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Our Mission:

We always ensure to give practical based training. And we make the candidates to get good hands-on experience on any platform.

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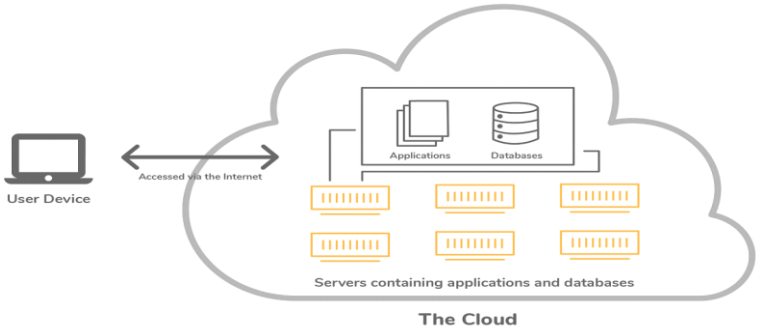
1. What are your thoughts on cloud computing?



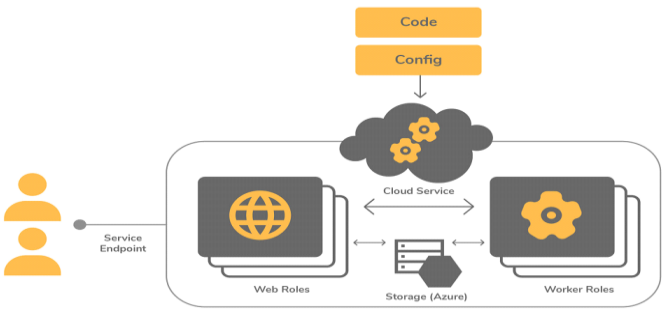
- Cloud computing is the use of computing resources (servers) on the internet (referred to as the cloud) for data storage, management, analysis, and processing. Instead of maintaining our own servers, we use infrastructure provided and maintained by third-party vendors such as Microsoft, AWS, and others, and pay them based on the duration of server usage.

Cloud computing improves execution speed, ensures resource flexibility, and facilitates scalability

- .
- Cloud computing can achieve high fault tolerance and system availability, which can be done dynamically based on the application's infrastructure requirements.

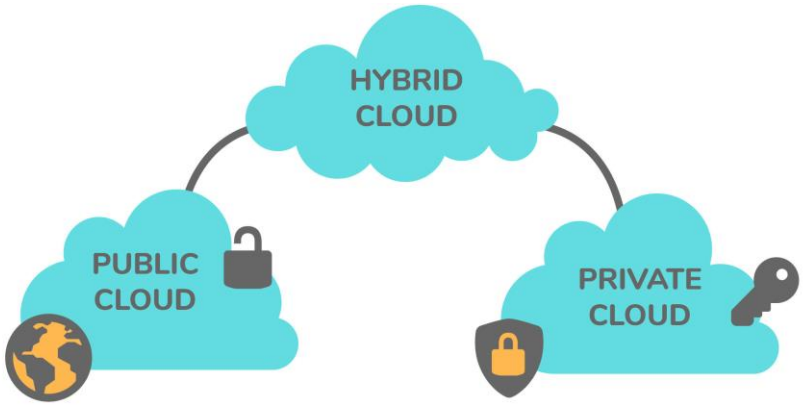
2. Can you tell me about the Azure Cloud Service?

- Azure Cloud Service is a classic platform as a service example (PaaS). This was created to support applications that require high scalability, reliability, and availability while maintaining low operational costs. These are hosted on virtual VMs, and Azure gives developers more control over them by allowing them installed the necessary software and control them remotely.
- Azure cloud services are used to deploy multi-tier web-based applications in Azure by launching a cloud service instance. It is also possible to define multiple roles for distributed processing, such as web roles, worker roles, and so on. Azure cloud services aid in the application's easier and more flexible scalability.
- Each cloud service's role



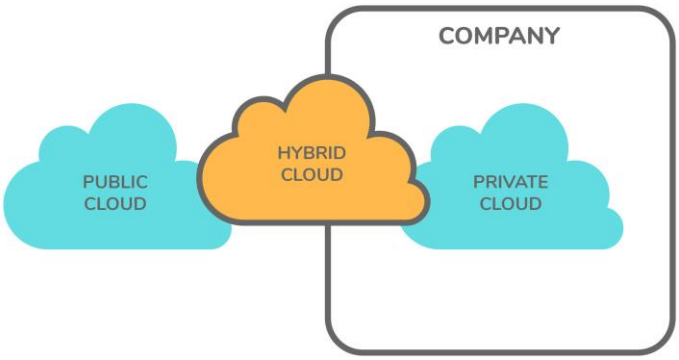
3. What are the various models available for cloud deployment?

There are 3 models available for cloud deployment:



Models For Cloud Deployment

- Public Cloud: In this model, the cloud infrastructure is owned publicly by the cloud provider and there are chances that the server resources could be shared between multiple applications.
- Private Cloud: Here, the cloud infrastructure is owned exclusively by us or exclusive service is provided by the cloud provider to us.
- This includes hosting our applications on our own on-premise servers or hosting the application on a dedicated server provided by the cloud provider.
- Hybrid Cloud: As the name itself says, this model is the hybrid combination of private cloud and the public cloud.
- This might include the scenario of using on-premise servers for processing confidential, sensitive data and using public cloud features for hosting public-facing applications.



Hybrid Cloud

4. Define role instance in Azure.

Simply said, a role instance is a virtual computer where application code is run in conjunction with running role specifications. In accordance with the specification in the cloud service configuration files, a role may also have more than one instance.

5. How many cloud service roles are provided by Azure?

- A collection of application and configuration files make up cloud service roles. Azure offers two different categories of roles:
- Web role: This offers an Internet Information Services (IIS) dedicated web server for hosting and automatically deploying front-end websites.
- Employee role: These roles often don't require IIS and assist the applications hosted within them in running asynchronously for longer periods of time while remaining independent of user interactions. They are also perfect for running background operations. The programmes are administered independently of one another.

6.Why is Azure Diagnostics API needed?

- We may gather diagnostic information from apps operating on Azure, such as performance monitoring, system event logs, etc., with the use of the Azure Diagnostics API.
- The cloud service roles must have Azure Diagnostics enabled in order to observe the data verbosely.
- The diagnostics data can be used to create performance metric warnings and enhanced visual chart representations for monitoring.

7. Define Azure Service Level Agreement (SLA)?

- The Azure SLA is a contract that ensures or guarantees that access to a cloud service is provided for at least 99.95% of the time when two or more role instances of a role are deployed on Azure.
- Additionally, it adds that 99.9% of the time, such processes will be detected and corrective action will be performed for them if the role instance process is not in the operating state.
- Depending on the pricing structure of the relevant Azure services, Azure credits us a portion of our monthly expenses if the aforementioned assurances are not met at any time.

8. What is Azure Resource Manager?

- A service offered by Azure for administration and application deployment in Azure is called Azure Resource Manager.
- The resource manager offers the management layer that aids in the creation, modification, or deletion of resources in the Azure subscription account by the developer. When we need to manage access restrictions, locks, ensure the security of the resources after deployment, and organise those resources, this function is quite helpful.

9. What is NSG?

- Network Security Group, or NSG, is a collection of ACL (Access Control List) rules that either permit or prohibit network traffic from reaching subnets, network interface cards (NICs) connected to a subnet, or both. The ACL rules are applied to all the Virtual Machines in the subnet when NSG is attached to it.
- By directly linking NSG to a certain NIC, one can restrict traffic to that NIC

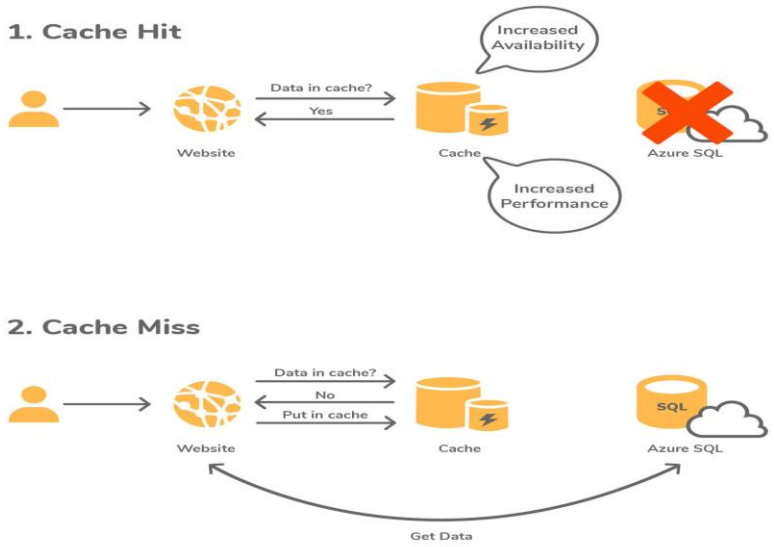
.

10. VM creation is possible using Azure Resource Manager in a Virtual Network which was created by means of classic deployment. True or False?

- False. Azure does not support this.
- Intermediate Interview Questions

11. What is Azure Redis Cache?

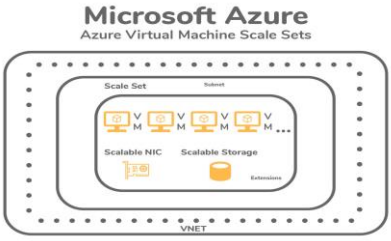
- It is an in-memory, open-source Redis caching solution that Azure offers and supports.
- By retrieving data from the backend database and temporarily storing it in the Redis cache for the initial request, and then retrieving data from the Redis cache for all subsequent requests, it helps web applications run better.
- Utilizing the Azure cloud, Azure Redis Cache offers robust and secure caching technologies.



Azure Redis Cache

12. Define Azure virtual machine scale sets

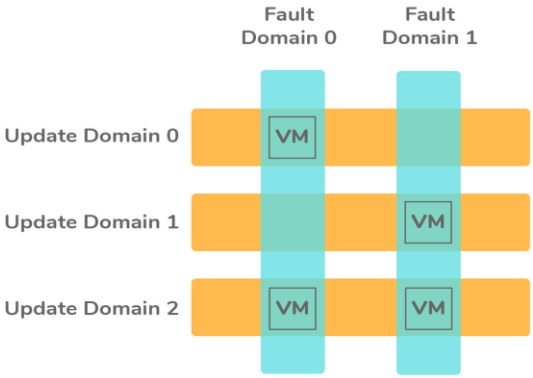
- These are the Azure computation resources that can be used to deploy and manage sets of identical Virtual Machines (VMs).
- These scale sets are configured in the same manner and are designed to support the autoscaling of the applications without the need for pre-provisioning of the VMs.
- They help to build large-scale applications targeting big data and containerized workloads in an easier manner.



Azure virtual machine

13. What do you understand about the “Availability Set”?

- A logical grouping of virtual machines (VMs) known as a "Availability Set" enables Azure cloud to comprehend how an application was created to provide availability and redundancy.
- Azure assigns 2 different types of domains to each VM in the availability set:
- Fault Domain: These describe the collection of virtual machines (VMs) that would share a common network switch and power source. By default, the VMs in availability sets are dispersed across up to 3 fault domains. By lessening the effects of network outages, power outages, and some hardware problems, this division of VMs into fault domains contributes to the availability of our applications.
- Update Domain: These show the collection of virtual machines and underlying hardware that can all be rebooted simultaneously. One update onlyOne domain can reboot at a time, but the reboots do not happen in a sequential order. The previously rebooted domain is given a recovery time of 30 minutes to guarantee that the domain is up before the maintenance of another update domain.
- Up to three fault domains and twenty update domains can be configured for an availability set in Azure.



Availability Set

14. What are the available options for deployment environments provided by Azure?

- Azure offers the following two deployment environments:
- Staging Environment: Before making updates live in the primary environment, our application is tested in this environment.
- The GUID (Globally Unique Identifier) of Azure, which bears the URL GUID.cloudapp.net, is used to identify this application.
- Production Environment: This is the primary environment where our application is made available to the public and may be accessed by the intended audience via the DNS-friendly URL appName.cloudapp.net.

15. What do you need to do when drive failure occurs?

- When the drive fails, you must do the following actions:
- We must make sure the drive is not mounted in order for Azure Storage to operate flawlessly.
- In order for the drive to be remounted and formatted, replace the drive.

16. Is it possible to design applications that handle connection failure in Azure

The Transient Fault Handling Block enables this, hence the answer is yes. While utilising the cloud environment, transient failures might have a variety of causes, including:

- We can notice that the application to database connections fail on sometimes since there are more load balancers.
- The calls become slower and finally time out while using multi-tenant services since other apps are heavily using that resource.
- The service may purposefully block our connection in order to support other tenants in the architecture as a result of our repeated attempts to access the resource as users.

The application can identify momentary failures and automatically attempt to conduct the same activity again, often after few seconds, in the hopes of establishing the connection, as opposed to periodically informing the user of errors. We may generate the retry intervals and force the programme to conduct retries by using the Transient Fault Handling Application Block technique. The majority of the time, the issue would be fixed on the second attempt, therefore it was not necessary to notify the user of these errors. The sample code for the retry policy is shown below. If the connection is unsuccessful in this case, the action is then retried in accordance with the set retry policy. Fixed Interval, Incremental Interval, and Exponential Backoff Strategy are the three retry options available.

```
/***
* Class to detect Transient Blocks - Here
* OperationCancelledException is

* detected and then the retry strategy is employed.
*/
internal class AppTransientDetection : ITransientErrorDetectionStrategy
{
   bool IsTransient(Exception exception) =>
      exception is OperationCanceledException;
}

/***
* Retry Strategy - Here Fixed Interval Strategy is employed and is retried for 5 times.
*/
RetryStrategy retryStrategy = new FixedInterval(retryCount: 5, retryInterval: TimeSpan.FromSeconds(2));

RetryPolicy retryPolicy = new RetryPolicy(new AppTransientDetection(), retryStrategy);
retryPolicy.ExecuteAction(() => {
   try {
      string commandText = @"USE FEDERATION User_Federation(ShardId =" + shardId + ") WITH
RESET, FILTERING=ON";
      userEntity.Connection.Open();
      userEntity.ExecuteStoreCommand(commandText);
   } catch (Exception e) {
      userEntity.Connection.Close();
      SqlConnection.ClearAllPools();
   }
});
```

17. Define azure storage key.

- In order to manage access to data depending on project needs, the Azure storage key is utilised for authentication and validation of access.
- For the purpose of authentication, two types of storage keys are provided: the Primary Access Key
- Additional Access Key
- The primary goal of the secondary access key is to prevent application or website downtime.

18. What is cspack in Azure?

It is a programme for creating service package files that runs from the command line. Additionally, the tool aids in setting up the application for deployment in Microsoft Azure or a computing emulator.
The.cscfg file, which is effectively the cloud service configuration file generated by the cspack programme and is primarily used to contain the following information, is present in every project of the cloud service type.

- the quantity of instances for each role that will be deployed in the project.
- the certificates' thumbprint.
- setup and settings that the user defines.

19. What is the best Azure solution for executing the code without a server?

- Azure Functions service can be used for executing the code without a server.
- Serverless Azure Functions are used for simplifying complex orchestration and challenging resolutions. They are meant for being stateless and short-lived.
- They help to connect with other services without the need for hard coding of the integrations thereby making the development process faster.
- It helps the developer to write and concentrate on the business logic code thereby saving time and effort.
- They also provide the features of monitoring and analyzing code performance by means of Azure Application Insights that help in identifying bottlenecks and failure points across the components of the application

20. What would be the best feature recommended by Azure for having a common file sharing system between multiple virtual machines?

The Azure platform offers a service called Azure File Means that serves as a system for transferring data among Virtual Machines set up using Using protocols like SMB, FTPS, NFS, and others, Azure offers a service called Azure File System that serves as a central repository for data exchange among configured virtual machines. protocols such as SMB, FTPS, and NFS

21. Is it possible to login to a Linux Virtual Machine without using a password?

Yes, it is possible to log into another VM without a password by using the Key Vault mapping to any Admin VM

.

22. What would happen when the maximum failed attempts are reached during the process of Azure ID Authentication?

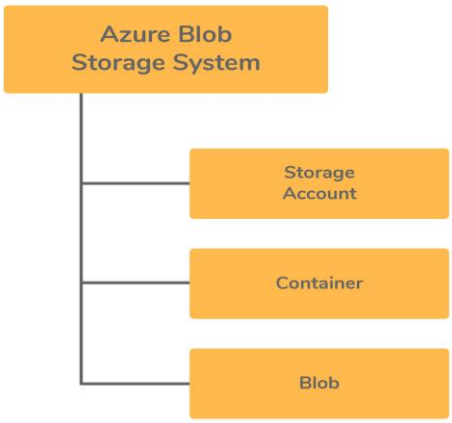
The protocol that examines the entered password and the IP addresses of the login requests determines how to lock an Azure account in the event of a maximum number of failed tries.

23. Is it possible to get a public DNS or IP address for the Azure Internal Load Balancer?

No! Azure Internal Load Balancer, as its name implies, only allows Private IP addresses; as a result, assigning a Public IP address or DNS name is not possible.

24. What is Azure Blob Storage?

- Microsoft's cloud-based object storage solution is called Azure Blob storage. Blob, or "Binary Large Object," is an acronym. Massive amounts of unstructured text or binary data are stored using blob-based storage. It is perfect for serving text, music, video, and documents straight to browsers.
- Anywhere in the world can access the data kept in the blob storage. By organising the blobs into containers, user accounts are connected to the blobs. There are three parts to the Azure Blob Service:
- Storage Account: A General Storage Account or a Blob Storage Account that has been registered with Microsoft Azure.
- Containers are used to aggregate blobs together. A container can hold an infinite amount of blobs. The container's name should begin in lowercase.
- A blob is a binary large object, which can be any form of file or document of any size. Azure has support for three different types of blobs:
- Block blobs can accommodate up to 195GB, or up to 50k blocks of up to 4MB each, and are designed for text and binary data.
- Blobs that are utilised for appending tasks, such as logging data in log files, are known as blobs.
- Page blobs are intended for read/write operations that happen often.



Azure Blob Storage

25. What do you understand by Azure Scheduler?

- We can call specific background trigger events or activities, such as calling HTTP/S endpoints, or present a message on the queue at any time with the aid of Azure Scheduler.
- By using this Azure Schedule, the jobs now running in the cloud can summon services running both within and outside of Azure to execute jobs that are typically run on a set schedule on demand or to launch jobs at a later date.

- Block blobs can accommodate up to 195GB, or up to 50k blocks of up to 4MB each, and are designed for text and binary data.
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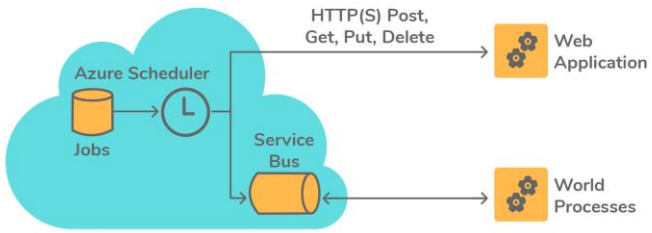


Azure Scheduler

26. Is it possible to map the Windows machines running on two different port numbers, say 80 and 81, on an IIS Web Server to an Azure Load Balancer?

Yes, you may accomplish this by creating a unique load balancer role in Azure.

27. You have an application running on the On-Prem Server and have backup on Azure East US region. Now, On-Prem server application access fails. Is it possible to access the application via the Azure environment?

Yes, you may accomplish this by creating a unique load balancer role in Azure. By utilising Azure's Site Recovery Service, it is most definitely achievable. Between On-Prem Servers and Azure environments, it can manage fail-over and fail-back scenarios.

28. What feature of Azure can be used to stop the issue of high load on the application in cases of no man support on the flow?

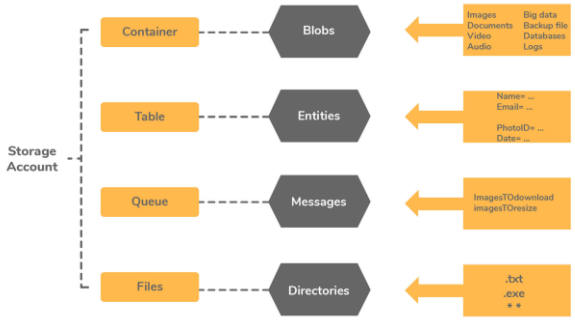
By specifying the right configuration and criteria to provision a new VM whenever the load on the application grows, this problem can be resolved by using VM Scale sets.

- A set of load-balanced VMs can be created and managed by a developer using Azure VM ScaleSets. The scale sets can be set up such that the number of VMs automatically rises or falls in response to application demand or in accordance with a predetermined timetable.
- The use of Scale Sets guarantees high availability of the applications, enables developers to manage, update, and configure massive VMs centrally, and supports the development of big data, enormous workloads, and compute-intensive applications.

- Up to 1,000 VMs can be supported by Azure scale settings. The cap is 600 VMs if custom VM images are produced and uploaded.

29. What are the types of storage services apart from blob storage provided by Azure?

As can be seen in the graphic below, Azure offers four different types of storage services: Blob Service, Table Storage, Queue Storage, and File Storage Services.



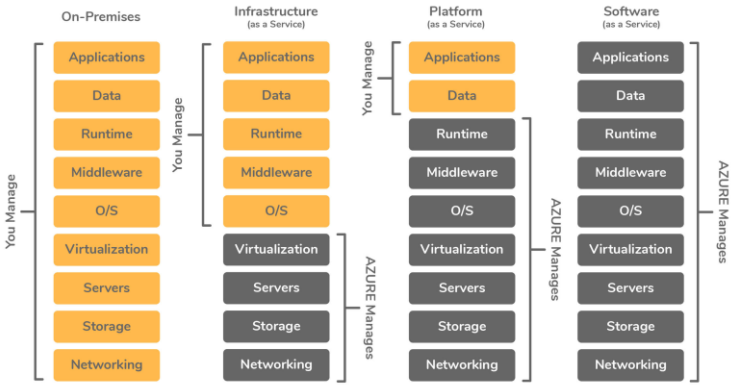
Types of Storage Services

- Azure Table Storage: This kind of storage enables users to instal their applications using key-value stores and semi-structured data stored in a NoSQL database.
- When applications that adhere to a flexible data structure are required, this is employed.
- Table Storage adheres to strongly consistent concepts and concentrates on enterprise-level data.
- Entities arranged in tables are used to represent the data.
- Azure Queue Storage: This storage enables customers to create and construct adaptable and modular applications, which provides a message queue system for managing heavy workloads.
- This storage makes guarantee that the application is scalable and less susceptible to failure of individual components.
- Message queues are used to give the queue monitoring capability, which helps the application make sure the needs of the users are met.
- SMB (Server Message Block) Protocol is used to access the file sharing functionalities offered by Azure File Storage. SMB 3.0 Protocol and HTTPS are used to protect the data in this storage.
- They are employed to enhance the functionality and performance of on-premise applications.
- Azure itself is in charge of managing the hardware and OS instals.

30. What are IaaS, PaaS and SaaS?

- IaaS stands for "Infrastructure as a Service" and refers to a set of infrastructure-level capabilities, such as operating systems, network connectivity, etc., that are provided on a pay-per-use basis. Applications are hosted on the infrastructure. Azure VM and VNET are some examples.
- PaaS stands for "Platform as a Service," which focuses on providing developers with an abstraction of the underlying infrastructure to enable faster application development without having to worry about hosting maintenance. Examples include cloud services, storage services, and Azure web apps.
- Software as a Service, or SaaS, refers to those applications that are provided utilising the service delivery paradigm and are merely consumed and used by an enterprise. In most cases, these applications are funded by charging the company to use them or by using advertisements. Applications like Office 365, Gmail, SharePoint Online, and others serve as examples.

The following table shows the difference between the On-Prem Service, IaaS, PaaS, and SaaS services. We can observe that as we go right, the level of control the developer or the user has over the application reduces.



IaaS, PaaS and SaaS

31. Consider a scenario where an application front end hosting is done on Azure but the customer needs the database hosting to be done on on-premise server due to security concerns. What are the ways to handle the connectivity in Azure for this scenario?. What are the differences between the Azure Table Storage and the Azure SQL service?

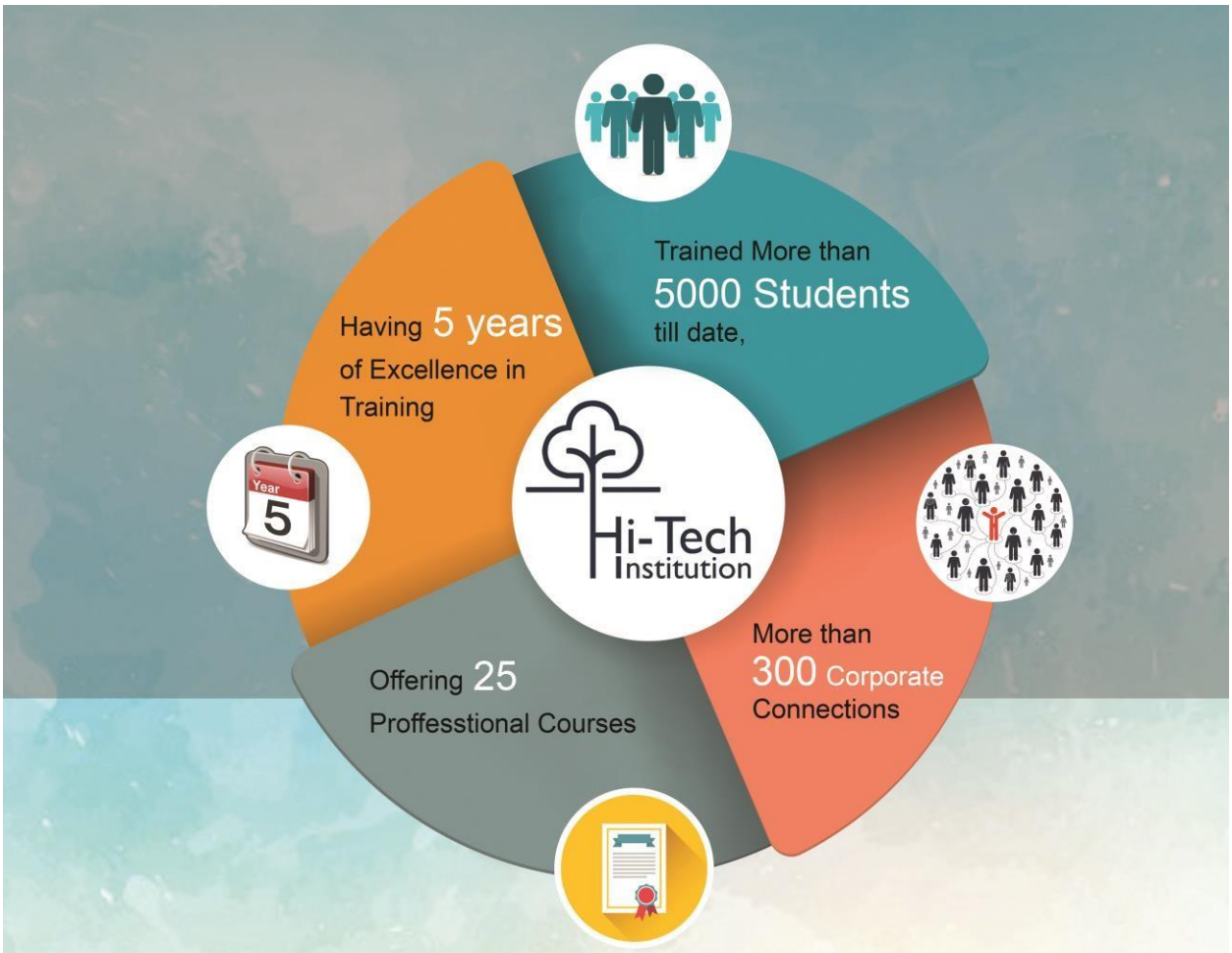
- Possibility 1: For this case of connecting one on-premise DB to an Azure-hosted app, the "Point to Site" service based on Azure VNET may be the best option. "Point to Site" is appropriate when there are only a few resources that need to be connected over VPN.
- Option 2: If there are many resources that need to be connected, "Site to Site" or "Express routes" are the other possibilities that might be taken into account.Due to the fact that "Site to Site" VPNs only function via the Internet, there is a potential that utilising them could cause network latency (public infrastructure). Express Routes are employed in these situations because they offer a dedicated leased line for resolving latency difficulties.

- 3. If the customer is unwilling to work through a VNET, an on-premises Windows Communication Foundation (WCF) service can be created and hosted. This service would contain CRUD functions designed just for the on-premises database. This is accomplished by creating communication between the Azure-hosted app and the WCF service for database access using the "Service bus relay" option.

32. What are the possible causes of the client application to be disconnected from the cache?

There can be 2 possible causes:

- Client-side causes: The app may have undergone a redeployment.
- Perhaps the application just finished a scaling operation.
- The networking layer on the client side has been modified.
- The client or the network connecting the client and the server could experience momentary issues.
- The bandwidth threshold restrictions having been exceeded is still another cause.
- Server-side factors: It could happen if the Azure Redis Cache service switches from the primary to the secondary node.
- It's possible that the server instance where the cache was installed underwent patching or maintenance.



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