization in SQL Azure is introduced for scalability. federation helps both managers and developers to scale information. It helps managers by making repartitioning and redistributing of information simpler. It enables developers in the layer of routing and sharing of information. It helps in routing without application downtime.

18. What is SQL Azure Database?

SQL Azure database is just an approach to get associated with Cloud Services where we can store our database into Cloud. Microsoft Azure is the most ideal approach to utilize PAAS where we can have different databases on a similar Account.

Microsoft SQL Azure has a similar component of SQL Server, i.e. high accessibility, versatility and security in the core.

Microsoft Azure SQL Database has an element, it makes backups automatically of each active database. Consistently a backup is taken and geo-repeated to empower the 1-hour recuperation point objective (RPO) for Geo-Restore.

19. What are the different Storage's in Windows Azure?

BLOB : BLOBs offer a component for storing a lot of content or binary data, for example, pictures, sound and visual documents. It can scale up to 200 terabytes and can be acquired by utilizing REST APIs

Table : Tables represents storage areas across machines for information that is in the form of properties on the cloud.

Line : The sole target of a Queue is to empower communication amongst Web and Worker Role instances. They help in storing messages that may accessed to by a customer.

20. What is the concept of the table in Windows Azure?

A table is one kind of Azure Storage, where you can store your information away. Blobs are put away in compartment and Entity in a table.

Following are the key concepts in a table.

- Tables allow structure data storage .
- There can be 0..n tables in a storage account.
- Table store information as an accumulation of elements .
- An element has an essential key and properties as a key-value pair.

21. What is TFS build system in Azure?

A Build is the solution of an output. In Azure projects, you get the record with a .cspkg extension that implies a Cloud Service Package is utilized for the deployment of your cloud administrations.

Build Servers – In general terms a build server goes about as the machine where you put your deployment packages.

To utilize Team Foundation Build, you should have no less than one build machine. This machine can be a physical machine or a virtual machine.

Build Controllers – Manufacture Controllers are the component in the build system that accepts the build requests from any task inside the group project. Each build controller is dedicated to a solitary team project collection. So there is a balanced relationship between a team project and a build controller.

Build Agents – Build Agents are components in the build system that accomplishes more processor-concentrated work.

22. What is the Azure App Service?

Azure App Service is a completely managed Platform as a Service (PaaS) offering for proficient developers that conveys a rich arrangement of abilities to web, mobile and integration scenarios. Mobile Apps in Azure App Service offer a very adaptable, universally accessible mobile application development platform for Enterprise Developers and System Integrators that conveys a rich set of capacities to mobile engineers.

23. What is profiling in Azure?

Profiling is only a procedure of measuring the performance analysis of an application. It is normally done to guarantee that the application is sufficiently steady and can maintain overwhelming traffic.

Visual Studio gives us different tools to do it by gathering the performance information from the application that likewise helps in the troubleshooting issues.

Once the profiling wizard is run, it sets up the execution session and collects the data of the sample

The profiling reports helps in:

- Deciding the longest running strategies inside the application.
- Measure the execution time of every strategy in the call stack.
- Assess memory allocation.

24. What is Cmdlet in Azure?

A cmdlet is a lightweight command that is utilized as a part of the Microsoft PowerShell environment. The cmdlets are summoned by the Windows PowerShell to automate the scripts which are in the command line. The Windows PowerShell runtime additionally invokes them automatically through Windows PowerShell APIs.

25. What is Windows Azure Scheduler?

Windows Azure Scheduler enable you to invoke activities –, for example, calling HTTP/S endpoints or presenting a message on a storage queue on any schedule. With Scheduler, you make jobs in the cloud that dependably call services both inside and outside of Windows Azure and execute those jobs on demand, on a routinely repeating schedule, or assign them for a future date.

26. How can you create a HDInsight Cluster in Azure?

To make an Azure HDInsight Cluster, open the Azure portal and then click on New, Data Services,then HDInsight.

Hadoop is the default and native execution of Apache Hadoop.

HBase is an Apache open-source NoSQL database based on Hadoop that gives random access and solid consistency for a lot of unstructured data.

Storm is a distributed, fault tolerant, open-source computation system that enables you to process data in real time.

27. What is Text Analytics API in Azure Machine?

Content Analytics API is a part of content examination web administrations worked with Azure Machine Learning. The API can be utilized to analyze unstructured content for tasks, like, sentiment analysis and key phrase extraction.

The API restores a numeric score between 0 and 1. Scores near 1 show positive sentiment, while scores near 0 demonstrate negative sentiment.

The upside of this API is that another new model need not be planned and prepared, the user just needs to bring the data and call the service to get the sentiment results.

28. What is Migration Assistant tool in Azure Websites?

Migration Assistant tool will examine your IIS installation and recognize which sites can be migrated to the cloud, featuring any components which can't be migrated or are unsupported on the platform.

Once broke down this tool will likewise create sites and databases provided under given Azure membership.

29. What is the distinction between Public Cloud and Private Cloud?

Public cloud is utilized as a service through Internet by the users, while a private cloud, as the name passes on is deployed within specific limits like firewall settings and is totally overseen and checked by the users dealing with it in an organization.

30. What is Azure Service Level Agreement (SLA)?

The SLA ensures that, when you send two or more role instances for each role, access to your cloud service will be maintained not less than 99.95 percent of the time. Additionally, identification and recorrection activity will be started 99.9 percent of the time when a role instance's procedure isn't running.

1) What is Cloud Computing?

[Cloud computing](#) is Internet-based computing whereby shared resources, software, and information are provided to computers and other devices on-demand.

Cloud computing is a culmination of numerous attempts at large-scale computing with seamless access to virtually limitless resources.

Cloud Computing = Software as a Service + Platform as a Service + Infrastructure as a Service.

A number of characteristics define cloud data, applications services, and infrastructure:-

a) **Remotely hosted:** Services or data are hosted on a remote infrastructure.

b) **Ubiquitous:** Services or data are available from anywhere.

c) **Commodified:** The result is a utility computing model similar to traditional utilities, like gas and electricity; you pay for what you need!

Cloud computing can be categorized into three parts:-

1. Platform as a Service (PaaS)
2. Infrastructure as a Service (IaaS)
3. Software as a Service (SaaS)

---

2) What are the components of Cloud Computing?
Components in a cloud refer to the platforms, like the front end, back end, and cloud-based delivery and the network used. Altogether it forms an architecture for cloud computing. With the main components like SAAS, PAAS and IAAS there are 11 more major categories in cloud computing that are:-

a) **Storage-as-a-Service:** This is where we can use or request storage. It's also called disk space on demand.
b) **Database-as-a-Service:** It acts as a live database from the remote.
c) **Information-as-a-Service:** Information that can be accessed remotely from anywhere is called Information-as-a-Service.
d) **Process-as-a-Service:** It combines various resources such as data and services. This happens either hosted on the same cloud computing resource or remote.
e) **Application-as-a-Service:** Application-as-a-Service (also known as SAAS) is the complete application built ready for use by the client.
f) **Platform-as-a-Service:** This is where the app is developed and the database is being created, implemented, stored and tested.

g) Integration-as-a-Service: Integration-as-a-Service deals with the components of an application that has been built but must be integrated with other applications.

h) Security-as-a-Service: This is a crucial component that customers require. There are three-dimensional securities found in cloud platforms.

i) Management-as-a-service: It is mainly used for management of the clouds, like resource utilization, virtualization and server up and downtime management.

j) Testing-as-a-Service: Testing-as-a-Service refers to the testing of the applications that are hosted remotely.

k) Infrastructure-as-a-Service: This is called as nearly as possible the taking of all the hardware, software, servers and networking that is completely virtual.3

---

3) What is the Service Model in Cloud Computing?

This is the **service model** on which you will host your application(s), for example **IaaS**, **PaaS** or **SaaS**. Each of these service models requires various levels of support and responsibilities once a system is deployed to the platform.

To resolve the future challenges that you might encounter you need to understand the models carefully. Other than the service model, the second, you need to decide whether you want a **Private** or **On-Premise cloud**, or you want your application to be deployed on a Public Cloud.

Every service model offers you some kind of resource required to operate the most web-enabled systems imaginable.

Service Model	Short Description
1. IaaS (Infrastructure as a Service)	Allows to Set up and configure Operating Systems, Applications and it's settings.
2. PaaS (Platform as a Service)	Allows to configure Applications and it's settings.
3. SaaS (Software as a Service)	Allows to configure Application Settings only.

4) What are the kind of cloud storage and why is cloud computing is so popular?

Data is centrally stored in the cloud and available across the internet. There are various storage options available or we can classify them broadly in the following three categories:-
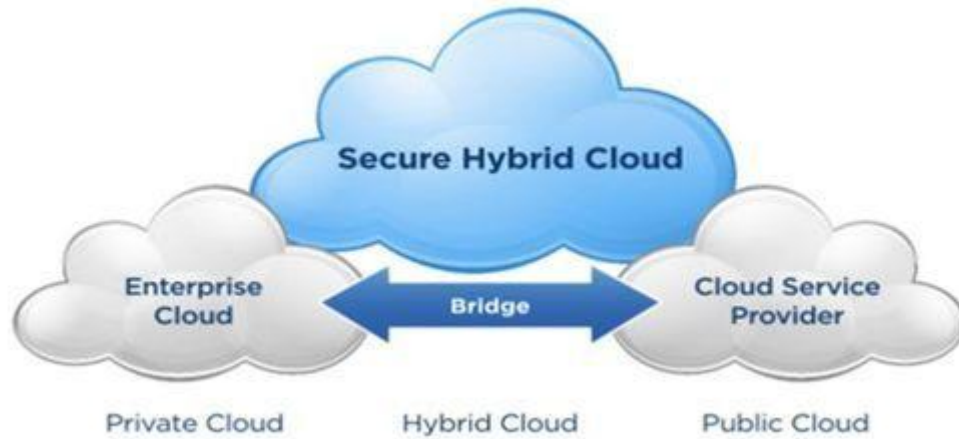
Public Cloud:
In this model, a service provider makes resources, such as application and storage, available to the general public over the internet. Public cloud services may be free or offered on a pay-per-usage model.

Private Cloud:
A private cloud provides more control over the company's data and under the control of the company's IT department.

Hybrid Cloud:
A hybrid cloud is a combination of public cloud storage and private cloud storage, where some critical data resides in the enterprise's private cloud and other data is stored and accessible from a public cloud storage provider.

Benefits of a cloud:

a) Lower costs, "Pay as you use"

b) Software updates

c) Backups

d) Data hosted centrally

e) Scalability

f) Failover

g) Monitoring services

h) Data storage

There are many reasons why cloud computing is so widely popular:

1) Reduction of costs

2) Universal access

**3)** Software updates

4) Scalability

5) Flexibility

5) What is the Windows Azure Platform?
The Windows Azure Platform lays the foundation for running applications and keeping data on the cloud. It contains computer services, storage services and the fabric.

Windows Azure affords a wide range of capabilities in the form of computing services to run applications, storage services and creating a framework that supports several applications, as well as host services and manage them centrally.

This platform readily stipulates an internet infrastructure for deploying distributed applications and services since we can develop a cloud service in Visual Studio .NET and deploy it into the Azure cloud right from on-premise tools.

An Azure platform is a group of three cloud technologies as in the following:
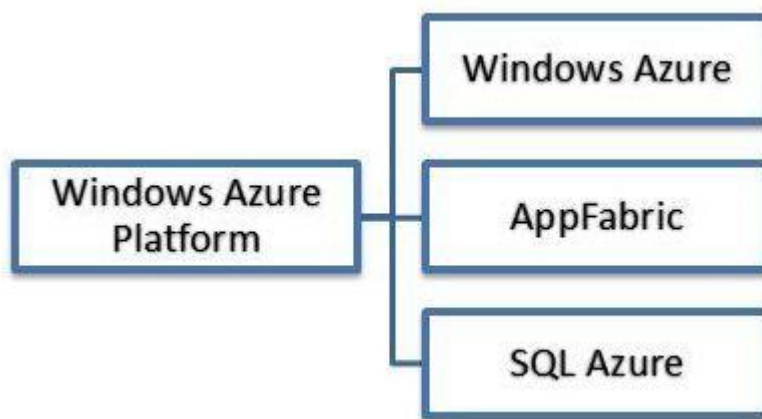
6) What is Windows Azure and explain its services?
Windows Azure is created by Microsoft and is a cloud computing infrastructure and platform.

It is designed for working on the global network of Microsoft. It is for building, managing and deploying services and applications. Windows Azure supports various programming languages, tools, and frameworks.

It can be included in both Microsoft specific and third-party systems and software. It provides an infrastructure of services and platforms as services. It is also an open and flexible cloud platform that makes it easy to work on the global network. It helps us to quickly create, manage and deploy applications on the global network.

Features of Windows Azure
Windows Azure runs and stores the data on Microsoft datacenters. There are many features that are specified here:

a) Websites allow the developers to build the sites using ASP.NET, PHP, etc and deploy these websites using FTP, Git etc.
b) SQL Database, formally known as Azure database creates, extends and scales the application into the cloud using Microsoft SQL Server.
c) This is Microsoft's platform as a service that supports the Multi-tier applications and automated deployment.

Windows Azure Services

Various types of services that are provided by Windows Azure:-

- Web Sites
- Cloud services
- Virtual Machine
- Data ManagementSQL Database.
  Tables.
- Business AnalyticsSQL Reporting.
  Data Marketplace.

---

7) What are the roles available in Windows Azure?

Roles are an important concept in Windows Azure and learning them is the base for further programming. There are mainly three roles in Windows Azure.

- Web Role

- Worker Role

- VM Role

Web Role:

It provides a web front-end solution. This is similar to an ASP.NET application. While under hosting Azure provides IIS and required services.

Worker Role:

It provides a background service solution. This can be thought as a windows service application. We can use this role to run background operations like database management tasks, report generation, etc. It can run lengthy operations.

According to MSDN, the Web Role can be considered as a Worker role loaded with IIS. Similarly, the worker role can be used to host other application platforms.

VM Role (Virtual Machine Role):

The Web Role and Worker Role are executed on virtual machines. The Virtual Machine Roles provides the user the ability to customize the virtual machine on which the web and worker roles are running. The VM role runs a virtual hard disk (VHD) image which can be created and uploaded by the user. Through the VM role, the customers can run scheduled tasks and other windows services.

---

8) What is Windows Azure Portal and also explain the Azure Fabric?
In Windows Azure Portal, to run an application, a developer accesses the Windows Azure portal through her Web browser, signing in with a Windows Live ID. He/She then chooses whether to create a hosting account for running applications, a storage account for storing data, or both.

Once the developer has a hosting account, the developer can use a Windows Azure portal to submit applications to Windows Azure.

When the user sends a request to an application hosted on Azure (that can be passed by protocols like HTTP, HTTPS or TCP), the request will be received from the load balancer. The Load balancer balances the load across all the instances of the role (Web, Worker, and VM).

Azure Fabric:

The Azure fabric is the main core concept over here. It provides a service called the Azure Fabric Controller. It is called as OS for the Azure. Because it handles/manages:

- All roles (computing) and resources.
- Deployment and activating services.
- Health monitoring for all services.
- Allocating, releasing of resources.
- Provisioning VM, terminating etc.

Updating patches for installed OS on VM automatically.

So there would be better to have two instances of roles and also no need to worry about software updates for the user.

---

9) What are the three main components of Windows Azure Platform?
Windows Azure provides platform and infrastructure by providing a scalable and cost-effective computing, storage, and networking resources on demand.
Windows Azure has three main components: **Compute**, **Storage** and **Fabric**.
1. Windows Azure Compute

Windows Azure provides a hosting environment for managed code. It provides computation service through roles. Windows Azure supports 3 types of roles:

- Web roles used for web application programming and supported by IIS7.
- Worker roles used for background processing of web roles.
- Virtual Machine (VM) roles used for migrating windows server applications to Windows Azure in an easy way.

2. Windows Azure Storage

Windows Azure provides storage in the cloud. It provides 4 types of storage services:

- **Queues** for messaging between web roles and worker roles.
- **Tables** for storing structural data.
- **BLOBs** (Binary Large Objects) to store text, files or large data.
- **Windows Azure Drives (VHD)** to mount a page blob. These can be uploaded and downloaded via blobs.

3. Windows Azure AppFabric

AppFabric provides infrastructure services for developing, deploying and managing Windows Azure application. It provides 5 services:

- Service bus
- Access
- Caching
- Integration
- Composite

---

10) What are the differences between a public cloud and a private cloud?

Private clouds are those that are built exclusively for an individual enterprise. They allow the firm to host applications in the cloud while addressing concerns regarding data security and control that is often lacking in a public cloud environment. It is also known as an internal or enterprise cloud and resides on the company's intranet or hosted data center where all of your data is protected behind a firewall.

Public Cloud

- Pay for whatever resource you need at whatever time period.
- These are provided commercially.
- Supports heavy workloads without disturbing any functionality.
- It is very cheap for the consumers since the hardware, application and other costs are handled by the providers.
- There is no wasted resource because consumers are charged for what they use.
- Scalability is always met here.

Private Cloud

- It is owned by a specific private group for their own use of employed, partners and their own customers.
- Highly controlled and not accessible by anyone other than allowed.
- Security, governance and compliance are highly automated.
- Similarly, the features are like a Public Cloud irrespective of security and maintenance.
- The cost is very high.

---

11) What do you understand about Hybrid Cloud? Explain in detail.

A hybrid cloud is a mixture of internal and external cloud services, a combination of a private

cloud combined with the use of public cloud services. This type of cloud is most suitable when you want to keep the confidential data on your premise (private cloud) and consume the other services from a public cloud.

Pros of Hybrid Cloud

- **Scalability:**
  Usually, the Private Cloud services will have a lesser scalability due to its security, cost and compliance whereas the Public Cloud has a high scalability and moving non-sensitive data from the private to the public will free up resources in the data centers in the Private Cloud and that increases a very high scalability for a Hybrid Cloud.
- **Cost effective:**
  Similarly, the Public Cloud is very cost effective rather than Private Cloud and here the Hybrid Cloud provides cost effectiveness with the data and other sensitive operations secured.
- **Security:**
  Since there is a Private Cloud used; the data and sensitive operations are secured highly in the Hybrid Cloud.
- **Flexibility:**
  We can easily move out of the non-sensitive data and manage large scalability using a Public Cloud service along with the Private Cloud. So with the availability of a large scalability using Public Cloud and security using Private Cloud an enterprise has a vast opportunity in developing for new needs.

Cons of Hybrid Cloud

- Infrastructure dependency
- Networking
- Security compliance

---

12) What is Diagnostics in Windows Azure?
It provides facility to store diagnostics data. Some diagnostics data is stored in a table, while some is stored in a blob. For collecting diagnostics data, we must initialize the Windows Azure diagnostic monitor. The Windows Azure diagnostic monitor runs in Windows Azure and in the computer's emulator and collects diagnostic data for a role instance.

Following diagnostics data is stored in table storage:

Data Source	Table name in Azure Storage	Detail
Windows Azure Logs	WADLogsTable	These are the application logs dumped from the application.
Windows Azure Diagnostics Infrastructure Logs	WADDiagnosticInfrastructureLogsTable	These are the logs about running of diagnostics service.
Windows Event logs	WADWindowsEventLogsTable	These are the logs generated on the instance where logs are running.

Performance counters	WADPerformanceCountersTable	These are the performance matrices like memory utilization, processor utilization, response time etc.

Following diagnostics data is stored in blob storage:

Data Source	Container name in azure storage	Detail
IIS Logs	wad-iis-logfiles	These are the IIS logs generated by role instances.
Failed Request Logs	wad-iis-failedreqlogfiles	These are the IIS failed requests logs generated by role instances.
Crash Dumps	wad-crash-dumps	These are the logs generated on the application crash.

13) What is Azure Queues?

The main reason for using queues is to provide loose connectivity among various components. For example, we have two components of an application to exchange data. Here one of them is on-premise and one exists in the cloud.Using web service to exchange data we have the following issues:

- Both components should be online simultaneously; if not the communication fails.
- It's difficult to scale up if there's excessive work.

In Azure Queues, you have a queue as the mediator that connects the two components, so when the receiver is down, the sender can still insert messages into the queue, once a receiver comes online it can receive the message from that queue. And for scale-up we just need to add more receivers and your queue is processed in parallel.

The following are the drawbacks of using a queue:

- Queues have some charges however, these are minimal.
- Your queue is doing mediator work here. If your queue is down, devices will not able to communicate with each other.

14) What is the difference between Windows Azure Queues and Windows Azure Service Bus Queues?

Windows Azure Queues:

Its storage is a service for storing a large number of messages that can be accessed from anywhere using HTTP or HTTPS. A single message can be up to 64KB in size. So, a queue may contain millions of messages. It is basically a part of Windows Azure Storage and enabled with a REST-based architecture.

Service Bus Queues:

- Service Bus queues support brokered messaging communication.
- Queues provide First In, First Out (FIFO) message delivery, in other words, messages are received and processed by the receivers in the order they were added to the queue.
- Each message is received and processed by only one message receiver.

---

15) How can you create a Queue in storage account?
A queue is one type of Azure Storage, where you can store your data in storage. *Blobs are stored in a* [container]*, Entity in table and Message Queue.*
Following are the key concepts of queue:-

- FIFO implementation
- Messages are added to end of the Queue and processed from the front
- Queues provide a good way to Front end and Back end decoupling

The user can queue a job through the web role (front end) which can be processed by a worker role (backend). This gives an opportunity to decouple the web role and worker role.

[C]ode:

1.   Place a new label control on the aspx page and add the following code in the page load event.

2.   protected void Page_Load(object sender, EventArgs e)

3.   {

4.   StorageCredentialsAccountAndKey accountAndKey = newStorageCredentialsAccountAndKey("account", "key");

5.   CloudStorageAccount account = new CloudStorageAccount(accountAndKey, true);

6.   CloudQueueClient client = account.CreateCloudQueueClient();

7.   CloudQueue queue = client.GetQueueReference("workitems");

8.   queue.CreateIfNotExist();

9.   CloudQueueMessage message = new CloudQueueMessage("Test Work Item");

10.   queue.AddMessage(message);

11.   // Populate the messages

12.   message = queue.GetMessage();

13.   **if (message != null) Label1.Text = "Message in Queue: " + message.AsString;**

14.   **}**

---

16) What is a Storage key?

Storage keys or Access Keys are used as an authentication mode for accessing the storage services account to manipulate information based on our requirements. In Windows Azure we have an option to provide a Primary Access Key and a Secondary Access Key, even though we will use a single access key to authenticate our application to the storage. The main reason to provide the secondary access key is to avoid downtime to the application. If we need to change the application access key by regenerating the access key it takes quite some time to take effect; this provides a downtime.

To avoid this type of situation, a secondary access key is provided so that if the primary needs to be changed or regenerated we can map the secondary temporarily to the storage and regenerate the primary. Let us see step by step of how to get the Access Keys using Windows Azure Management Portal.

---

17) What is the concept of the table in Windows Azure?

A table is one type of Azure Storage, where you can store your data in storage. Blobs are stored in container and Entity in a table.
Following are the key concepts in a table.

- Tables allow structure data storage
- There can be 0..n tables in a storage account
- Table store data as a collection of entities
- An entity has a primary key and properties as a key-value pair.

---

18) How to send messages to a Queue and how to receive messages from a Queue?

Send messages from a queue
The code below demonstrates how to create a *QueueClient* object for the "*TestQueue*" queue created using the *CreateFromConnectionString* API call:

1.   string connectionString =

2.   CloudConfigurationManager.GetSetting("Microsoft.ServiceBus.connection string");

3.   QueueClient Client =

4.   QueueClient.CreateFromConnectionString(connectionString, "TestQueue");

5.   Client.Send(new BrokeredMessage());

Messages sent to (and received from) Service Bus queues are instances of the *BrokeredMessage class. BrokeredMessage* objects have a set of standard properties (such as Label and TimeToLive), a dictionary that is used to hold custom application specific properties, and a body of arbitrary application data. An application can set the body of the message by passing any serializable object into the constructor of the BrokeredMessage, and the appropriate DataContractSerializer will then be used to serialize the object. Alternatively, a System.IO.Stream can be provided.

Receive messages from a queue

The easiest way to receive messages from a queue is to use a *QueueClient* object. These objects can work in two different modes: *ReceiveAndDelete* and *PeekLock*.

When using the *ReceiveAndDelete* mode, reception is a single-shot operation; that is, when the Service Bus receives a read request for a message in a queue, it marks the message as consumed, and returns it to the application.

The *ReceiveAndDelete* mode is the simplest model and works best for scenarios in which an application can tolerate not processing a message in the event of a failure. To understand this, consider a scenario in which the consumer issues are received, requested and then crashes before processing it. Because the Service Bus will have marked the message as being consumed when the application restarts and begins consuming messages again, it will have missed the message that was consumed prior to the crash.

This example creates an infinite loop and processes messages as they arrive in the "**TestQueue**":

Code

1.   Client.Receive();

2.   // Continuously process messages sent to the "TestQueue"

3.   while (true)

4.   {

5.   BrokeredMessage message = Client.Receive();

6.   if (message != null)

7.   {

8.   try

9.   {

10.   Console.WriteLine("Body: " + message.GetBody < string > ());

11.   Console.WriteLine("MessageID: " + message.MessageId);

```
12.    Console.WriteLine("Test Property: " + message.Properties["TestProperty"]);

13.    // Remove message from queue

14.    message.Complete();

15.    }

16.    catch (Exception)

17.    {

18.    // Indicate a problem, unlock message in queue

19.    message.Abandon();

20.    }

21.    }

22.    }
```

---

19) What are the Storages in Windows Azure?

Windows Azure data storage enables users to store, access, analyze and protect their data while making it available from anywhere and at any time. Windows Azure provides various services from storing data in SQL databases in the cloud for analysis and reporting to meet the needs of your business. Windows Azure ensures data security with a high throughput of application data in the cloud. Windows Azure typically offers the following three types of storage in the cloud atmosphere.

- **BLOB:** BLOBs offer a mechanism for storing large amounts of text or binary data, such as images, audio and visual files. It can scale up to 200 terabytes and can be accessed using REST APIs. We can move BLOB data as a single volume between private and public clouds using Windows Azure Drive.
- **Table:** Tables represent storage locations across machines for data that reside in the form of entities and properties on the cloud. Tables store large amounts of unstructured data that can be accessed either using REST APIs from within a service running in Windows Azure or directly over the Internet using HTTP/HTTPS.
- **Queue:** The sole objective of a Queue is to enable communication between Web and Worker Role instances. They aid in storing messages that may be accessed by a client. Web Role instances can initiate user requests that need to be processed in the background. On the other side a Worker Role observers the queue to process the request and respond back via a queue to the Web Role instance.

---

20) What is Federation in SQL Azure?

Federation is introduced in SQL Azure for scalability. Federation helps both administrators

and developers to scale data. It helps administrators by making repartitioning and redistributing of data easier. It helps developers in the routing layer and sharing of data. It helps in routing without application downtime.

Federation does basic scaling of objects in a SQL Azure Database. Federations are the partitioned data. There can be multiple Federations within a database. And each Federation represents a different distribution scheme.

We create a Federation with a different distribution scheme and requirement. Student and Grade's tables of a School Database may have a different distribution requirement so they are put into different Federations.

Each Federation object scales out data to many systems managed nodes. A Federation object contains:

---

21) What is SQL Azure Database?
SQL Azure database is simply a way to get connected to Cloud Services where we can store our database into Cloud. Microsoft SQL Services and Microsoft SQL Data Services are now known as Microsoft SQL Azure and [SQL Azure Database](#). Microsoft Azure is the best way to use **PAAS (Platform as a Service)** where we can host multiple databases on the same Account.
Microsoft SQL Azure has the same feature of SQL Server, i.e. high availability, scalability and security in the core.

Microsoft Azure SQL Database has a feature, it automatically creates backups of every active database. Every hour a backup is taken and geo-replicated to enable the 1-hour recovery point objective (RPO) for Geo-Restore. Additionally, transaction log backups are taken every 5 minutes to enable Point in Time Restore.