Microsoft Azure Administrator Associate Training (AZ-104)

Module 2

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02 Azure Resource Manager

03 Managing Azure Resources

04 Azure Tags

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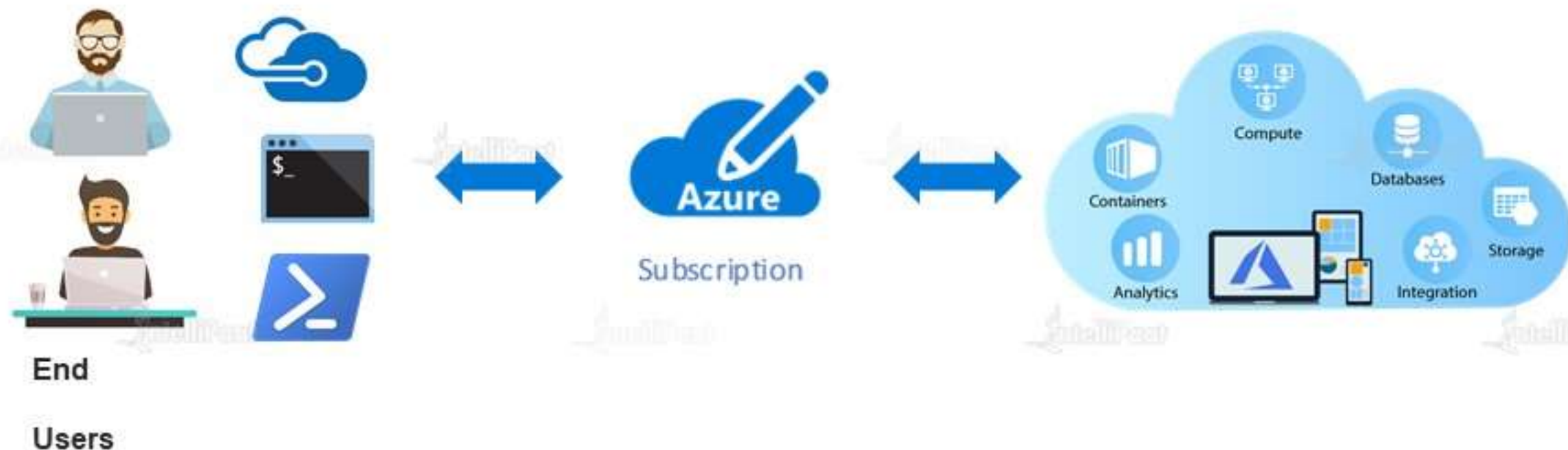
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# Azure Subscriptions and Resource Groups

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

End

Users

Subscription

Azure Subscriptions

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

End

User

Azure Account

Subscription   Subscription   Subscription
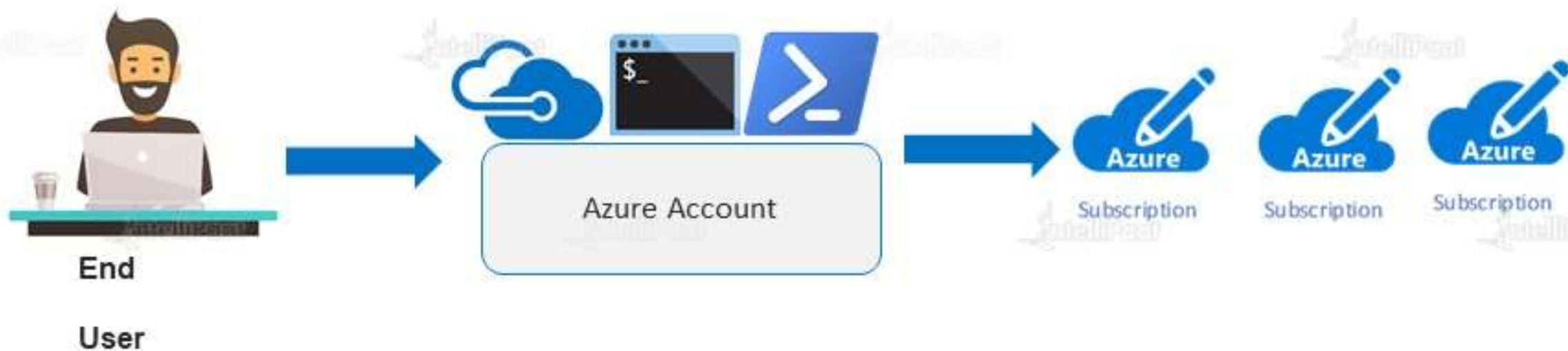
Azure Resource Groups

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

Resource Group

LOB App

Resource Group

IaaS Workload

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
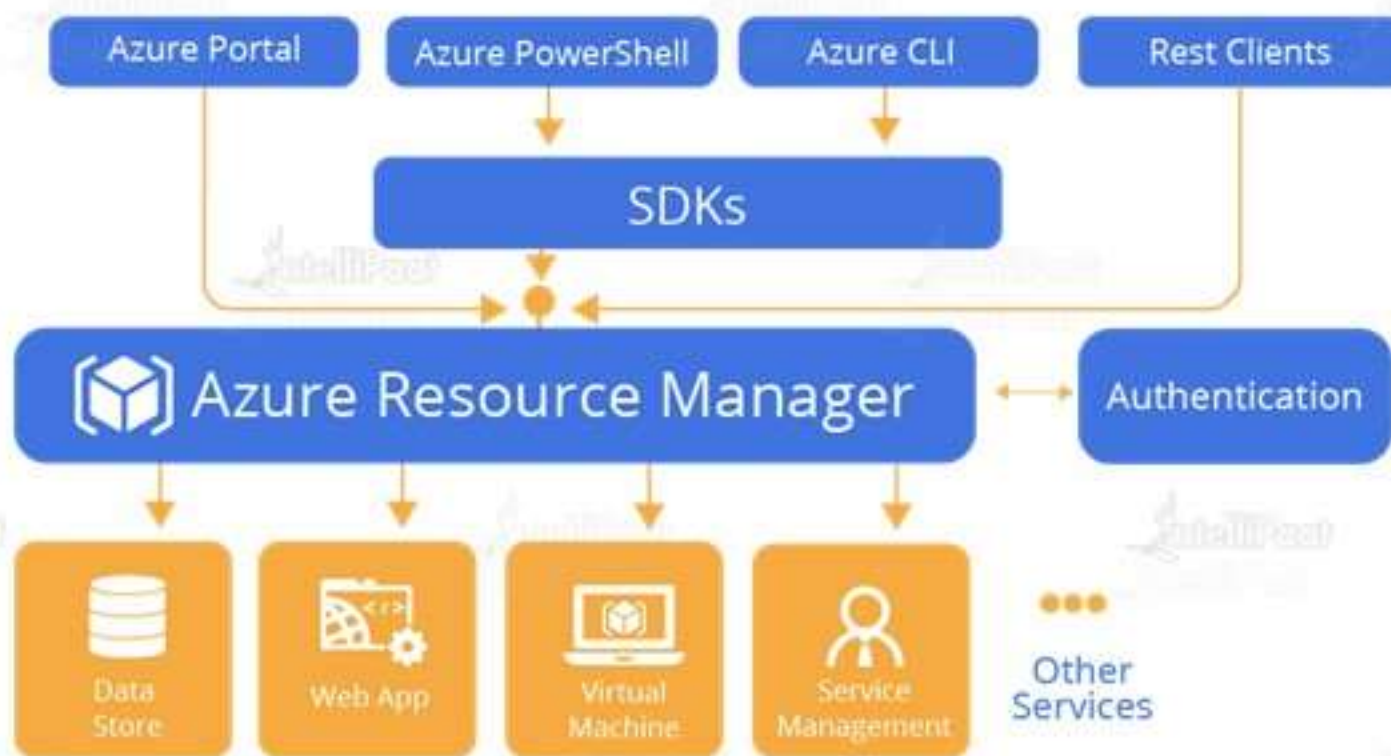
02

- 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

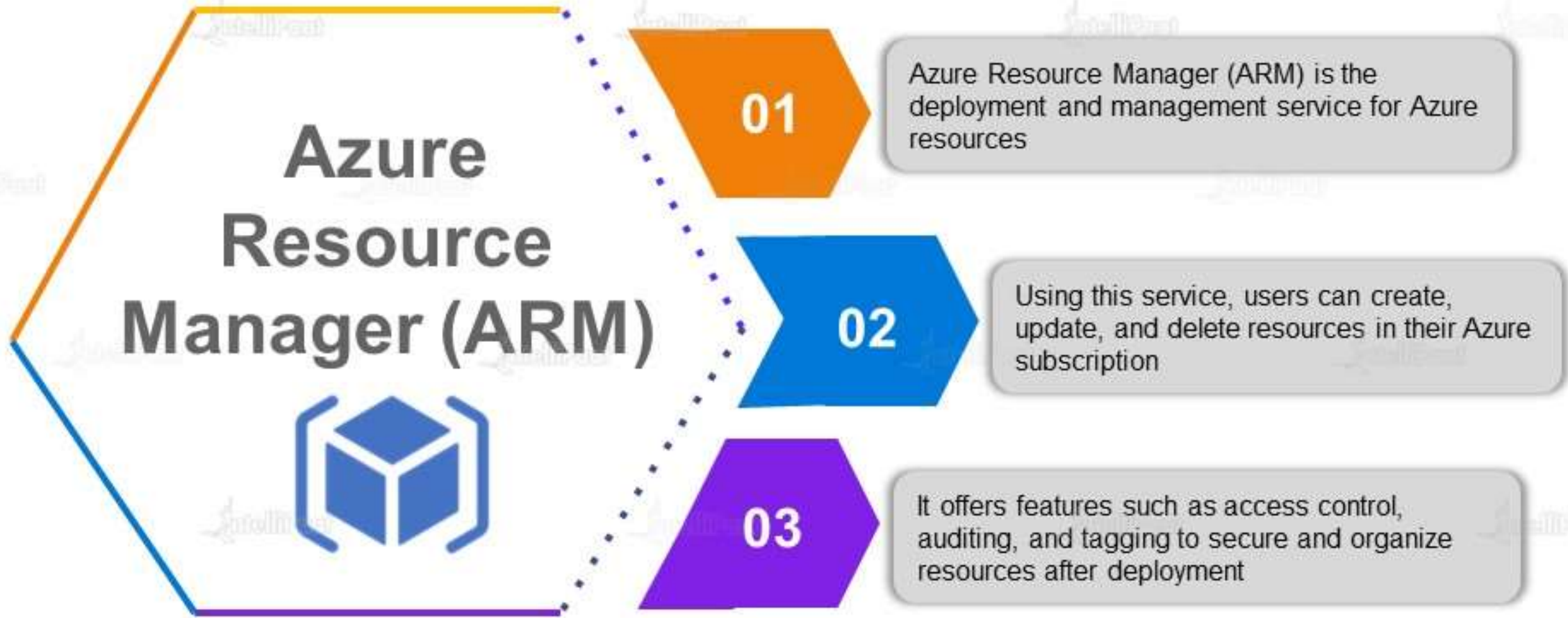# Understanding Azure Resource Manager

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

Azure Resource Manager (ARM)

01 Azure Resource Manager (ARM) is the deployment and management service for Azure resources

02 Using this service, users can create, update, and delete resources in their Azure subscription

03 It offers features such as access control, auditing, and tagging to secure and organize resources after deployment

Hands-on: Managing Resource Groups

Hands-on

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

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

Hands-on

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

Accessibility

Scalability

High availability

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

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
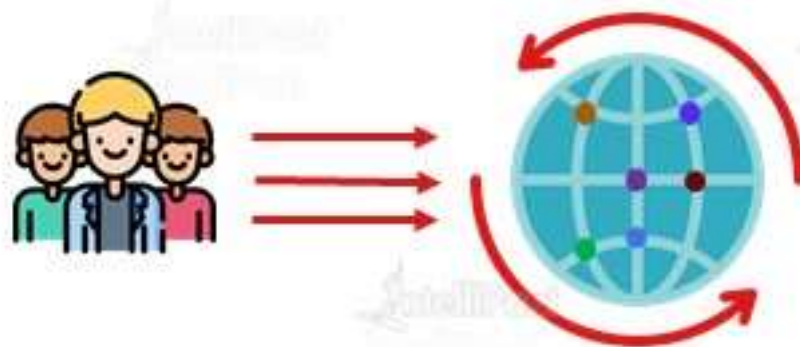
Benefits of Azure Storage

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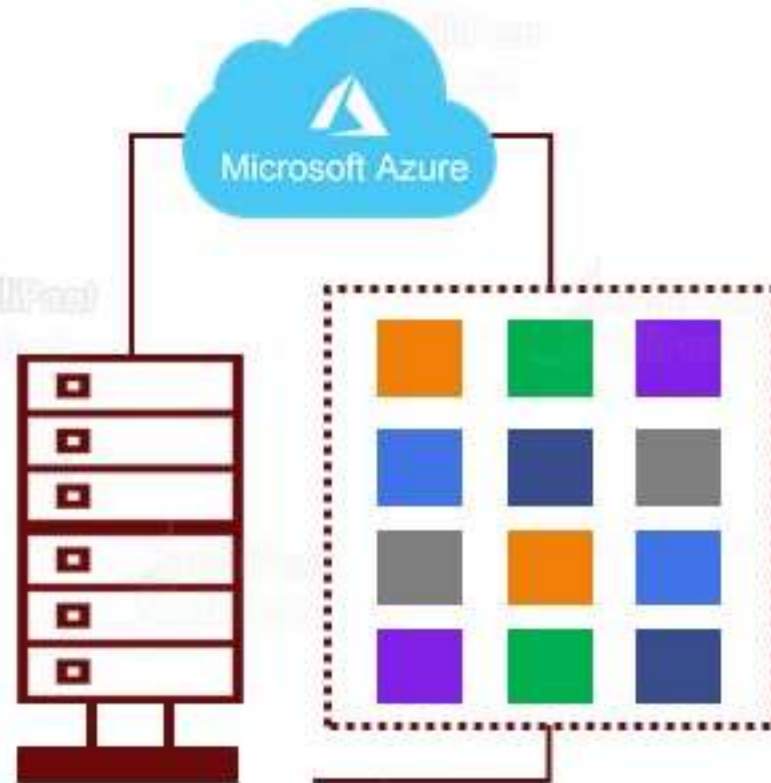
Microsoft Azure Storage is an umbrella term that represents a suite of cloud-based, highly available and durable storage services that are fully managed by Microsoft and curated for modern-day data storage scenarios

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
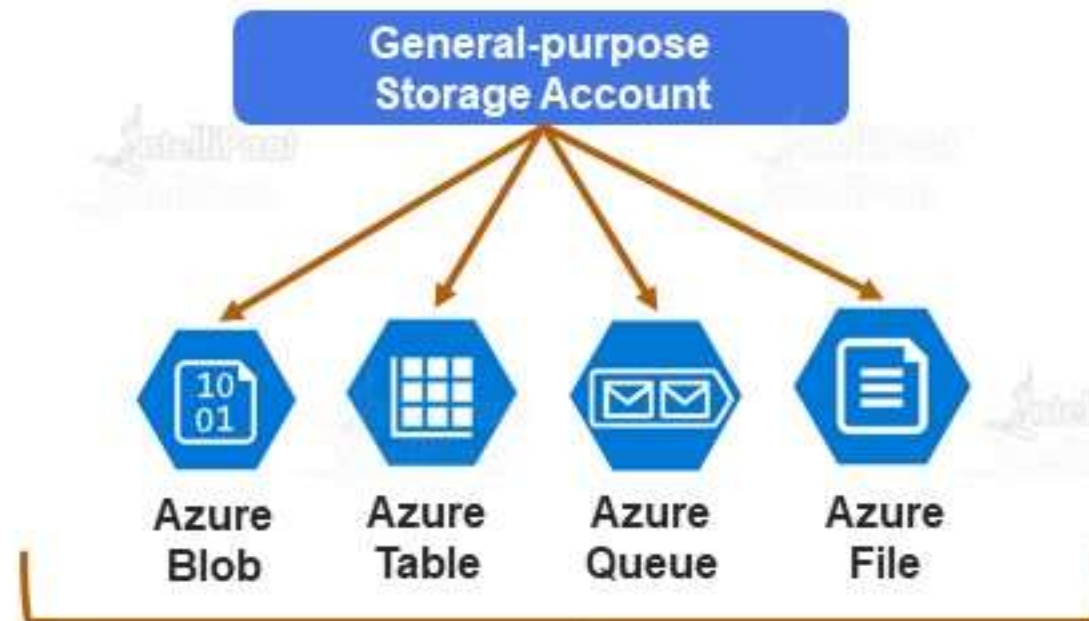
Types of Azure Storage Accounts

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

General-purpose
Storage Account

Azure
Blob

Azure
Table

Azure
Queue

Azure
File

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

10
01

Blob Storage Account

Access Tiers

Hot   Cool
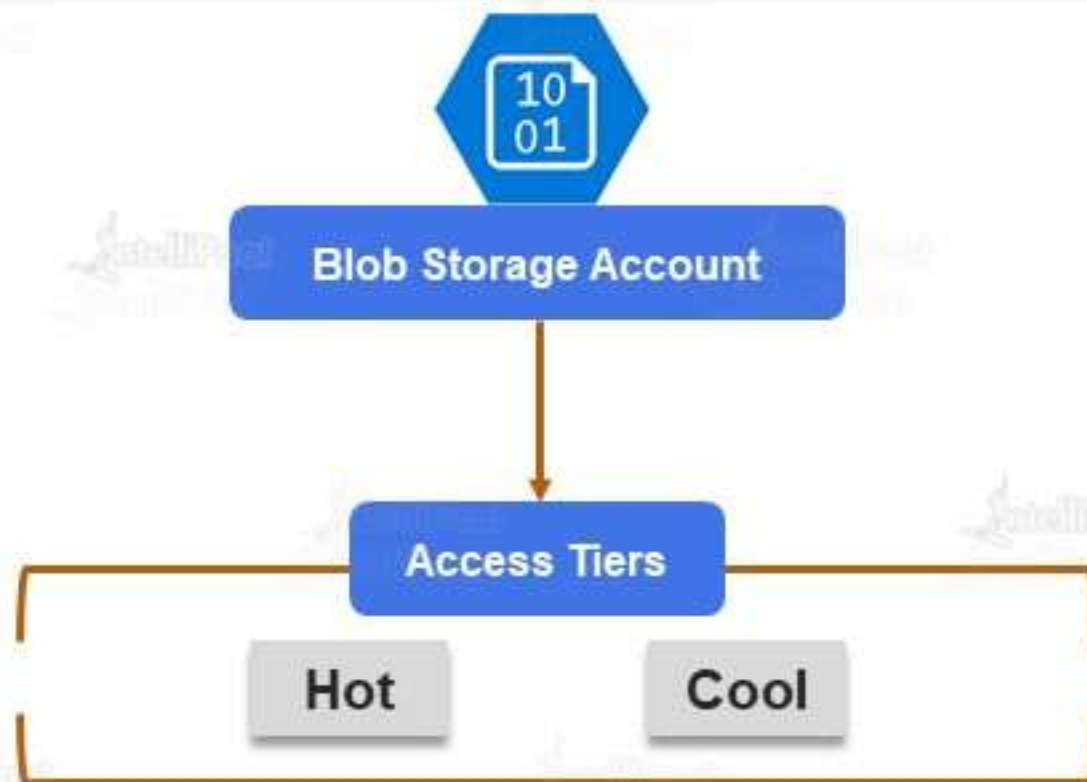
Access Tiers

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
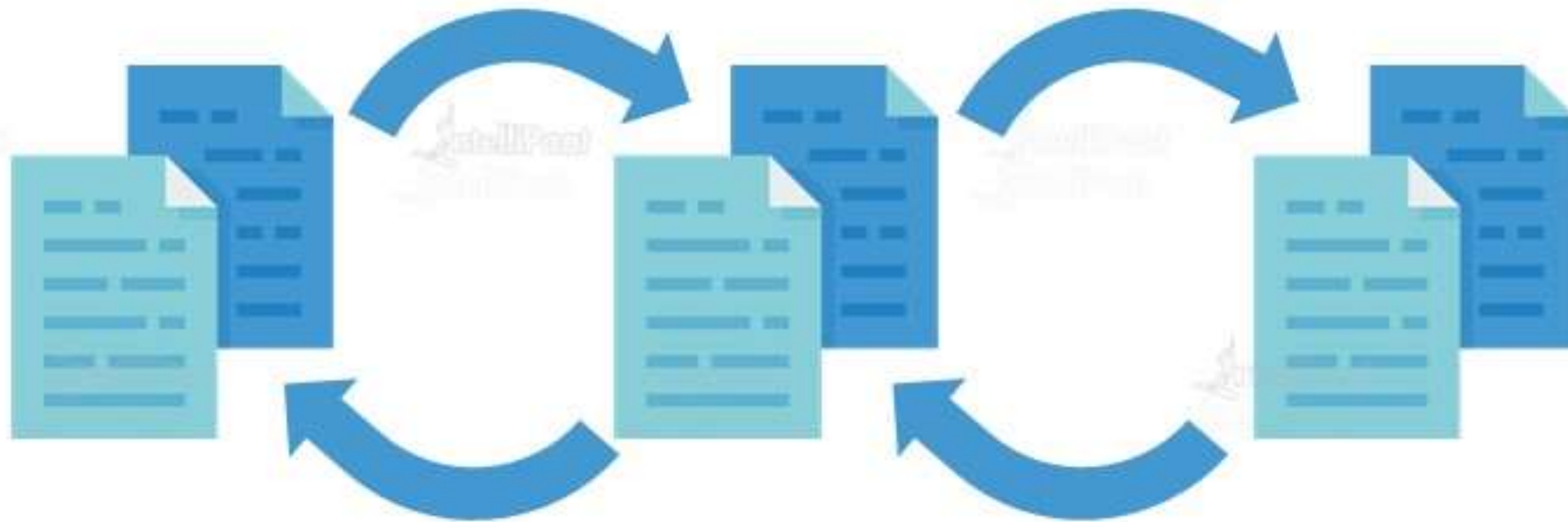
What is Azure Storage Replication?

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

Hands-on

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

Hands-on

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

Hands-on

1. Go to Storage Accounts on Azure Portal

   a) Create a new Blob Service and Configure it

Azure CDN

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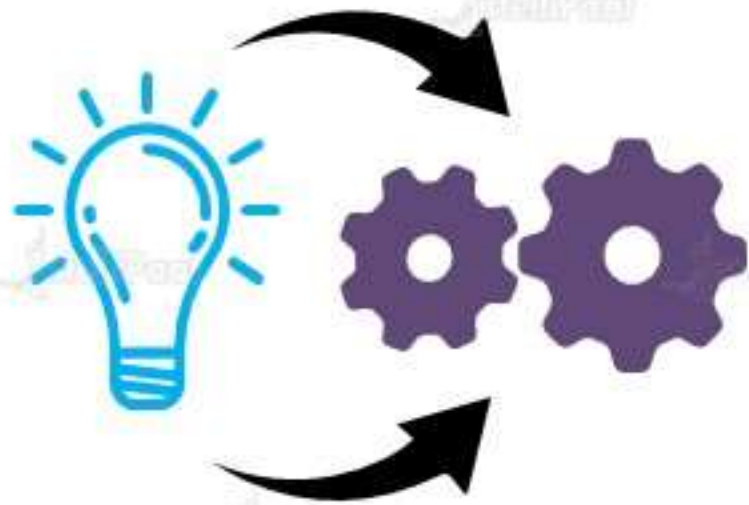
01 Azure CDN is a global CDN solution for delivering high-bandwidth content

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

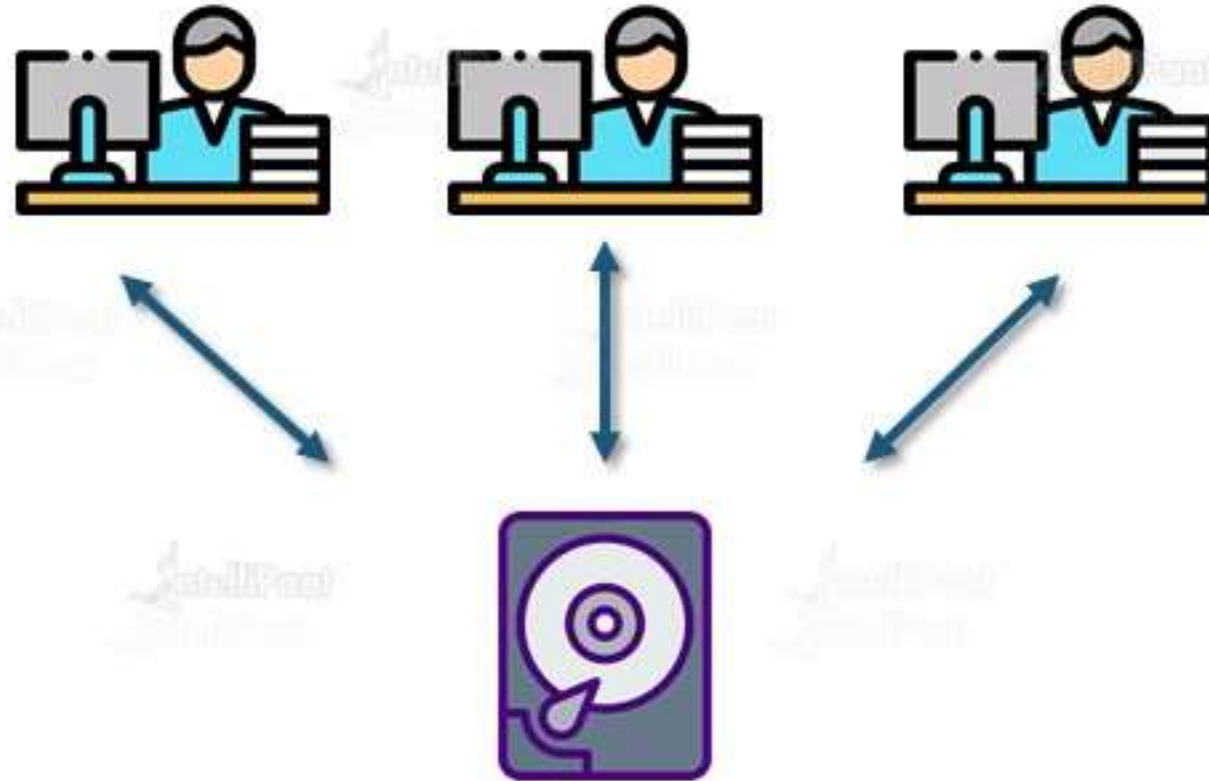# Hands-on: Implementing Azure CDN

Hands-on

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
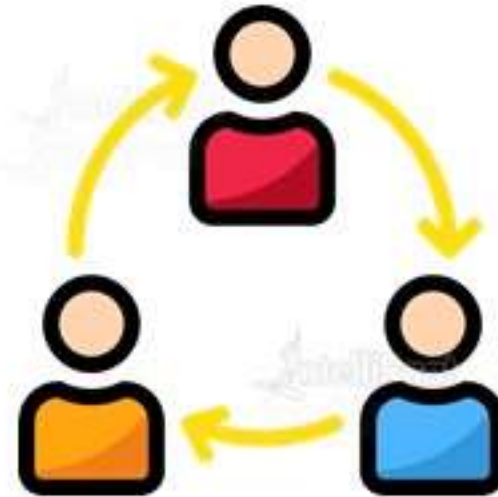
Why Azure File Storage?

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
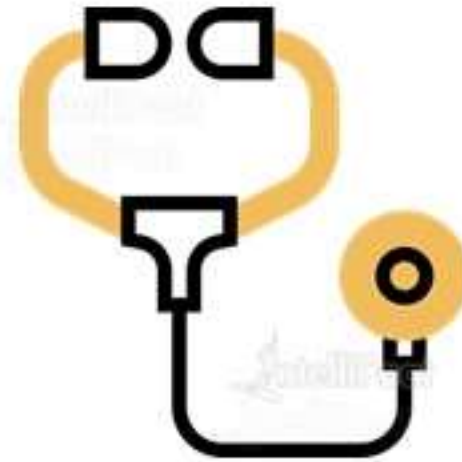
Why Azure File Storage?

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

Hands-on

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

Hands-on

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

Hands-on

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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