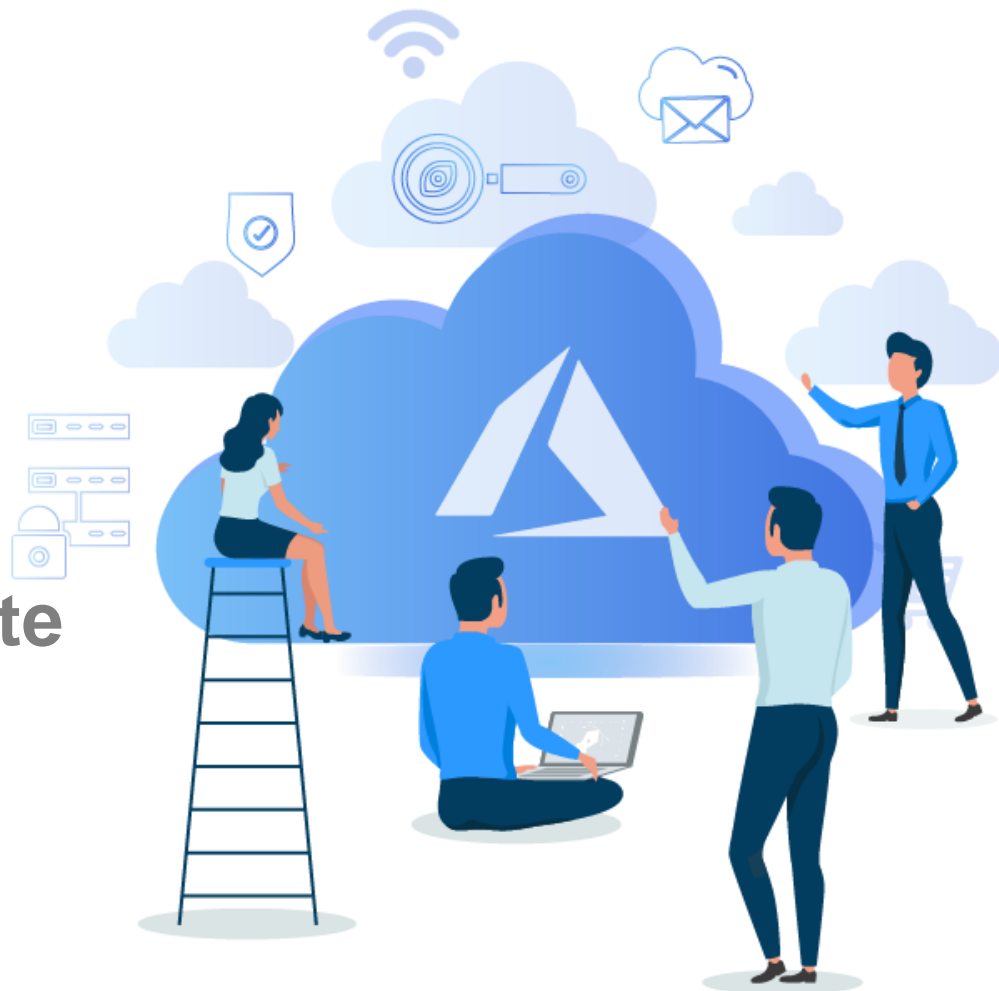




Microsoft Azure Administrator Associate Training (AZ-104)

Module 2



Agenda

01

Azure Subscriptions
and Resource Groups

02

Azure Resource
Manager

03

Managing Azure
Resources

04

Azure Tags

05

Introduction to
Microsoft Azure
Storage

06

Types of Azure
Storage Accounts

07

Azure Storage
Replication

08

Azure Storage
Replication Options

09

Azure Blob Storage

10

Azure CDN

11

Azure File Storage

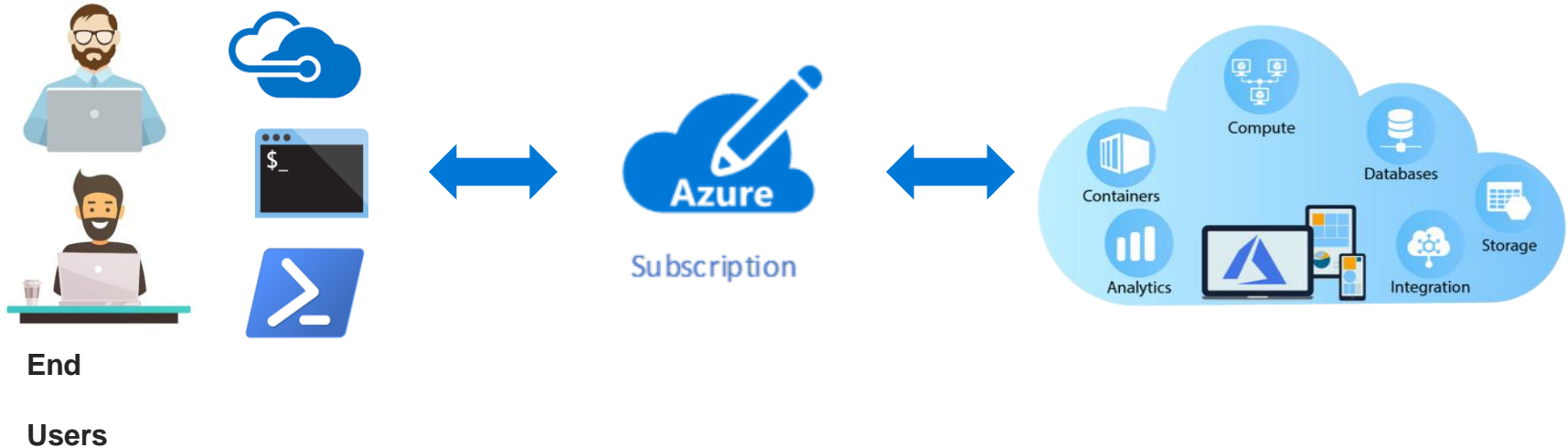
12

Azure File Sync

Azure Subscriptions and Resource Groups

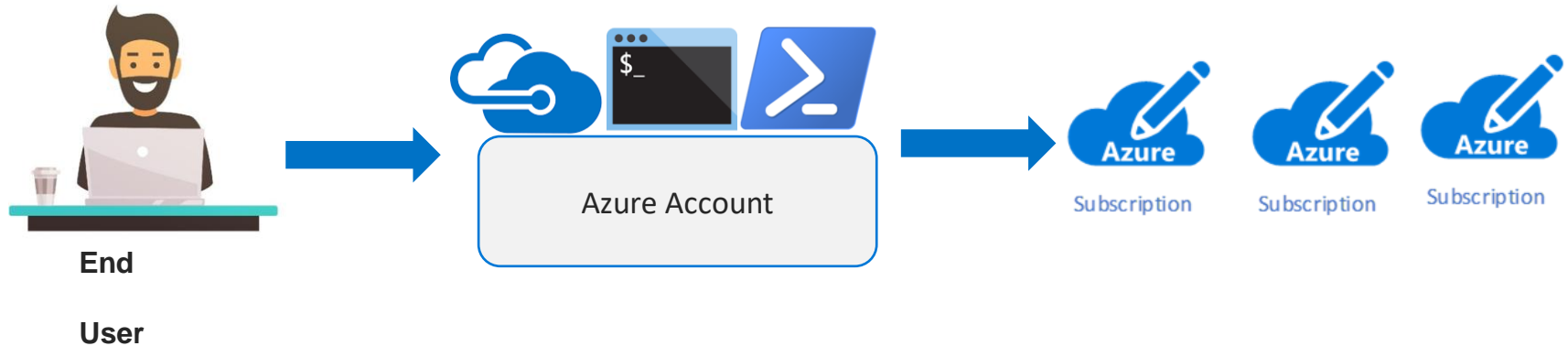
Azure Subscriptions

Azure subscription is an active agreement between Microsoft and its users. This agreement provides users the needed access to avail the services and resources offered by Microsoft Azure



Azure Subscriptions

An azure account can be associated with multiple subscriptions for separate billings based on user defined criteria



Azure Resource Groups

A resource group in Azure is simply a collection of related Azure assets or Azure services that belong to an application or workload together



01

- The diagram shows that a user has created a resource group for the LOB application, for all the Azure services that belong to this application

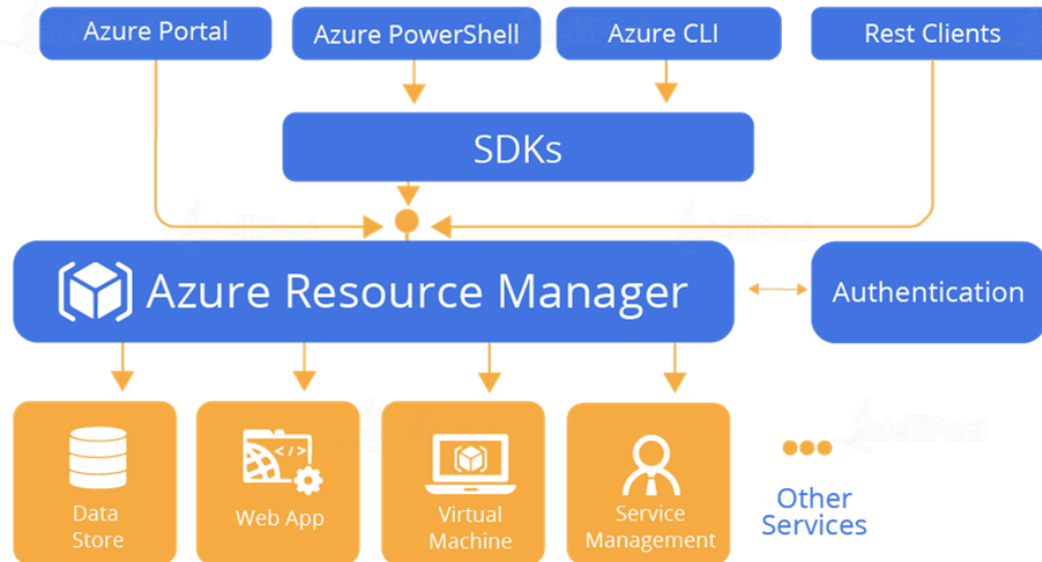
02

- Then, there is an IaaS workload resource group that contains a pair of virtual machines contained in a virtual network with a MySQL database for data

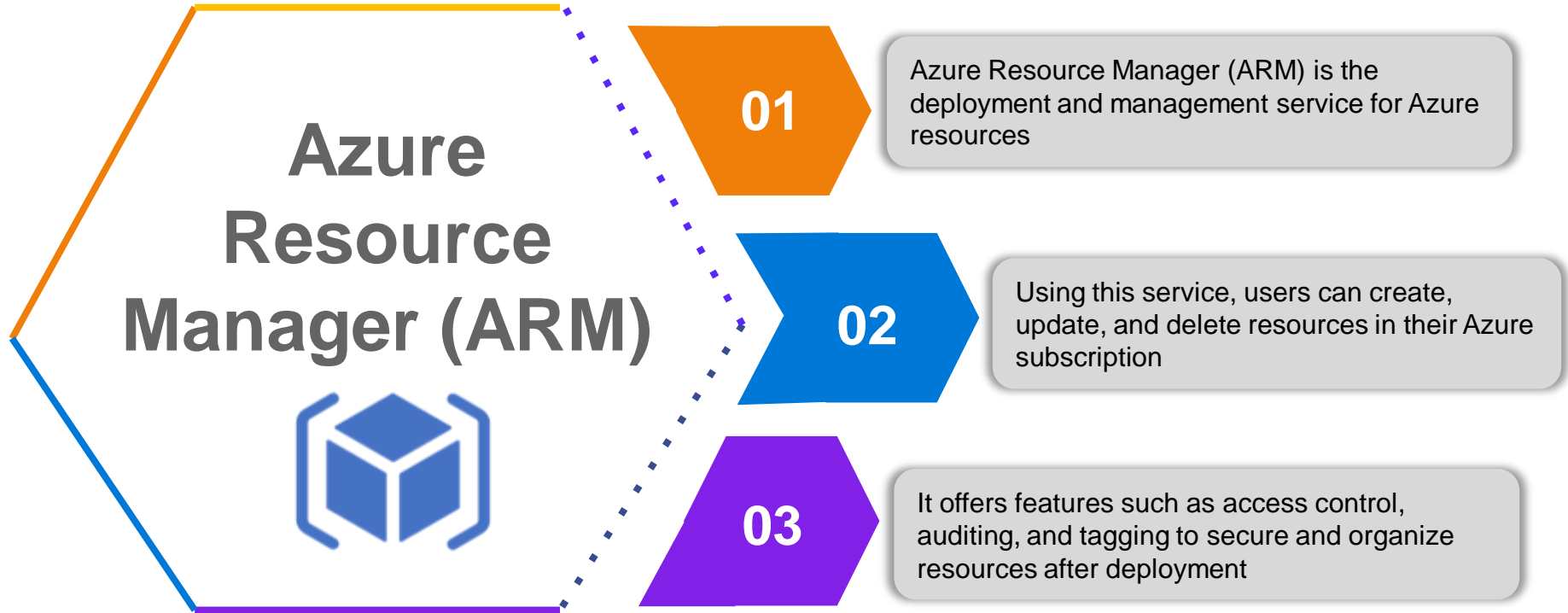
Understanding Azure Resource Manager

Understanding Azure Resource Manager

When any tool is used to take actions on Azure resources, the Azure Resource Manager API handles that request. The API passes the request to the Resource Manager, which authenticates and authorizes it. The Resource Manager then routes the request to the appropriate service



Understanding Azure Resource Manager



Hands-on: Managing Resource Groups

1. Create an Azure resource group

a) Deploy a web app in the first resource group

2. Manage Azure resources

a) Move the web app from first resource group to the second

Azure Tags

Tags are used for the purpose of organizing our Azure resources. Each tag consists of two components:

Name

Value

Example: The name 'Dept' and the value 'Finance' can be applied to all the resources in finance

Once the tag is applied, we will be able to segregate the related resources in our subscription into different resource groups. This is useful while doing billing and management

Hands-on: Applying Tags

- 1. Create a Storage account and a Web Application**
 - a) Assign individual tags to both the resources**
- 2. Change the tag in the Resource group**
 - a) View all the resources under that tag**

Benefits of Microsoft Azure Storage

Benefits of Azure Storage

Security

Azure provides top-notch security as data stored or written in Azure Storage is encrypted. Azure Storage offers full control over who can and cannot access our data

Accessibility

Scalability

High availability



Benefits of Azure Storage

Security

Accessibility

Scalability

High availability

The data stored in Microsoft Azure Storage is made accessible over HTTP or HTTPS from anywhere in the world



Benefits of Azure Storage

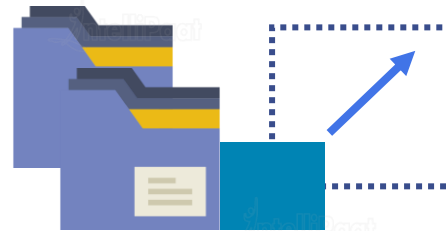
Security

Accessibility

Scalability

High availability

Azure Storage is highly scalable in order to meet the on-demand requirements of modern applications



Benefits of Azure Storage

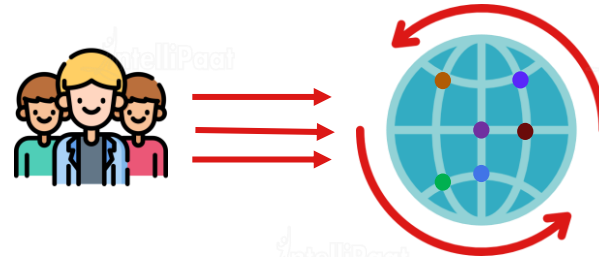
Security

Accessibility

Scalability

High availability

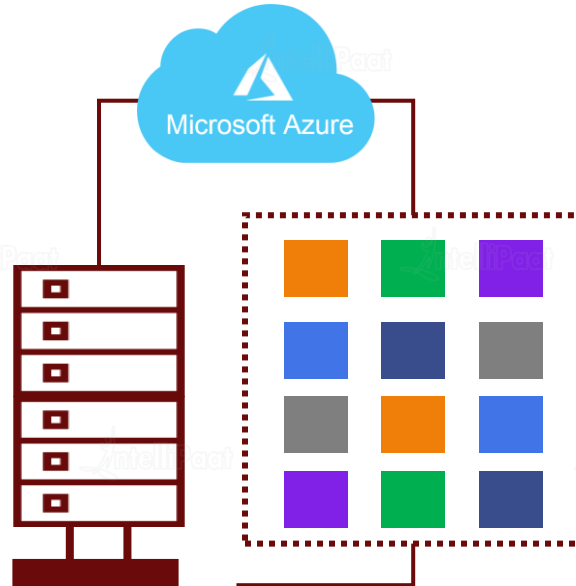
Users are given the option of replicating their data across multiple data centers so that the data stays available even in the event of outages



Introduction to Microsoft Azure Storage

Microsoft Azure Storage

Microsoft Azure Storage is an umbrella term that represents a suite of cloud-based, highly available and durable storage services that are fully managed by Microsoft and curated for modern-day data storage scenarios



Microsoft Azure Storage

Microsoft Azure Storage is an umbrella term that represents a suite of cloud-based, highly available and durable storage services that are fully managed by Microsoft and curated for modern-day data storage scenarios

This suite of cloud-based Microsoft-managed storage services mainly comprises four types of storage services in Azure:



**Azure Blob
Storage**



**Azure Table
Storage**



**Azure Queue
Storage**



**Azure File
Storage**

Overview of Azure Storage Account

What is Azure Storage Account?

In order to use any type of Azure Storage, we need to create an account first, which is referred to as an Azure storage account



Using this account, we can manage and access the storage resources



All our storage data, including blobs, files, queues, and tables, resides in our storage account



The storage account provides a unique namespace for our storage data that is accessible from anywhere over HTTP and HTTPS

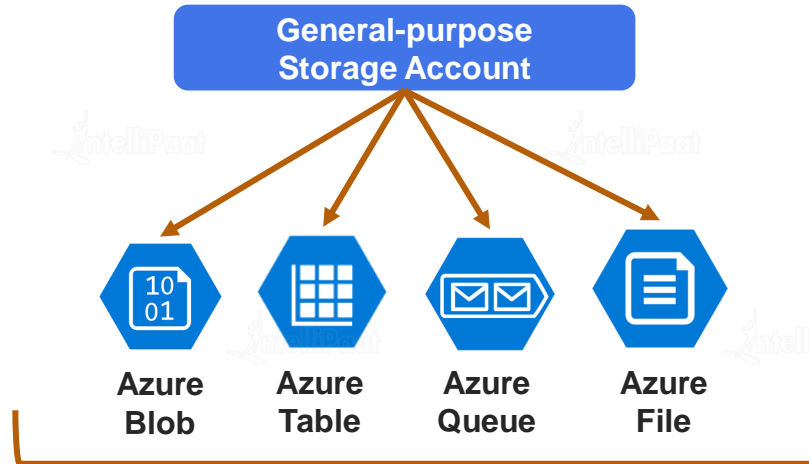


Types of Azure Storage Accounts

General-purpose Storage Account

Microsoft offers multiple types of storage accounts, each capable of handling different types of storage data

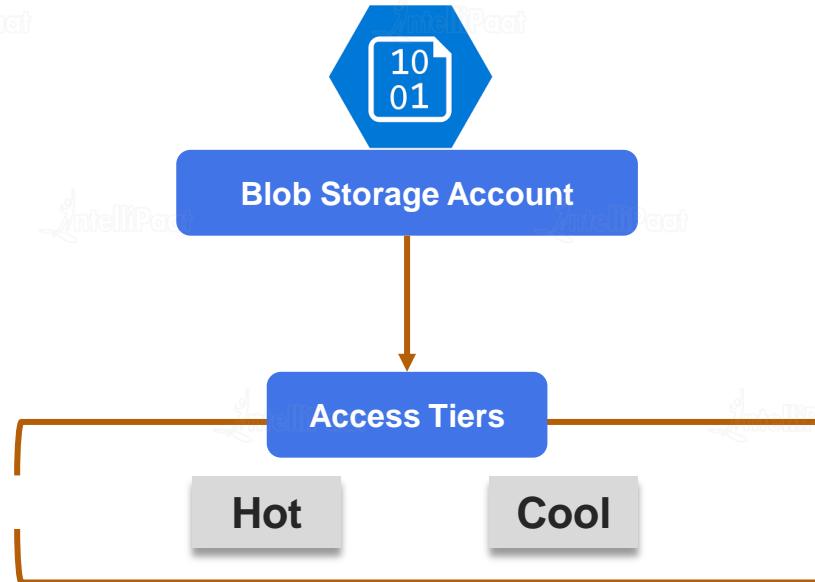
The General-purpose Storage account, as the name suggests, is a storage account that can store any type of storage data in general such as object data, NoSQL, queues, or files



Blob Storage Account

Microsoft offers multiple types of storage accounts, each capable of handling different types of storage data

As the name suggests, this is the **Blob-only** storage account. Blob storage accounts also let us choose the access tier that suits us the best



Access Tiers

Access tier is an option provided by the Blob storage account that can be used to optimize the costs for using Azure storage based on how frequently the stored data is accessed. The access tier can be changed at any time by the user



Hot

The hot tier is typically used for storing data that is accessed regularly. This access tier provides low latency, and hence it's comparatively more expensive than the cool tier



Cool

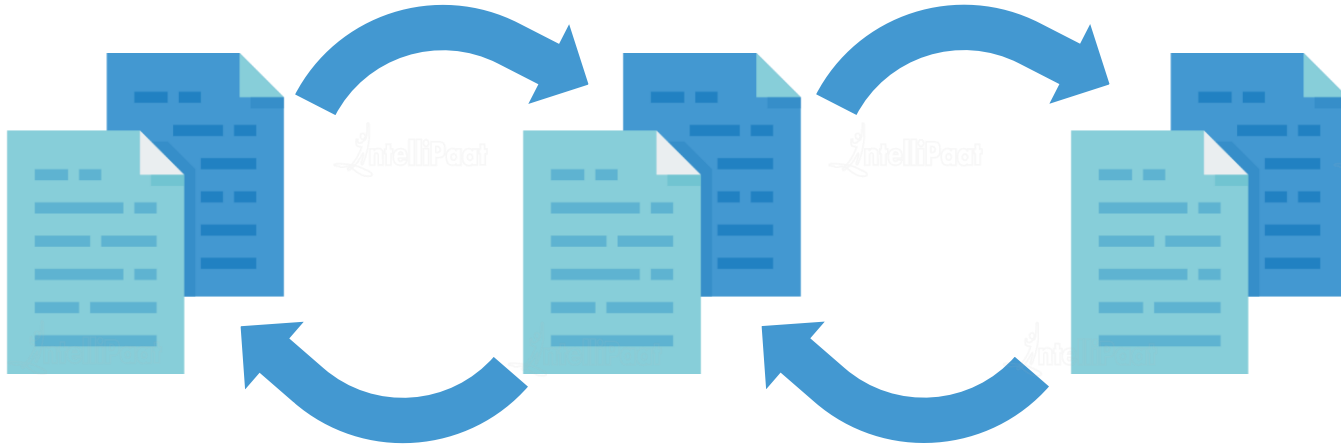
The cool tier is used to store less-accessed data or archived data. It provides higher latency than the hot tier. Hence, it's best suited for data that is not accessed frequently

Azure Storage Replication

Why Azure Storage Replication?

Why Azure Storage Replication?

Storage Replication ensures that we always have access to our data stored on Azure Storage even in the face of failures. Replication is how Azure Storage guarantees durability and availability



What is Azure Storage Replication?

What is Azure Storage Replication?



The data in our Microsoft Azure Storage account is always replicated to ensure durability and high availability

Azure Storage copies our data so that it is protected from planned and unplanned events, including hardware failures, network/power outages, and massive natural disasters

We can choose to replicate our data within the same data center, across zonal data centers within the same region, or across geographically separated regions

Data Replication Options

Data Replication Options

**Locally Redundant
Storage (LRS)**

**Zone-redundant Storage
(ZRS)**

**Geo-redundant Storage
(GRS)**

**Read-access
Geo-redundant Storage
(RA-GRS)**

Replicates three copies of our data within the same data center where we have our data



Data Replication Options

**Locally Redundant
Storage (LRS)**

**Zone-redundant Storage
(ZRS)**

**Geo-redundant Storage
(GRS)**

**Read-access
Geo-redundant Storage
(RA-GRS)**

Replicates our data synchronously across three storage clusters in a single region



Data Replication Options

**Locally Redundant
Storage (LRS)**

**Zone-redundant Storage
(ZRS)**

**Geo-redundant Storage
(GRS)**

**Read-access
Geo-redundant Storage
(RA-GRS)**

Replicates our data to a secondary region that is hundreds of miles away from the primary region



Data Replication Options

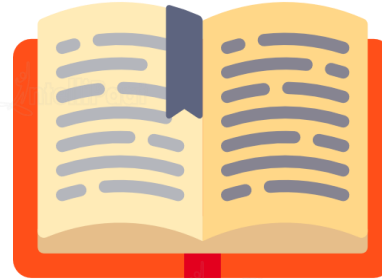
**Locally Redundant
Storage (LRS)**

**Zone-redundant Storage
(ZRS)**

**Geo-redundant Storage
(GRS)**

**Read-access
Geo-redundant Storage
(RA-GRS)**

Provides a read-only access to the data in the secondary location



Hands-on: Creating a Storage Account

1. Creating a Storage account

a) Go to the Storage account resource and Create a new storage account

Hands-on: Accessing a Storage Account Using Azure Portal

- 1. Access the azure portal to go to the Storage accounts**
 - a) View all the storage accounts that have been deployed**

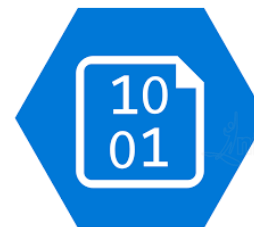
Azure Blob Storage

Why Blob Storage?

Why Blob Storage?

Blob storages are usually used to store large binary files such as audio, video, text, etc.

- ✓ Can be used to store data for archiving, backups, or restoring
- ✓ Can be used to serve images/documents directly to a given browser
- ✓ Can be used for writing log files



Azure Blob

What is Azure Blob Storage?

What is Azure Blob Storage?

Azure Blob Storage is Microsoft's object storage solution. Azure Blob is used to store unstructured data, i.e., it can be used to store data of any format such as document, video files, audio files, and more

- ✓ 'Blob' is an abbreviation of 'Binary Large Objects'
- ✓ Stores data of any format for distributed access



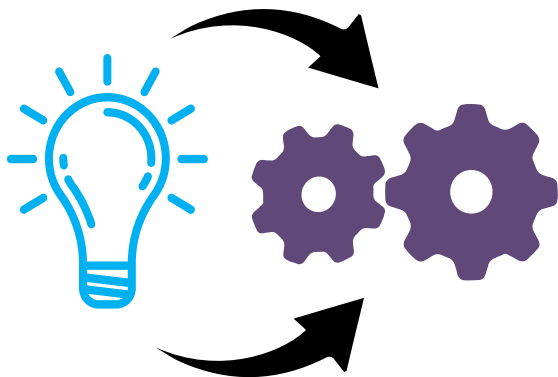
Azure Blob

Hands-on: Creating and Configuring Azure Blob Storage

- 1. Go to Storage Accounts on Azure Portal**
 - a) Create a new Blob Service and Configure it**

Azure CDN

Content Delivery Network (CDN) provides alternative server nodes for users to download resources (usually the static content such as images). These nodes are spread throughout the world.



01

Azure CDN is a global CDN solution for delivering high-bandwidth content

02

We can cache static objects loaded from Azure Blob Storage by using the closest point-of-presence (POP) server

03

Azure CDN can also accelerate dynamic content, which cannot be cached, by leveraging various network and routing optimizations

Hands-on: Implementing Azure CDN

1. Create a CDN Profile

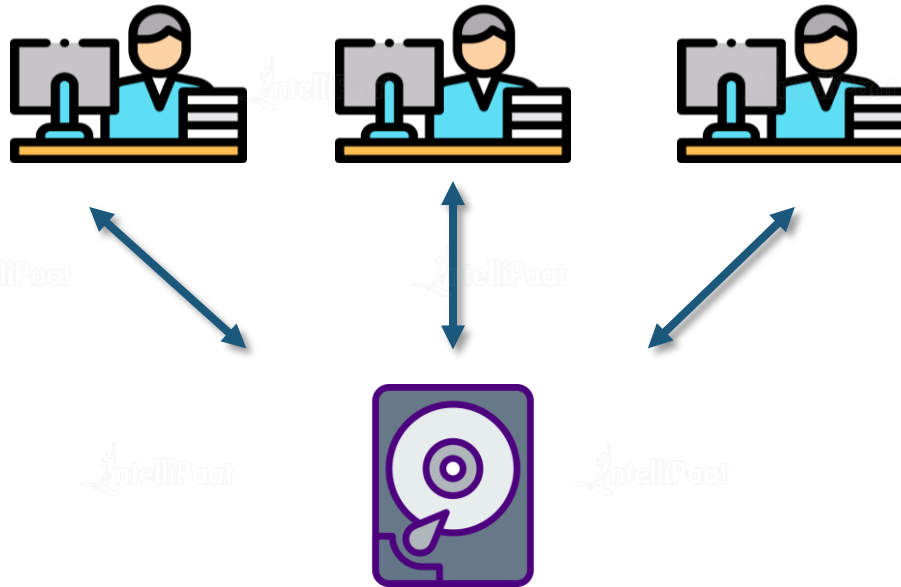
a) Assign it to a blob storage link



Azure File Storage

Why Azure File Storage?

Why Azure File Storage?



Azure File Storage is used when we want to share a common storage mount point among multiple computers

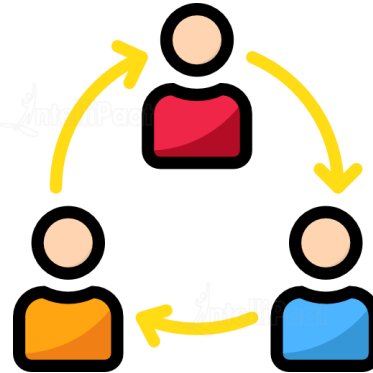
Why Azure File Storage?

**Shared application
settings**

Diagnostic share

Dev./Test/Debug

We can store configuration files in a centralized location where they can be accessed from many application instances via the File Rest API or SMB



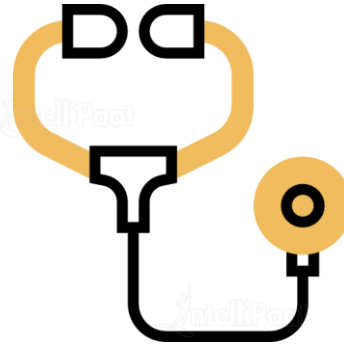
Why Azure File Storage?

Shared application settings

Diagnostic share

Dev./Test/Debug

We can have applications store their logs, metrics, and crash dumps in a file share



Why Azure File Storage?

**Shared application
settings**

Diagnostic share

Dev./Test/Debug

Azure File Storage can be used to store commonly used tools and utilities, which can then be accessed by developers and administrators



What is Azure File Storage?

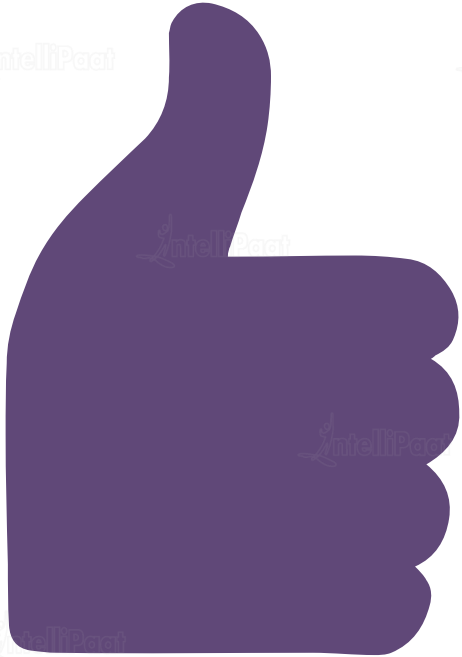
What is Azure File Storage?

Azure File Storage is a cloud service that offers fully managed file shares in the cloud that are accessible via the Server Message Block (SMB) protocol. Azure file shares can be mounted concurrently by cloud or on-premises deployments of Windows, Linux, and macOS



Benefits of Azure File Storage

Benefits of Azure File Storage



Shared access: Since Azure file shares support the SMB protocol, we can easily replace our on-premises file shares with Azure file shares



Fully managed: File shares can be created without the need to manage hardware or an OS



Resiliency: Azure files are extremely reliable and fault tolerant

Hands-on: Creating Azure File Share

- 1. Go to the Azure Portal and Create a Storage Account**
- 2. Under Services, Select File and Add a File Share**

Hands-on: Connecting to Azure File Share Using Windows PC

1. Deploy a Fileshare service in Storage Account

a) Connect to a Local Windows Machine or a Windows Virtual Machine

2. Upload a file to check if it is being reflected in the new drive as well as the Fileshare on Azure Portal

Hands-on: Connecting to Azure File Share Using Linux PC

1. Deploy a Fileshare service in Storage Account

a) Connect to a Local Linux Machine or a Linux Virtual Machine

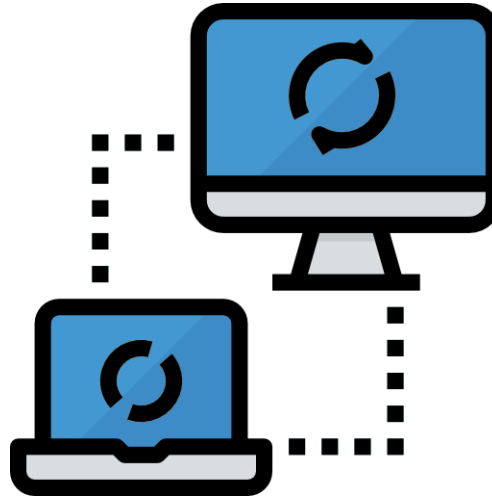
2. Upload a file to check if it is being reflected in the new drive as well as the Fileshare on Azure Portal

Azure File Sync

Why Azure File Sync?

Why Azure File Sync?

Azure File Sync allows the synchronization of on-premises file servers with Azure Files supported by Storage Accounts



What is Azure File Sync?

What is Azure File Sync?



Azure File Sync provides on-premises users and applications with quicker access to cloud files

It is powered by local caches and it continually synchronizes with Windows Server

This helps organizations with multiple sites centralize their files onto a single shared server or VM



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