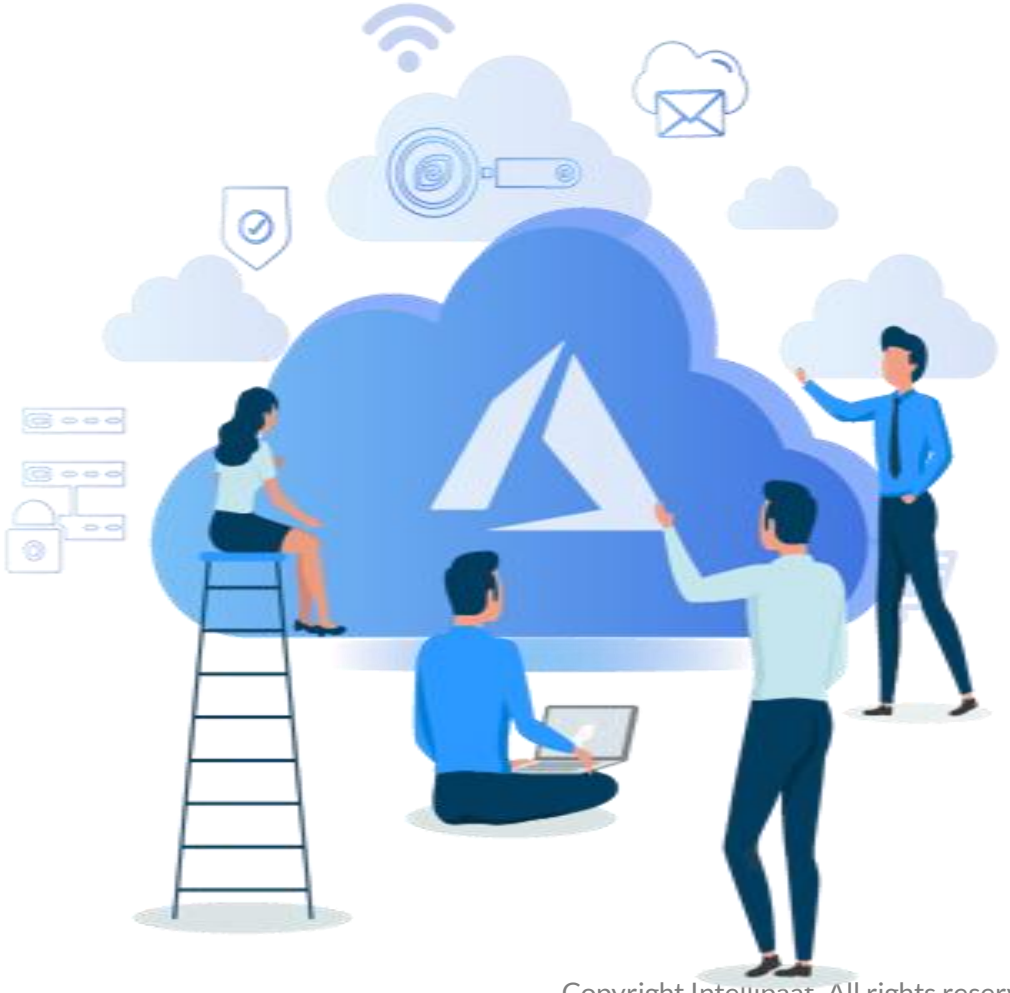
Microsoft Azure Administrator Associate Training (AZ-104)

Module 1



Agenda

01 Introduction to Cloud Computing

02 What is Microsoft Azure?

03 Microsoft Azure Services

04 Azure Portal

05 Azure CLI

06 Azure PowerShell

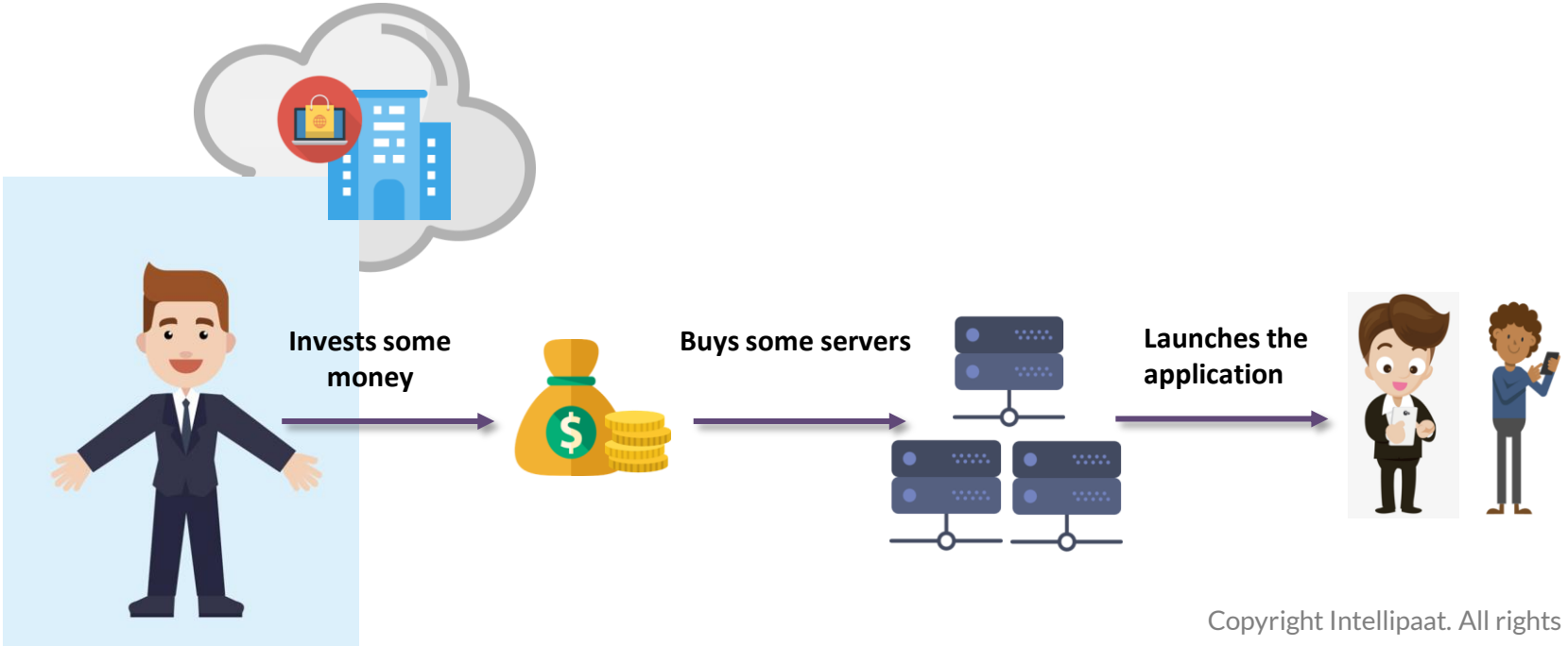
07 Quiz

Introduction to Cloud Computing

Why Cloud Computing ?

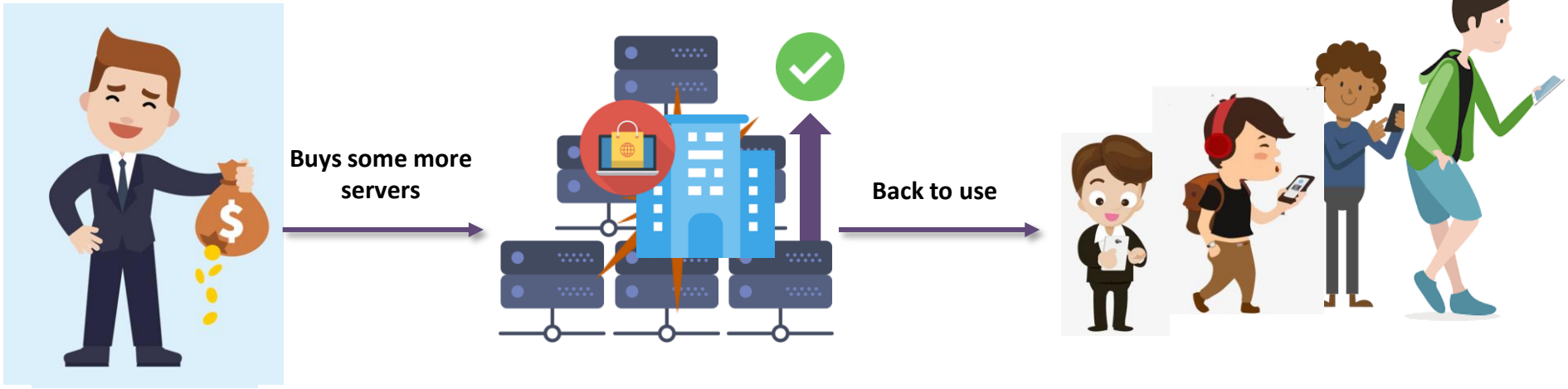
Before Cloud Computing

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.

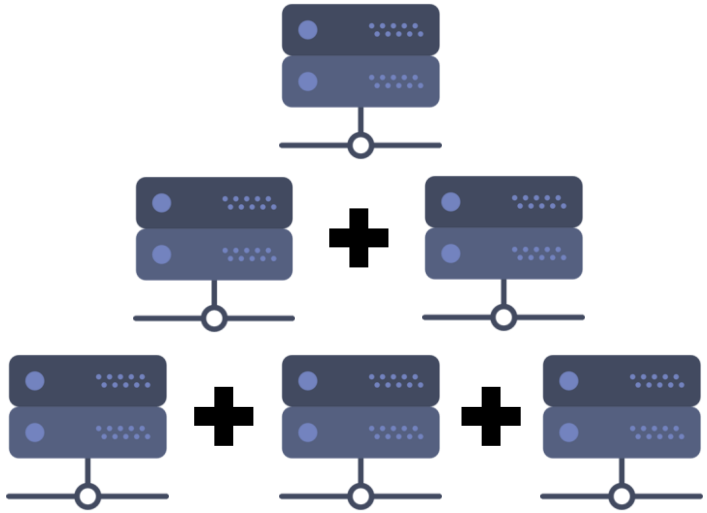


Before Cloud Computing

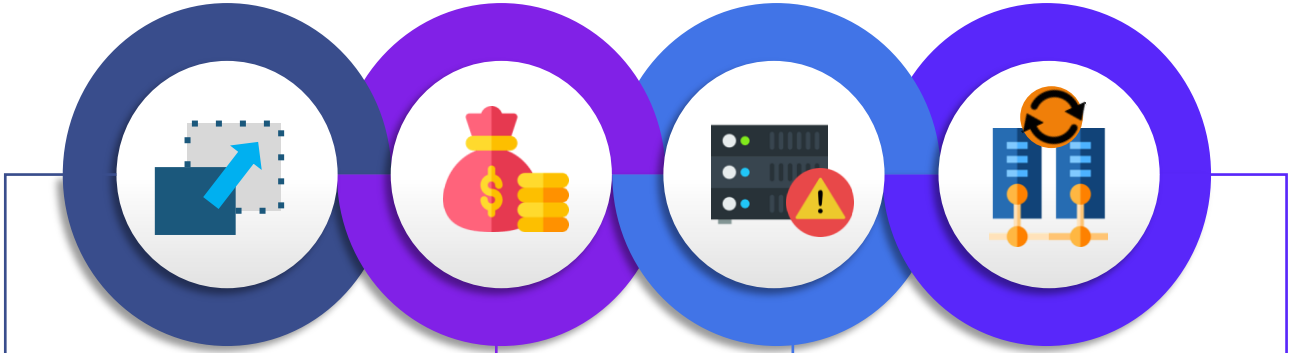
The company then hires a maintenance team to fix the broken servers. However, it is an expensive option which will have to be implemented each time the server breaks down.

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



Scalability

Need to increase hardware as user demand increases; need to increase staff to maintain the servers

Cost

High upfront expenses and capital expenditure; high maintenance costs

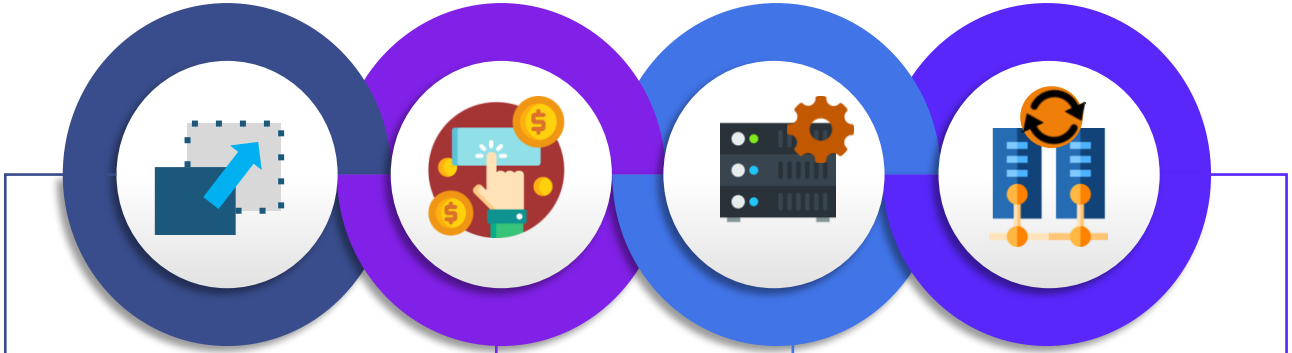
Server Maintenance

Servers need to be managed and monitored continuously

Slow Data Recovery

Takes more time to recover data; requires high budget and resources

After Cloud Computing



Scalability

Need to increase hardware a… user dem…d increas…eed …ease …ff to maintain the servers

Cost

High upfront expenses a… capita… …xpen…ure; …n m…tenance costs

Server Maintenanc e

Servers nee…o be man…d a… m…tored c…ously

Slow Data Recovery

Takes mo… time to r…ver data; …uires …udget a… …esources

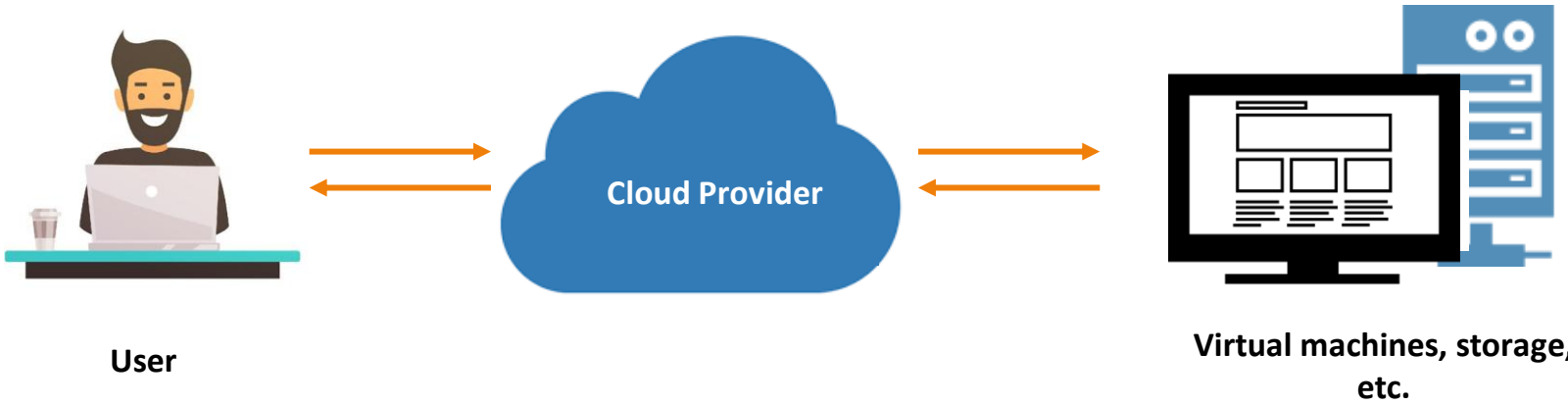
What is Cloud Computing?

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

Service Models

IaaS

PaaS

SaaS

Deployment Models

Public Cloud

Private Cloud

Hybrid Cloud

Types of Cloud Models: Service 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

Service Models

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

Service Models

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

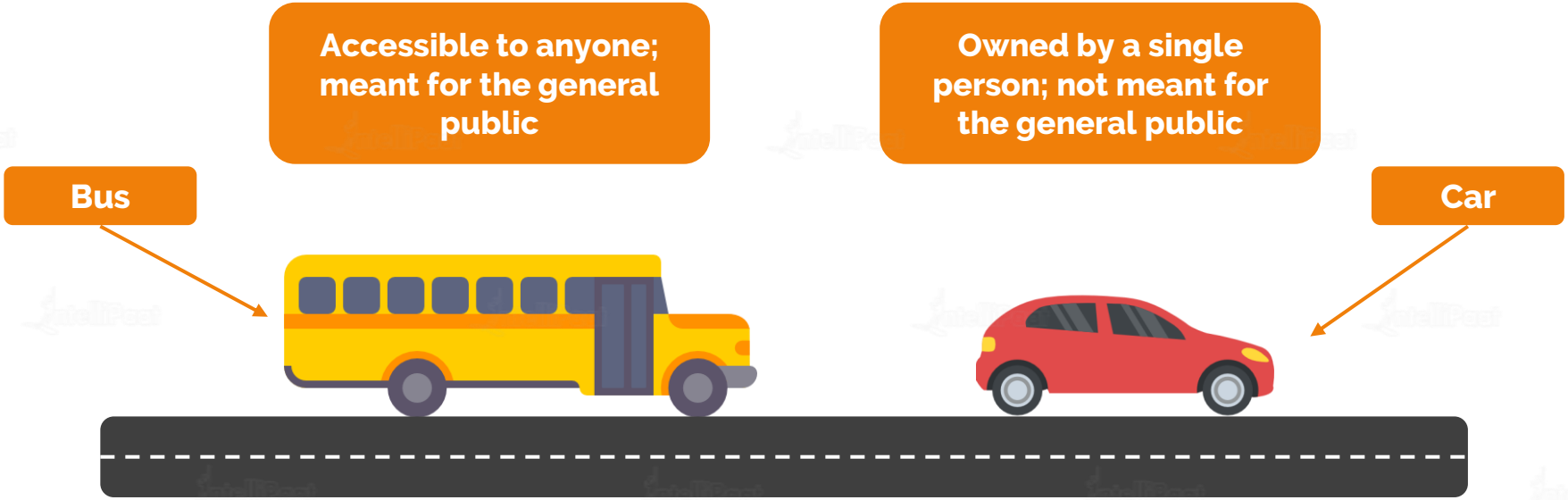
Private Cloud

Hybrid Cloud

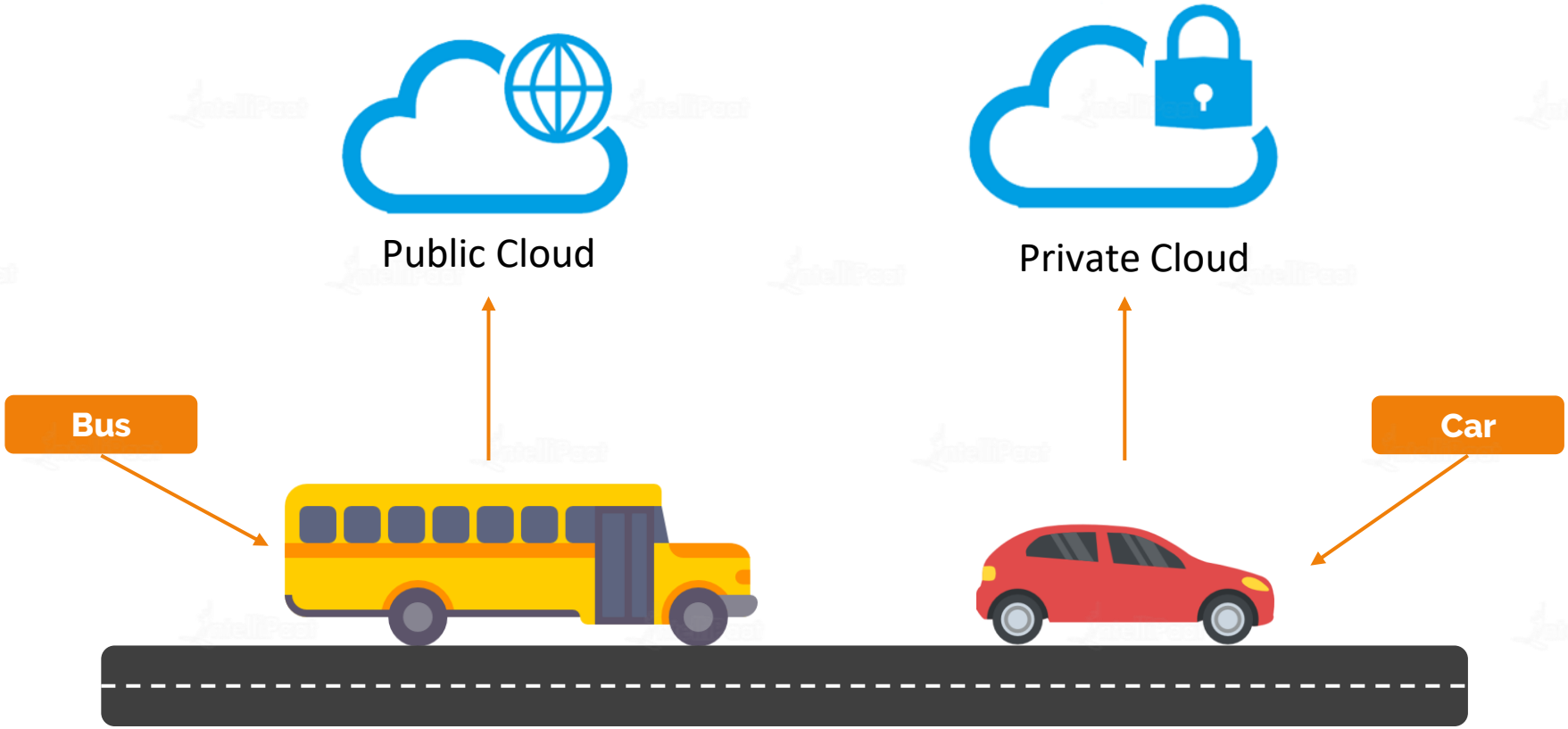
Private cloud is a pool of resources meant exclusively for a single organization. It can either be owned by an organization or can be rented from a cloud provider.

Private Cloud

Deployment Models



Deployment Models



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 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

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

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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 Networks

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

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DNS Zones

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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

Microsoft Azure Services: Storage

Blob

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

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File Storage

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File Storage

Tabl
e

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

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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

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Data Lake Storage

Data Box

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

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

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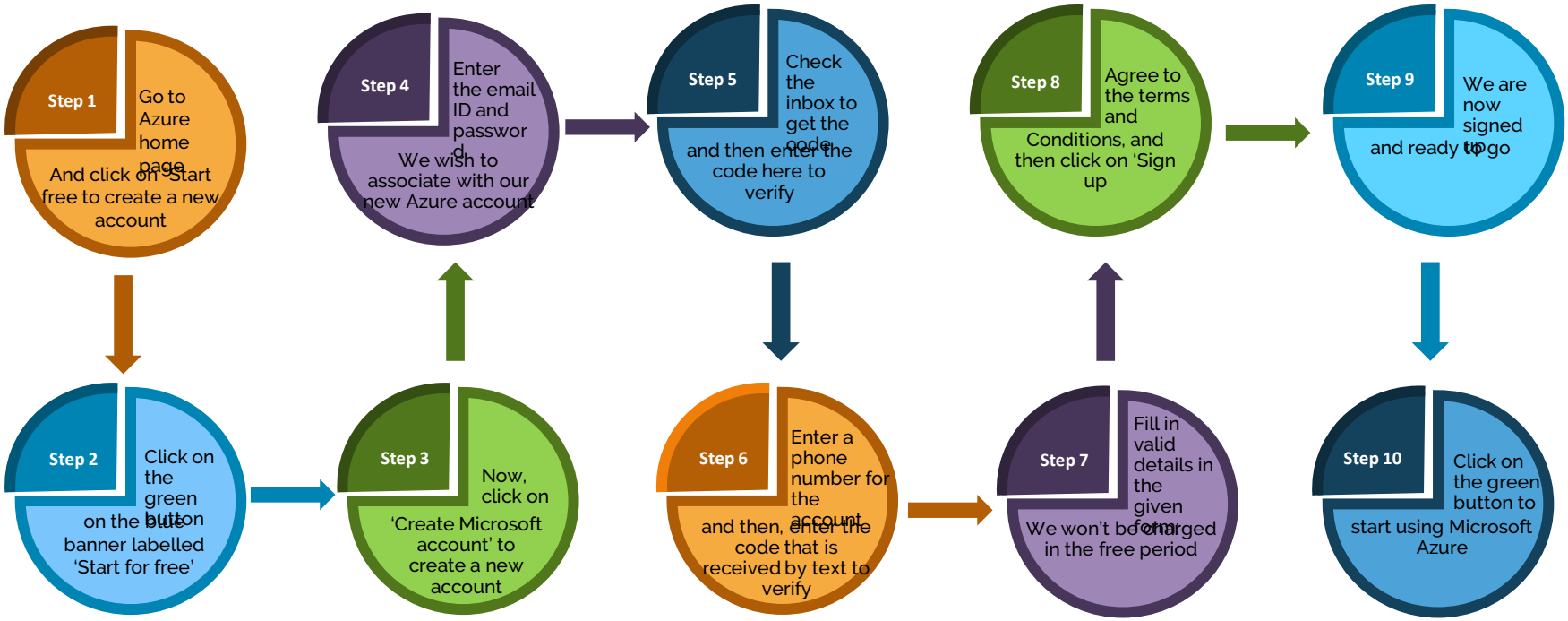
Azure Data Lake Analytics is a scalable data storage and analytical service for Big Data Analytics workloads that require developers to run massively parallel queries

Data Lake Analytics

Creating a Microsoft Azure Account

Creating A Microsoft Azure Account



Refer to Hands-on 1 in LMS

Hands-on : Creating a Microsoft Azure Account

Hands-on

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

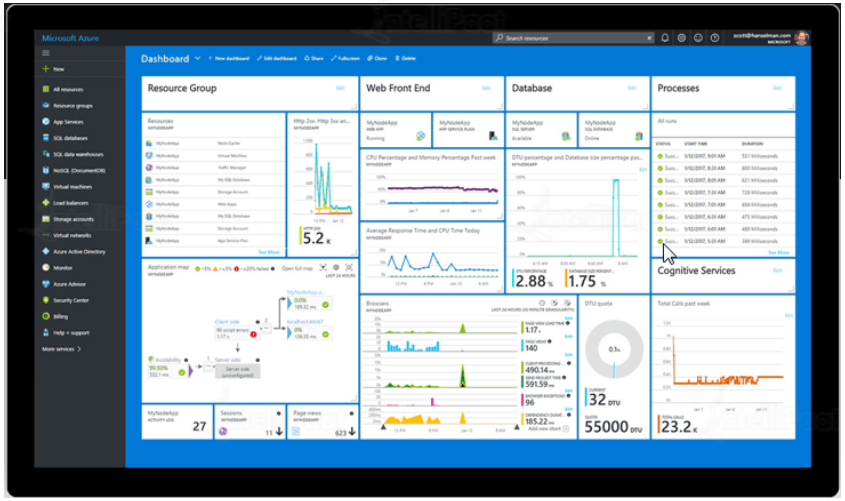
Windows PowerShell

Azure Portals

Azure

Portal

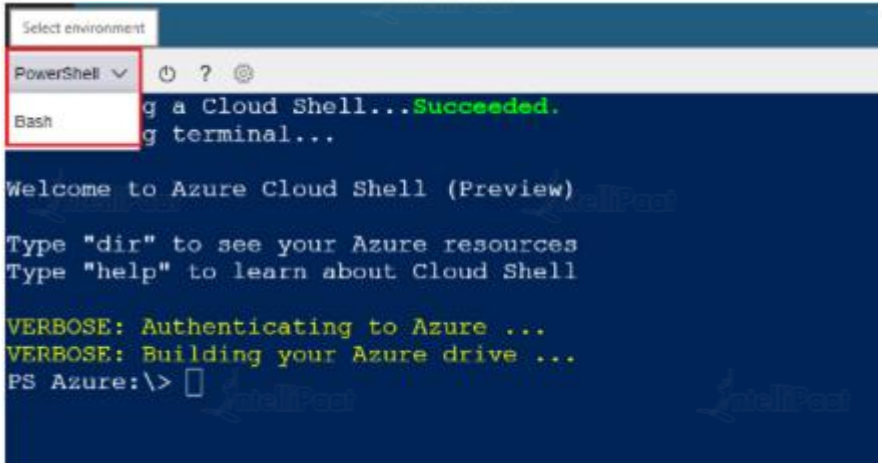
Azure Portal is a web-based, unified console that lets users access and manage Azure services. Using Azure Portal, users can build, monitor, and manage their applications on Azure Cloud. To sign into the portal, users need to have an Azure account



Azure PowerShell

Azure PowerShell

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



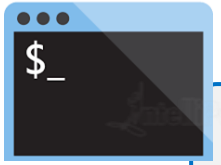
Hands-on: Setting up Azure PowerShell

Hands-on

1. Set up the PowerShell Client on Azure Portal

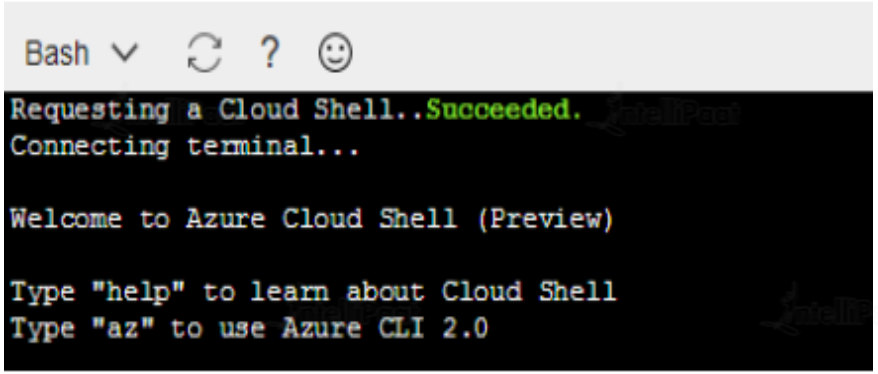
    a) Run basic command to check for the current Azure subscription

Azure CLI



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



Hands-on: Setting up Azure CLI

Hands-on

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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