AZ-900: Microsoft Azure Fundamentals

Cloud service types

Infrastructure as a service (IaaS): In an IaaS model, the cloud provider is responsible for maintaining the hardware, network connectivity (to the internet), and physical security. You're responsible for everything else: operating system installation, configuration, and maintenance; network configuration; database and storage configuration; and so on.

Platform as a service (PaaS): In a PaaS environment, the cloud provider maintains the physical infrastructure, physical security, and connection to the internet. They also maintain the operating systems, middleware, development tools, and business intelligence services that make up a cloud solution.

Software as a service (SaaS): Software as a service (SaaS) is the most complete cloud service model from a product perspective. With SaaS, you're essentially renting or using a fully developed application. Email, financial software, messaging applications, and connectivity software are all common examples of a SaaS implementation.

Cloud computing

Cloud computing is the delivery of computing services over the internet. Computing services include common IT infrastructure such as virtual machines, storage, databases, and networking. Cloud services also expand the traditional IT offerings to include things like Internet of Things (IoT), machine learning (ML), and artificial intelligence (AI).

Types of cloud:

Private cloud: A private cloud is, in some ways, the natural evolution from a corporate datacentre. It's a cloud (delivering IT services over the internet) that's used by a single entity. Private cloud provides much greater control for the company and its IT department. However, it also comes with greater cost and fewer of the benefits of a public cloud deployment. Finally, a private cloud may be hosted from your onsite datacentre. It may also be hosted in a dedicated datacentre offsite, potentially even by a third party that has dedicated that datacentre to your company.

Public cloud: A public cloud is built, controlled, and maintained by a third-party cloud provider. With a public cloud, anyone that wants to purchase cloud services can access and use resources. The general public availability is a key difference between public and private clouds.

Hybrid cloud: A hybrid cloud is a computing environment that uses both public and private clouds in an inter-connected environment. A hybrid cloud environment can be used to allow a private cloud to surge for increased, temporary demand by deploying public cloud resources.

Multi-cloud: In a multi-cloud scenario, you use multiple public cloud providers. Maybe you use different features from different cloud providers. Or maybe you started your cloud journey with one provider and are in the process of migrating to a different provider. Regardless, in a multi-cloud environment you deal with two (or more) public cloud providers and manage resources and security in both environments.

Azure Arc is a set of technologies that helps manage your cloud environment. Azure Arc can help manage your cloud environment, whether it's a public cloud solely on Azure, a private cloud in your datacentre, a hybrid configuration, or even a multi-cloud environment running on multiple cloud providers at once.

Azure VMware Solution lets you run your VMware workloads in Azure with seamless integration and scalability.

High availability focuses on ensuring maximum availability, regardless of disruptions or events that may occur.

Scalability refers to the ability to adjust resources to meet demand. Scaling generally comes in two varieties: vertical and horizontal.

Vertical scaling is focused on increasing or decreasing the capabilities of resources(such as CPUs and RAMs).

Horizontal scaling is adding or subtracting the number of resources(such as virtual machines or containers).

Reliability is the ability of a system to recover from failures and continue to function. It's also one of the pillars of the Microsoft Azure Well-Architected Framework.

Predictability in the cloud lets you move forward with confidence. Predictability can be focused on performance predictability or cost predictability. Both performance and cost predictability are heavily influenced by the Microsoft Azure Well-Architected Framework.

Shared responsibility model:

The *shared responsibility model* identifies which security tasks are handled by the cloud provider, and which security tasks are handled by you, the customer.

Zero Trust model: The Zero Trust model operates on the principle of "**trust no one, verify everything.**"

The Zero Trust model has three principles which guide and underpin how security is implemented. These are: verify explicitly, least privilege access, and assume breach.

Encryption is the process of making data unreadable and unusable to unauthorized viewers. To use or read encrypted data, it must be decrypted, which requires the use of a secret key.

Data at rest is the data that's stored on a physical device, such as a server. It may be stored in a database or a storage account but, regardless of where it's stored,

encryption of data at rest ensures the data is unreadable without the keys and secrets needed to decrypt it.

Data in transit is the data moving from one location to another, such as across the internet or through a private network. Secure transfer can be handled by several different layers. It could be done by encrypting the data at the application layer before sending it over a network. HTTPS is an example of encryption in transit.

A common use case for encryption of data in use involves securing data in nonpersistent storage, such as RAM or CPU caches. This can be achieved through technologies that create an enclave (think of this as a secured lockbox) that protects the data and keeps data encrypted while the CPU processes the data.

Module – 2:

Azure is a continually expanding set of cloud services that help you meet current and future business challenges. Azure gives you the freedom to build, manage, and deploy applications on a massive global network using your favourite tools and frameworks.

Azure Workflow:

Azure account -> Azure subscription -> Resource groups -> Azure resources

The Azure free account includes:

- Free access to popular Azure products for 12 months.
- A credit to use for the first 30 days.
- Access to more than 25 products that are always free.

The Azure free student account offer includes:

- Free access to certain Azure services for 12 months.
- A credit to use in the first 12 months.
- Free access to certain software developer tools.

Azure may be broken down into two main groupings: the physical infrastructure, and the management infrastructure.

- The physical infrastructure for Azure starts with datacentres.
- Datacentres are grouped into Azure Regions or Azure Availability Zones.
    1. A ***region*** is a geographical area on the planet that contains at least one, but potentially multiple datacentres that are nearby and networked together with a low-latency network.
    2. ***Availability zones*** are physically separate datacentres within an Azure region. Each availability zone is made up of one or more datacentres equipped with independent power, cooling, and networking.

Availability zones are primarily for VMs, managed disks, load balancers, and SQL databases. Azure services that support availability zones fall into three categories:

- Zonal services: You pin the resource to a specific zone (for example, VMs, managed disks, IP addresses).
- Zone-redundant services: The platform replicates automatically across zones (for example, zone-redundant storage, SQL Database).
- Non-regional services: Services are always available from Azure geographies and are resilient to zone-wide outages as well as region-wide outages.

3. ***Region pairs*** are paired with another region within the same geography (such as US, Europe, or Asia) at least 300 miles away. This approach allows for the replication of resources across a geography that helps reduce the likelihood of interruptions because of events such as natural disasters, civil unrest, power outages, or physical network outages that affect an entire region.

4. ***Sovereign Regions*** are instances of Azure that are isolated from the main instance of Azure. You may need to use a sovereign region for compliance or legal purposes.

Azure sovereign regions include:

- US DoD Central, US Gov Virginia, US Gov Iowa and more: These regions are physical and logical network-isolated instances of Azure for U.S. government agencies and partners. These datacenters are operated by screened U.S. personnel and include additional compliance certifications.
- China East, China North, and more: These regions are available through a unique partnership between Microsoft and 21Vianet, whereby Microsoft doesn't directly maintain the datacenters.

Azure management infrastructure

Azure resources and resource groups:

A resource is the basic building block of Azure. Anything you create, provision, deploy, etc. is a resource. Virtual Machines (VMs), virtual networks, databases, cognitive services, etc. are all considered resources within Azure.

Resource groups are simply groupings of resources. When you create a resource, you're required to place it into a resource group.

If you delete a resource group, all the resources will be deleted. If you grant or deny access to a resource group, you've granted or denied access to all the resources within the resource group.

Knowledge-Check:

- **A resource can only be in one group at a time.**
- **Resources inherit permissions from their resource group.**
- **Most Azure regions are paired with another region within the same geography (such as US, Europe, or Asia) at least 300 miles away.**

Azure virtual machines

VMs provide infrastructure as a service (IaaS) in the form of a virtualized server and can be used in many ways. Just like a physical computer, you can customize all the software running on your VM.

Azure can also manage the grouping of VMs for you with features such as scale sets and availability sets.

- Virtual machine scale sets let you create and manage a group of identical, load-balanced VMs.
- Virtual machine availability sets are another tool to help you build a more resilient, highly available environment.

Containers

Containers are a virtualization environment. Much like running multiple virtual machines on a single physical host, you can run multiple containers on a single physical or virtual host. Unlike virtual machines, you don't manage the operating system for a container. One of the most popular container engines is Docker, and Azure supports Docker.

Azure Container Instances:
Azure Container Instances offer the fastest and simplest way to run a container in Azure; without having to manage any virtual machines or adopt any additional services. Azure Container Instances are a platform as a service (PaaS) offering. Azure Container Instances allow you to upload your containers and then the service runs the containers for you.

Azure Container Apps:
Azure Container Apps are similar in many ways to a container instance. They allow you to get up and running right away, they remove the container management piece, and they're a PaaS offering. Container Apps have extra benefits such as the ability to incorporate load balancing and scaling. These other functions allow you to be more elastic in your design.

Azure Kubernetes Service:
Azure Kubernetes Service (AKS) is a container orchestration service. An orchestration service manages the lifecycle of containers. When you're deploying a fleet of containers, AKS can make fleet management simpler and more efficient.

Containers are often used to create solutions by using a microservice architecture. This architecture is where you break solutions into smaller, independent pieces. For example, you might split a website into a container hosting your front end, another hosting your back end, and a third for storage. This split allows you to separate portions of your app into logical sections that can be maintained, scaled, or updated independently.

Azure functions:
Azure Functions is an event-driven, serverless compute option that doesn’t require maintaining virtual machines or containers. If you build an app using VMs or containers, those resources must be “running” in order for your app to function. With Azure Functions, an event wakes the function, alleviating the need to keep resources provisioned when there are no events.

Azure Functions runs your code when it triggers and automatically deallocates resources when the function is finished. In this model, Azure only charges you for the CPU time used while your function runs.

Azure App Service:
Azure App Service is a robust hosting option that you can use to host your apps in Azure. Azure App Service lets you focus on building and maintaining your app, and Azure focuses on keeping the environment up and running.

Azure App Service is an HTTP-based service for hosting web applications, REST APIs, and mobile back ends. It supports multiple languages, including .NET, .NET Core, Java, Ruby, Node.js, PHP, or Python. It also supports both Windows and Linux environments.

Types of app services:

- **Web apps:** App Service includes full support for hosting web apps by using ASP.NET, ASP.NET Core, Java, Ruby, Node.js, PHP, or Python. You can choose either Windows or Linux as the host operating system.
- **API apps:** Much like hosting a website, you can build REST-based web APIs by using your choice of language and framework. You get full Swagger support and the ability to package and publish your API in Azure Marketplace. The produced apps can be consumed from any HTTP- or HTTPS-based client.
- **WebJobs:** You can use the WebJobs feature to run a program (.exe, Java, PHP, Python, or Node.js) or script (.cmd, .bat, PowerShell, or Bash) in the same context as a web app, API app, or mobile app. They can be scheduled or run by a trigger. WebJobs are often used to run background tasks as part of your application logic.
- **Mobile apps:** Use the Mobile Apps feature of App Service to quickly build a back end for iOS and Android apps.

Azure virtual networking:

Azure virtual networks and virtual subnets enable Azure resources, such as VMs, web apps, and databases, to communicate with each other, with users on the internet, and with your on-premises client computers.

Azure virtual networks provide the following key networking capabilities:

- Isolation and segmentation
- Internet communications
- Communicate between Azure resources
- Communicate with on-premises resources
- Route network traffic
- Filter network traffic
- Connect virtual networks

A subnet, or subnetwork, is a network inside a network. Subnets make networks more efficient. Through subnetting, network traffic can travel a shorter distance without passing through unnecessary routers to reach its destination.

- Virtual networks can connect not only VMs but other Azure resources, such as the App Service Environment for Power Apps, Azure Kubernetes Service, and Azure virtual machine scale sets.
- Service endpoints can connect to other Azure resource types, such as Azure SQL databases and storage accounts. This approach enables you to link multiple Azure resources to virtual networks to improve security and provide optimal routing between resources.

- Point-to-site virtual private network connections are from a computer outside your organization back into your corporate network. In this case, the client computer initiates an encrypted VPN connection to connect to the Azure virtual network.
- Site-to-site virtual private networks link your on-premises VPN device or gateway to the Azure VPN gateway in a virtual network. In effect, the devices in Azure can appear as being on the local network. The connection is encrypted and works over the internet.
- Azure ExpressRoute provides a dedicated private connectivity to Azure that doesn't travel over the internet. ExpressRoute is useful for environments where you need greater bandwidth and even higher levels of security.

Azure virtual private networks:
A virtual private network (VPN) uses an encrypted tunnel within another network. VPNs are typically deployed to connect two or more trusted private networks to one another over an untrusted network (typically the public internet). Traffic is encrypted while traveling over the untrusted network to prevent eavesdropping or other attacks. VPNs can enable networks to safely and securely share sensitive information.

A VPN gateway is a type of virtual network gateway. Azure VPN Gateway instances are deployed in a dedicated subnet of the virtual network and enable the following connectivity:

- Connect on-premises data centres to virtual networks through a site-to-site connection.
- Connect individual devices to virtual networks through a point-to-site connection.
- Connect virtual networks to other virtual networks through a network-to-network connection.

In Azure, regardless of the VPN type, the method of authentication employed is a preshared key.

- Policy-based VPN gateways specify statically the IP address of packets that should be encrypted through each tunnel. This type of device evaluates every data packet against those sets of IP addresses to choose the tunnel where that packet is going to be sent through.
- In Route-based gateways, IPSec tunnels are modeled as a network interface or virtual tunnel interface. IP routing (either static routes or dynamic routing protocols) decides which one of these tunnel interfaces to use when sending each packet. Route-based VPNs are the preferred connection method for on-premises devices. They're more resilient to topology changes such as the creation of new subnets.

Active/standby

By default, VPN gateways are deployed as two instances in an active/standby configuration, even if you only see one VPN gateway resource in Azure. When planned maintenance or unplanned disruption affects the active instance, the standby instance automatically assumes responsibility for connections without any user intervention. Connections are interrupted during this failover, but they typically restore within a few seconds for planned maintenance and within 90 seconds for unplanned disruptions.

Active/active

With the introduction of support for the BGP routing protocol, you can also deploy VPN gateways in an active/active configuration. In this configuration, you assign a unique public IP address to each instance. You then create separate tunnels from the on-premises device to each IP address. You can extend the high availability by deploying an additional VPN device on-premises.

Azure ExpressRoute:

Azure ExpressRoute lets you extend your on-premises networks into the Microsoft cloud over a private connection, with the help of a connectivity provider. This connection is called an ExpressRoute Circuit. With ExpressRoute, you can establish connections to Microsoft cloud services, such as Microsoft Azure and Microsoft 365. This feature allows you to connect offices, datacenters, or other facilities to the Microsoft cloud. Each location would have its own ExpressRoute circuit.

ExpressRoute is a private connection from your on-premises infrastructure to your Azure infrastructure. Even if you have an ExpressRoute connection, DNS queries, certificate revocation list checking, and Azure Content Delivery Network requests are still sent over the public internet.

Azure DNS:

Azure DNS is a hosting service for DNS domains that provides name resolution by using Microsoft Azure infrastructure. By hosting your domains in Azure, you can manage your DNS records using the same credentials, APIs, tools, and billing as your other Azure services.

Knowledge check:

1. Availability sets stagger VM updates based on their update and fault domains.
2. Azure Virtual Desktop provides access to a cloud-hosted version of Windows, and it works with most modern browsers.
3. You should use a route-based VPN gateway. They're more resilient to topology changes such as the creation of new subnets.

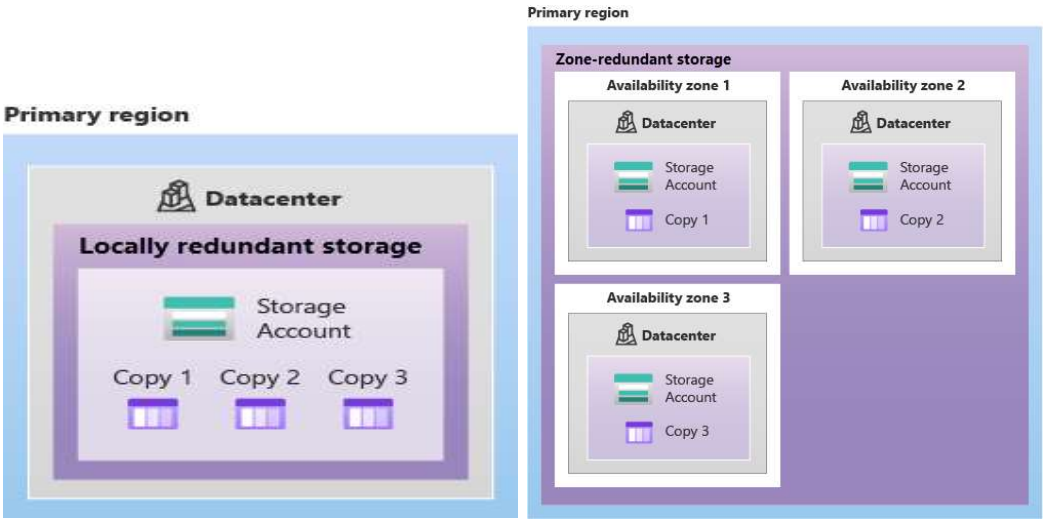
Azure storage accounts

A storage account provides a unique namespace for your Azure Storage data that's accessible from anywhere in the world over HTTP or HTTPS. Data in this account is secure, highly available, durable, and massively scalable.

Storage service	Endpoint
Blob Storage	https://<storage-account-name>.blob.core.windows.net
Data Lake Storage Gen2	https://<storage-account-name>.dfs.core.windows.net
Azure Files	https://<storage-account-name>.file.core.windows.net
Queue Storage	https://<storage-account-name>.queue.core.windows.net
Table Storage	https://<storage-account-name>.table.core.windows.net

Redundancy in the primary region: Data in an Azure Storage account is always replicated three times in the primary region. Azure Storage offers two options for how your data is replicated in the primary region, locally redundant storage (LRS) and zone-redundant storage (ZRS).

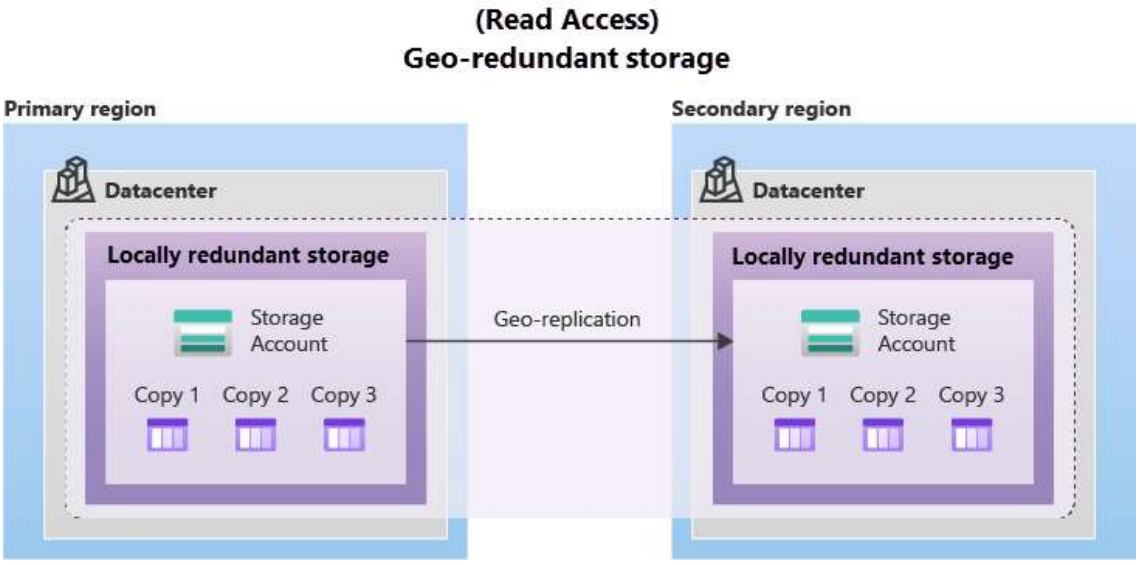
- Locally redundant storage (LRS) replicates your data three times within a single data center in the primary region. LRS provides at least 11 nines of durability (99.999999999%) of objects over a given year.
- For Availability Zone-enabled Regions, zone-redundant storage (ZRS) replicates your Azure Storage data synchronously across three Azure availability zones in the primary region. ZRS offers durability for Azure Storage data objects of at least 12 nines (99.9999999999%) over a given year.

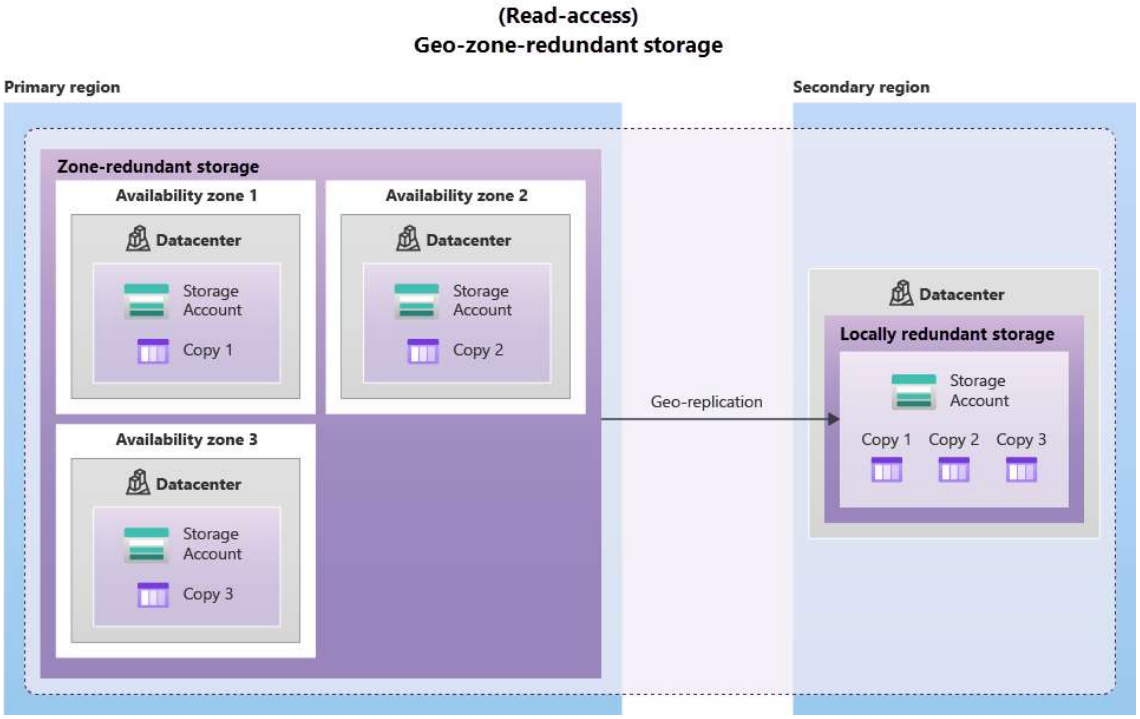


Redundancy in a secondary region:

When you create a storage account, you select the primary region for the account. The paired secondary region is based on Azure Region Pairs, and can't be changed.

Azure Storage offers two options for copying your data to a secondary region: geo-redundant storage (GRS) and geo-zone-redundant storage (GZRS). GRS is similar to running LRS in two regions, and GZRS is similar to running ZRS in the primary region and LRS in the secondary region.





The Azure Storage platform includes the following data services:

- **Azure Blobs**: A massively scalable object store for text and binary data. Also includes support for big data analytics through Data Lake Storage Gen2.
- **Azure Files**: Managed file shares for cloud or on-premises deployments.
- **Azure Queues**: A messaging store for reliable messaging between application components.
- **Azure Disks**: Block-level storage volumes for Azure VMs.
- **Azure Tables:** NoSQL table option for structured, non-relational data.

Azure Storage offers different access tiers for your blob storage, helping you store object data in the most cost-effective manner. The available access tiers include:

- **Hot access tier**: Optimized for storing data that is accessed frequently (for example, images for your website).
- **Cool access tier**: Optimized for data that is infrequently accessed and stored for at least 30 days (for example, invoices for your customers).
- **Cold access tier**: Optimized for storing data that is infrequently accessed and stored for at least 90 days.
- **Archive access tier**: Appropriate for data that is rarely accessed and stored for at least 180 days, with flexible latency requirements (for example, long-term backups).

The following considerations apply to the different access tiers:

- Hot, cool, and cold access tiers can be set at the account level. The archive access tier isn't available at the account level.
- Hot, cool, cold, and archive tiers can be set at the blob level, during or after upload.
- Data in the cool and cold access tiers can tolerate slightly lower availability, but still requires high durability, retrieval latency, and throughput characteristics similar to hot data. For cool and cold data, a lower availability service-level agreement (SLA) and higher access costs compared to hot data are acceptable trade-offs for lower storage costs.
- Archive storage stores data offline and offers the lowest storage costs, but also the highest costs to rehydrate and access data.

Azure data migration options

Azure Migrate:

Azure Migrate is a service that helps you migrate from an on-premises environment to the cloud. Azure Migrate functions as a hub to help you manage the assessment and migration of your on-premises datacenter to Azure. It provides the following:

- **Unified migration platform**: A single portal to start, run, and track your migration to Azure.
- **Range of tools**: A range of tools for assessment and migration. Azure Migrate tools include Azure Migrate: Discovery and assessment and Azure Migrate: Server Migration. Azure Migrate also integrates with other Azure services and tools, and with independent software vendor (ISV) offerings.
- **Assessment and migration**: In the Azure Migrate hub, you can assess and migrate your on-premises infrastructure to Azure.

Integrated tools:

In addition to working with tools from ISVs, the Azure Migrate hub also includes the following tools to help with migration:

- **Azure Migrate: Discovery and assessment**. Discover and assess on-premises servers running on VMware, Hyper-V, and physical servers in preparation for migration to Azure.
- **Azure Migrate: Server Migration**. Migrate VMware VMs, Hyper-V VMs, physical servers, other virtualized servers, and public cloud VMs to Azure.
- **Data Migration Assistant**. Data Migration Assistant is a stand-alone tool to assess SQL Servers. It helps pinpoint potential problems blocking migration. It identifies unsupported features, new features that can benefit you after migration, and the right path for database migration.
- **Azure Database Migration Service**. Migrate on-premises databases to Azure VMs running SQL Server, Azure SQL Database, or SQL Managed Instances.
- **Azure App Service migration assistant**. Azure App Service migration assistant is a standalone tool to assess on-premises websites for migration to Azure App Service. Use Migration Assistant to migrate .NET and PHP web apps to Azure.
- **Azure Data Box**. Use Azure Data Box products to move large amounts of offline data to Azure.

Azure Data Box:

Azure Data Box is a physical migration service that helps transfer large amounts of data in a quick, inexpensive, and reliable way. The secure data transfer is accelerated by shipping you a proprietary Data Box storage device that has a maximum usable storage capacity of 80 terabytes. The Data Box is transported to and from your datacenter via a regional carrier. A rugged case protects and secures the Data Box from damage during transit.

Azure file movement options

AzCopy:

AzCopy is a command-line utility that you can use to copy blobs or files to or from your storage account. With AzCopy, you can upload files, download files, copy files between storage accounts, and even synchronize files. AzCopy can even be configured to work with other cloud providers to help move files back and forth between clouds.

Azure Storage Explorer:

Azure Storage Explorer is a standalone app that provides a graphical interface to manage files and blobs in your Azure Storage Account. It works on Windows, macOS, and Linux operating systems and uses AzCopy on the backend to perform all of the file and blob management tasks. With Storage Explorer, you can upload to Azure, download from Azure, or move between storage accounts.

Azure File Sync:

Azure File Sync is a tool that lets you centralize your file shares in Azure Files and keep the flexibility, performance, and compatibility of a Windows file server. It's almost like turning your Windows file server into a miniature content delivery network. Once you install Azure File Sync on your local Windows server, it will automatically stay bi-directionally synced with your files in Azure.

Azure directory services

Microsoft Entra ID is a directory service that enables you to sign in and access both Microsoft cloud applications and cloud applications that you develop. Microsoft Entra ID can also help you maintain your on-premises Active Directory deployment.

Microsoft Entra ID provides services such as:

- **Authentication**: This includes verifying identity to access applications and resources. It also includes providing functionality such as self-service password reset, multifactor authentication, a custom list of banned passwords, and smart lockout services.
- **Single sign-on**: Single sign-on (SSO) enables you to remember only one username and one password to access multiple applications. A single identity is tied to a user, which simplifies the security model. As users change roles or leave an organization, access modifications are tied to that identity, which greatly reduces the effort needed to change or disable accounts.
- **Application management**: You can manage your cloud and on-premises apps by using Microsoft Entra ID. Features like Application Proxy, SaaS apps, the My Apps portal, and single sign-on provide a better user experience.
- **Device management**: Along with accounts for individual people, Microsoft Entra ID supports the registration of devices. Registration enables devices to be managed through tools like Microsoft Intune. It also allows for device-based Conditional Access policies to restrict access attempts to only those coming from known devices, regardless of the requesting user account.

One method of connecting Microsoft Entra ID with your on-premises AD is using Microsoft Entra Connect. Microsoft Entra Connect synchronizes user identities between on-premises Active Directory and Microsoft Entra ID.

Microsoft Entra Domain Services:

Microsoft Entra Domain Services is a service that provides managed domain services such as domain join, group policy, lightweight directory access protocol (LDAP), and Kerberos/NTLM authentication. Just like Microsoft Entra ID lets you use directory services without having to maintain the infrastructure supporting it, with Microsoft Entra Domain Services, you get the benefit of domain services without the need to deploy, manage, and patch domain controllers (DCs) in the cloud.

Azure authentication methods:

Authentication is the process of establishing the identity of a person, service, or device.

1. Single sign-on (SSO) enables a user to sign in one time and use that credential to access multiple resources and applications from different providers. For SSO to work, the different applications and providers must trust the initial authenticator.
2. Multifactor authentication is the process of prompting a user for an extra form (or factor) of identification during the sign-in process. MFA helps protect against a password compromise in situations where the password was compromised but the second factor wasn't.
3. Microsoft Entra multifactor authentication is a Microsoft service that provides multifactor authentication capabilities. Microsoft Entra multifactor authentication enables users to choose an additional form of authentication during sign-in, such as a phone call or mobile app notification.
4. Features like MFA are a great way to secure your organization, but users often get frustrated with the additional security layer on top of having to remember their passwords. People are more likely to comply when it's easy and convenient to do so. Passwordless authentication methods are more convenient because the password is removed and replaced with something you have, plus something you are, or something you know.

Azure conditional access:

Conditional Access is a tool that Microsoft Entra ID uses to allow (or deny) access to resources based on identity signals. These signals include who the user is, where the user is, and what device the user is requesting access from.

Conditional Access helps IT administrators:

- Empower users to be productive wherever and whenever.
- Protect the organization's assets.

Microsoft Purview:

Microsoft Purview is a family of data governance, risk, and compliance solutions that helps you get a single, unified view into your data. Microsoft Purview brings insights about your on-premises, multicloud, and software-as-a-service data together.

Two main solution areas comprise Microsoft Purview: **risk and compliance** and **unified data governance**.

Azure Policy is a service in Azure that enables you to create, assign, and manage policies that control or audit your resources.

An Azure Policy initiative is a way of grouping related policies together. The initiative definition contains all of the policy definitions to help track your compliance state for a larger goal.

A resource lock prevents resources from being accidentally deleted or changed.

Types of Resource Locks

There are two types of resource locks, one that prevents users from deleting and one that prevents users from changing or deleting a resource.

- Delete means authorized users can still read and modify a resource, but they can't delete the resource.
- ReadOnly means authorized users can read a resource, but they can't delete or update the resource. Applying this lock is similar to restricting all authorized users to the permissions granted by the Reader role.

The Microsoft Service Trust Portal is a portal that provides access to various content, tools, and other resources about Microsoft security, privacy, and compliance practices.

Azure Advisor:

Azure Advisor evaluates your Azure resources and makes recommendations to help improve reliability, security, and performance, achieve operational excellence, and reduce costs.

Azure Monitor:

Azure Monitor is a platform for collecting data on your resources, analysing that data, visualizing the information, and even acting on the results. Azure Monitor can monitor Azure resources, you're on-premises resources, and even multi-cloud resources like virtual machines hosted with a different cloud provider.

- Azure Log Analytics is the tool in the Azure portal where you'll write and run log queries on the data gathered by Azure Monitor.
- Azure Monitor Alerts are an automated way to stay informed when Azure Monitor detects a threshold being crossed. You set the alert conditions, the notification actions, and then Azure Monitor Alerts notifies when an alert is triggered.
- Application Insights, an Azure Monitor feature, monitors your web applications. Application Insights is capable of monitoring applications that are running in Azure, on-premises, or in a different cloud environment.
-