



Microsoft Azure Administrator Associate Training (AZ-104)

Module 1



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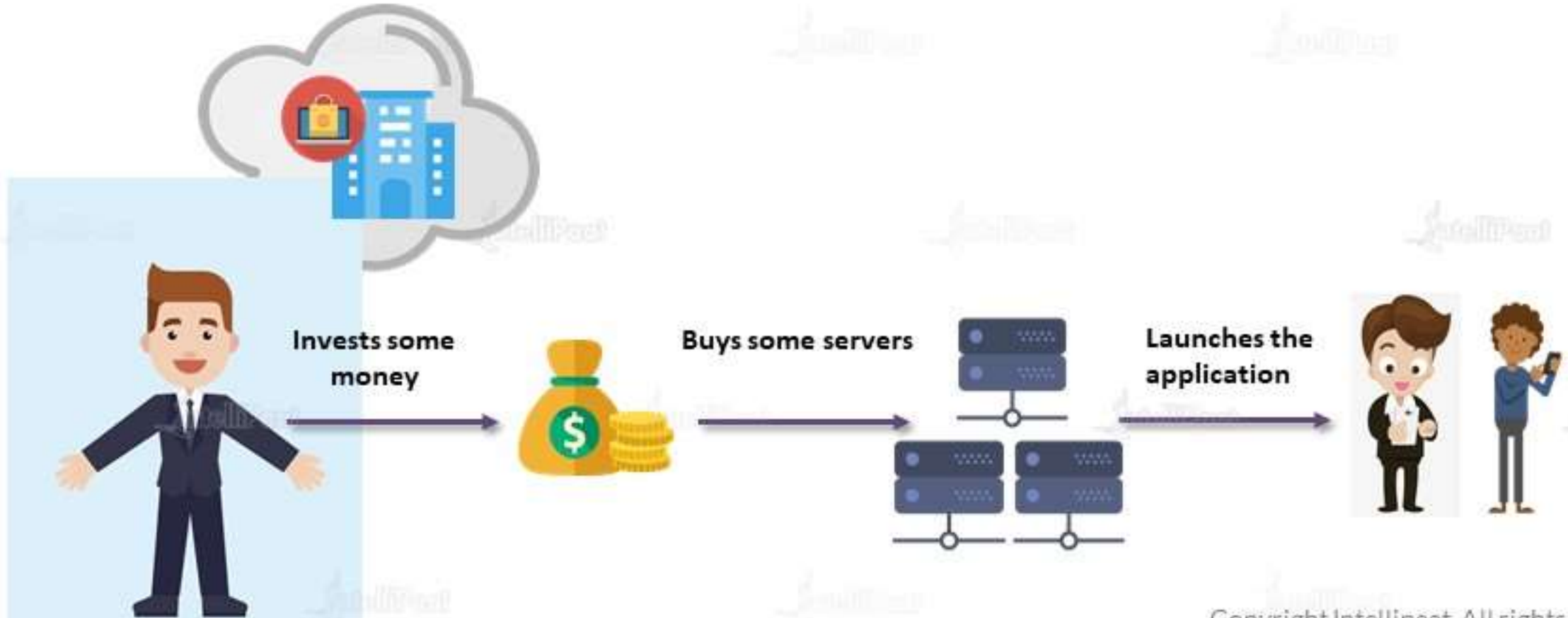
Quiz

Introduction to Cloud Computing

Why Cloud Computing ?

Before Cloud Computing

Before cloud computing came in, The companies used to invest some money to be able to buy some servers and then launch the application.



Before Cloud Computing

Now, as the application gains popularity, the user database will further increase. To deal with this, the company invest more money to buy more servers. However, the increase in load might cause your servers to crash.



**Buys some more
servers**



Back to use



Before Cloud Computing

The company then hires a maintenance team to fix the broken servers. However, it is an expensive option which will have to be implemented each time the server breaks down.



Maintenance
team

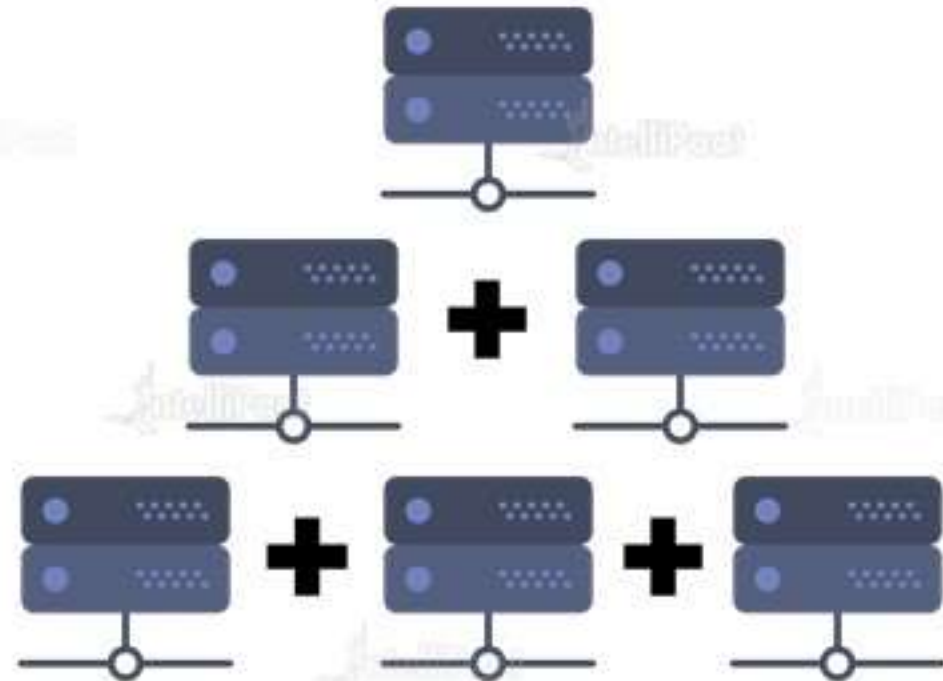


Fixes the
servers

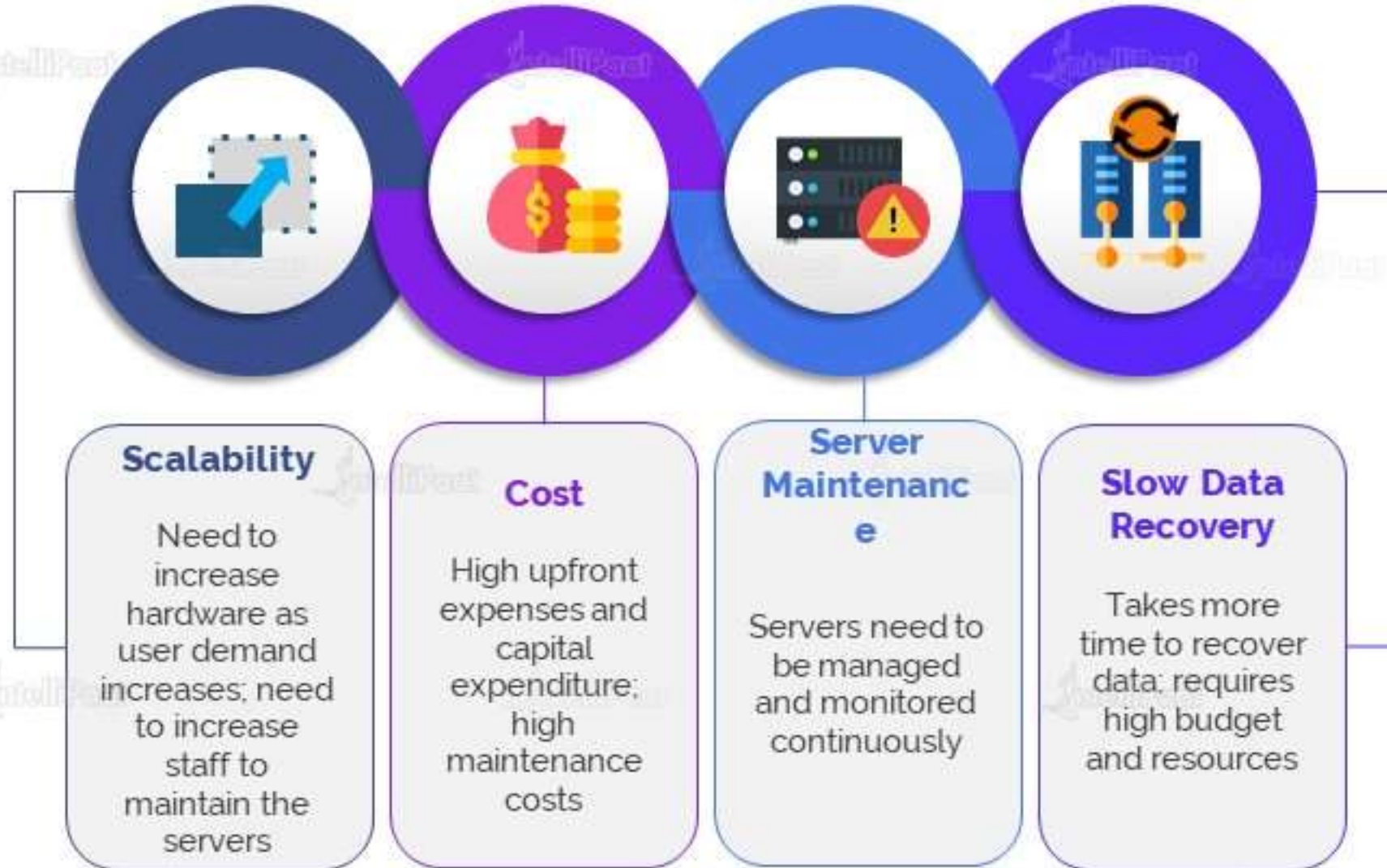


Before Cloud Computing

There is another scenario, where the traffic may decrease with time. This poses a problem to the extra servers that were bought earlier. However, keeping the extra servers also mean maintaining them regularly adds to your billing.



Before Cloud Computing



After Cloud Computing



What is Cloud Computing?

What is Cloud Computing?

Cloud Computing is the delivery of computing services—such as servers, storage, databases, networking, software, analytics, intelligence, and more—over the Internet to offer faster innovation, flexible resources, and the economies of scale



What is Cloud Computing?

Cloud Computing is the use of various computing services on a Pay-As-You-Go model via the internet



Types of Cloud Models

Types of Cloud Models

Cloud models are basically different business models adopted by a cloud provider.
They operate on two models – Service Models and Deployment Models



Types of Cloud Models: Service Models

Infrastructure as a Service

Platform as a Service

Software as a Service

Infrastructure as a Service gives you full access to the server. You can install any custom software on this server as if it was your own infrastructure



Infrastructure as a Service

Platform as a Service

Software as a Service

As opposed to IaaS, in PaaS, we do not get access to the whole server. We get a pre-configured server in which we are limited to only changing a few settings



Infrastructure as a Service

Platform as a Service

Software as a Service

SaaS means delivering a whole software to a customer as a service, so the customer can directly access and use the software without installing or updating anything



Types of Cloud Models: Deployment Models

Deployment Models

Public Cloud

Private Cloud

Hybrid Cloud

In Public cloud, the shared access to computing services are given to the users that is, users can share the same infrastructure for their applications.



Public Cloud

Deployment Models

Public Cloud

Private Cloud

Hybrid Cloud

Private cloud is a pool of resources meant exclusively for a single organization. It can either be owned by an organization or can be rented from a cloud provider.



Private Cloud

Deployment Models

**Accessible to anyone;
meant for the general
public**

**Owned by a single
person; not meant for
the general public**

Bus



Car



Deployment Models



Public Cloud



Private Cloud

Bus



Car



Deployment Models

Public Cloud

Private Cloud

Hybrid Cloud

Hybrid cloud refers to a Cloud Computing environment that uses the combination of both: the private cloud and the public cloud

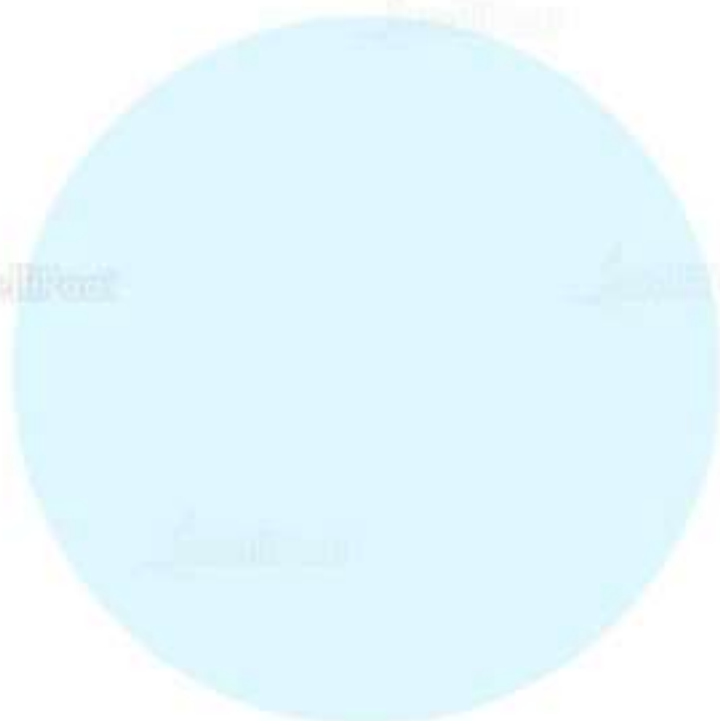


Hybrid Cloud

What is Microsoft Azure?

What is Microsoft Azure?

Microsoft Azure is a Cloud provider owned by Microsoft; it provides various web-scale cloud services such as compute, storage, networking, etc.



Basic facts on Microsoft Azure



Establishment

launched on
February 1,
2010



Widely Recognized

Used by more
than 90% of
Fortune 500
companies



Cost Effective

Free to get
started;
offers the
pay-per-use
pricing
model



Multi-language Support

Supports
multiple
languages viz.
C#, NodeJS,
Java, and more



Availability Zones

Data centers in
54 regions
around the world

Azure Regions and Availability Zones

Azure has more global regions than any other cloud provider. In total, there are 54 regions worldwide, and Azure is available in 140 countries



Microsoft Azure Services

Microsoft Azure offers various web-scale cloud services that are grouped together based on different business usage. These groups are called domains. Some of the main domains are listed below:



Compute



Networking



Storage



Database

Azure Services: Compute



Virtual Machine



Function App



App Service



Kubernetes Service

Microsoft Azure Services: Compute



Virtual Machine

Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

Microsoft Azure Services: Compute



Virtual Machine

Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

App Service is a PaaS offering from Azure. It provides already set-up environments for developers for hosting and managing their applications



App Service

Microsoft Azure Services: Compute



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App Service



Function App

This service lets users run code or functions in the cloud without having to manage the underlying resource services

Microsoft Azure Services: Compute



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App Service



Function App

This service lets users run code or functions in the cloud without having to manage the underlying resource services

This is a managed container orchestration service based on Kubernetes. This service is used for microservices-based applications



Kubernetes Service

Azure Services: Networking



Virtual Networks



Load Balancers



Application Gateway



DNS Zones



CDN Profiles

Microsoft Azure Services: Networking



Virtual network (VNet) is a logically isolated network in the whole Azure cloud dedicated to our subscription

Virtual Networks

Microsoft Azure Services: Networking



Virtual Networks

Virtual network (VNet) is a logically isolated network in the whole Azure cloud dedicated to our subscription

This service is used to distribute the incoming traffic among multiple healthy virtual machines



Load Balancers

Microsoft Azure Services: Networking



Virtual Networks

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Load Balancers



Application Gateway

Application gateway is a web traffic load balancer that lets users manage the traffic to their web applications

Microsoft Azure Services: Networking



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Load Balancers



Application Gateway

Application gateway is a web traffic load balancer that lets users manage the traffic to their web applications

This is a hosting service for domains in Azure. We can manage our DNS records by hosting our domain in Azure



DNS Zones

Microsoft Azure Services: Networking



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Load Balancers



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DNS Zones



CDN Profiles

Azure CDN profile is a Content Delivery Network solution by Azure. It is used to store the cached version of applications or storage in different regions

Azure Services: Storage



Blob



**File
Storage**



Table



Queue



**Data Lake
Storage**



Data Box

Microsoft Azure Services: Storage



Blob

Azure blob is an object-type storage in Azure. It is used for storing large amounts of structured or unstructured data

Microsoft Azure Services: Storage



Blob

Azure blob is an object-type storage in Azure. It is used for storing large amounts of structured or unstructured data

This is a file storage solution by Azure. It supports the SMB (Server Message Block) protocol



File Storage

Microsoft Azure Services: Storage



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File Storage



Table

Azure tables are used to store large amount of structured data. It is a NoSQL database, so it can store non-relational data

Microsoft Azure Services: Storage



Queue

This service is used for storing large number of messages that can be accessed from anywhere in the world using authenticated HTTP or HTTPS calls

Microsoft Azure Services: Storage



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Azure Data Lake Storage is an enterprise-wide hyper-scale repository for Big Data Analytics workloads. It enables us to capture data of any size, type, and ingestion speed in a single place for operational and exploratory analytics



Data Lake Storage

Microsoft Azure Services: Storage



Queue

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Azure Data Lake Storage is an enterprise-wide hyper-scale repository for Big Data Analytics workloads. It enables us to capture data of any size, type, and ingestion speed in a single place for operational and exploratory analytics



Data Lake Storage

This service can be used to move data to Azure quickly. Data Box offline devices easily move data to Azure when busy networks are not an option. Data Box online appliances transfer data to and from Azure over the network



Data Box

Azure Services: Database



SQL Database



CosmosDB



Data Factory



**Data Lake
Analytics**

Microsoft Azure Services: Database



SQL Database

It's basically a SQL Server but on cloud. It works to create, scale, and extend applications into the cloud using MS SQL Server

Microsoft Azure Services: Database



SQL Database

It's basically a SQL Server but on cloud. It works to create, scale, and extend applications into the cloud using MS SQL Server

Cosmos DB is a NoSQL database service that implements a subset of the SQL SELECT statement on the JSON documents



CosmosDB

Microsoft Azure Services: Database



SQL Database

It's basically a SQL Server but on cloud. It works to create, scale, and extend applications into the cloud using MS SQL Server



Data Factory

This service is a fully managed service for composing data storage, processing, and movement services into streamlined, scalable, and reliable data production pipelines



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Microsoft Azure Services: Database



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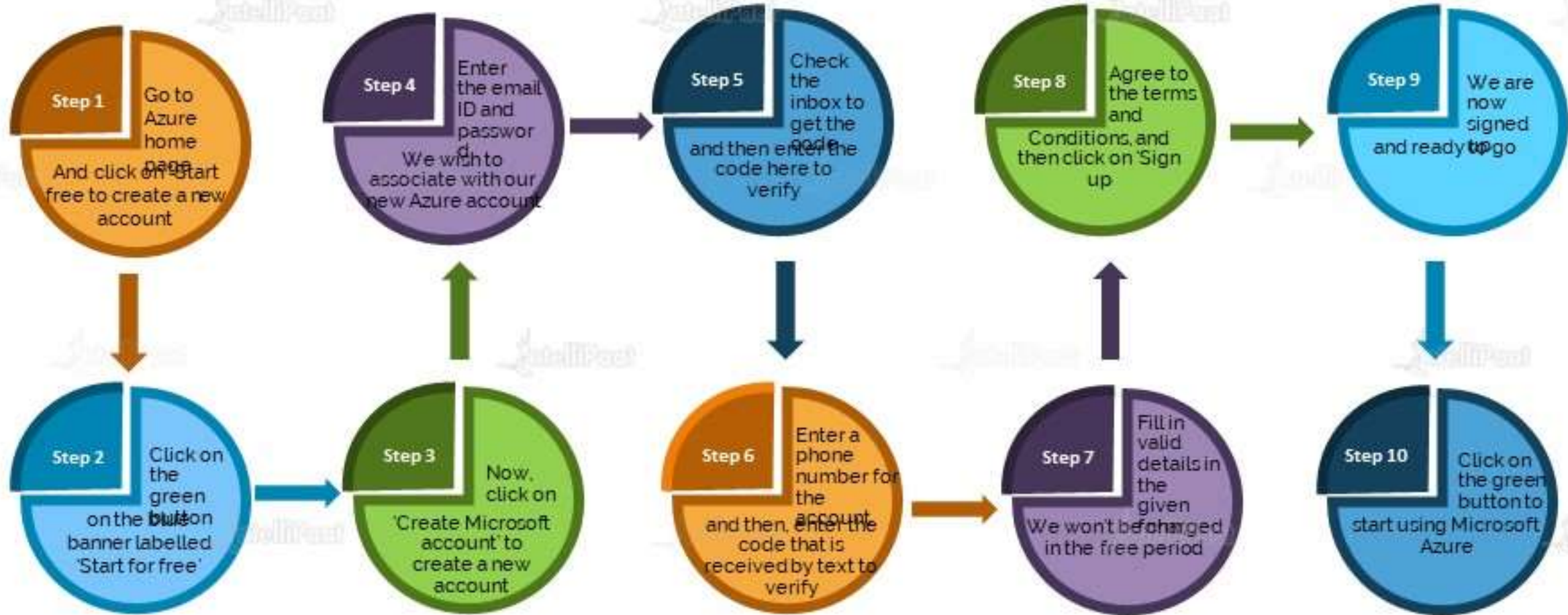


Data Lake Analytics

Azure Data Lake Analytics is a scalable data storage and analytical service for Big Data Analytics workloads that require developers to run massively parallel queries

Creating a Microsoft Azure Account

Creating A Microsoft Azure Account



Refer to Hands-on 1 in LMS

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Hands-on : Creating a Microsoft Azure Account

1. Creating a new Microsoft Azure Account

a) Signing up on the Azure Portal and starting with a free trial subscription

Different Ways of Accessing Microsoft Azure: Portal, PowerShell, & CLI

Ways of Accessing Microsoft Azure

Microsoft provides various ways to access the Microsoft Azure platform. For those who prefer a GUI, there is Azure Classic Portal. For those who prefer command-line tools, there is Azure PowerShell or Azure CLI



**Azure
Portal**



Azure CLI



**Windows
PowerShell**

Azure Portals



Azure Portal

Azure Portal is a web-based, unified console that lets users access and manage Azure services. Using Azure Portal, users can build, monitor, and manage their applications on Azure Cloud. To sign into the portal, users need to have an Azure account





**Azure
PowerShell**

Azure PowerShell is a task-based command-line shell built on the .NET framework. It lets users control Azure's robust functionality from a command line



```
Select environment
PowerShell v
Bash
Creating a Cloud Shell...Succeeded.
Starting terminal...
Welcome to Azure Cloud Shell (Preview)
Type "dir" to see your Azure resources
Type "help" to learn about Cloud Shell
VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS Azure:\>
```

Hands-on: Setting up Azure PowerShell

1. Set up the PowerShell Client on Azure Portal

a) Run basic command to check for the current Azure subscription



Azure CLI

Azure CLI is a cross-platform command-line tool used to manage and monitor Microsoft Azure platform and services. It provides an alternative for PowerShell

Bash ▾ ↺ ? 😊

Requesting a Cloud Shell..Succeeded.
Connecting terminal...

Welcome to Azure Cloud Shell (Preview)

Type "help" to learn about Cloud Shell
Type "az" to use Azure CLI 2.0

Hands-on: Setting up Azure CLI

1. Set up the Azure CLI on the Azure Portal

a) Run a basic command to create a Resource Group using Azure CLI



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