

**Microsoft Azure Administrator Associate Training (AZ-104)**

**Module 1**

Copyright Intellipaat. All rights reserved.

# Agenda

##### Introduction to Cloud

**01**

**Computing**

##### Azure Portal

**04**

**What is Microsoft**

##### Azure?

**02**

**Azure CLI**

**05**

##### Microsoft Azure

**Services**

**03**

##### Azure PowerShell

**06**

**Quiz**

**07**



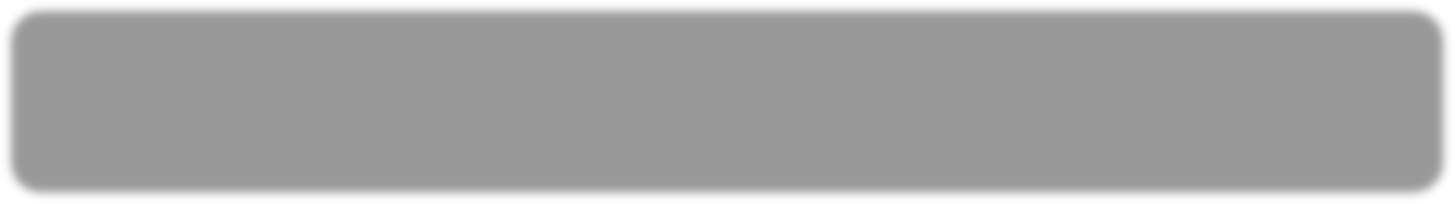
# Introduction to Cloud Computing

Why Cloud Computing ?



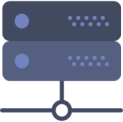
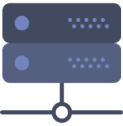
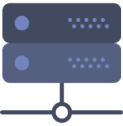
**Invests some**

**money**



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

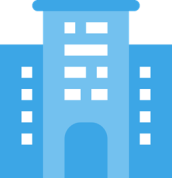
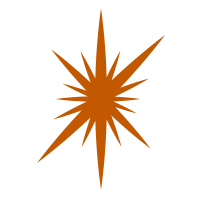
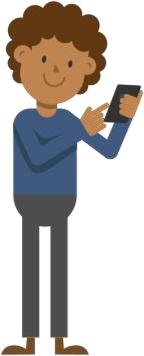
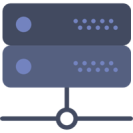
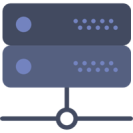
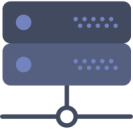
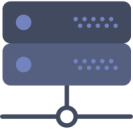
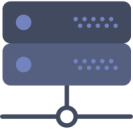
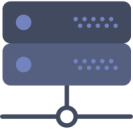




**Buys some servers**

**Launches the**

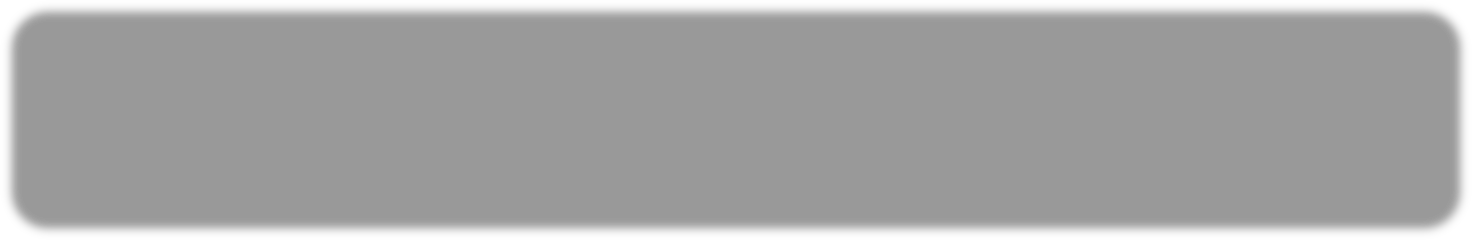
**application**



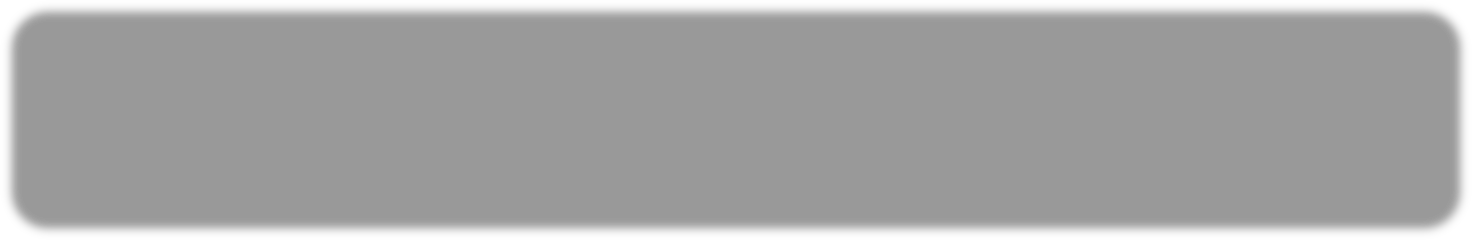
**Buys some more**

**servers**

**Back to use**



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.



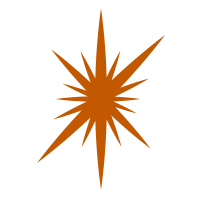
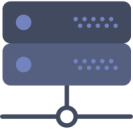
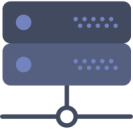
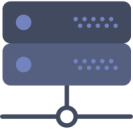
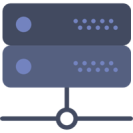
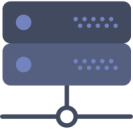
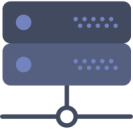
The company then hires a maintenance team to fix the broken servers.

However, it is an expensive option which will have to be implemented each time the server breaks down.

**Fixes the**

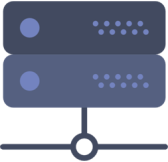
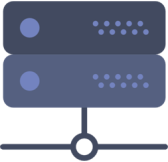
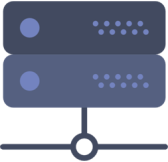


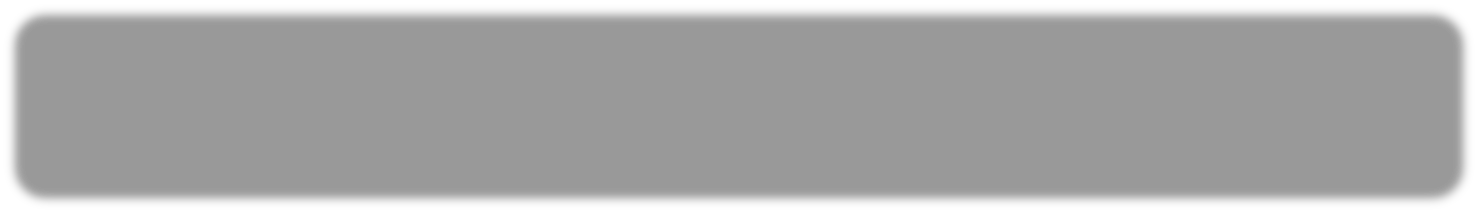
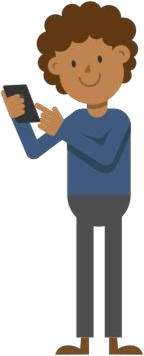
**Maintenance team**



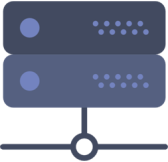
**servers**



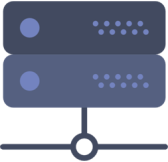
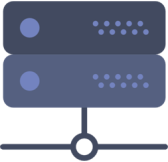


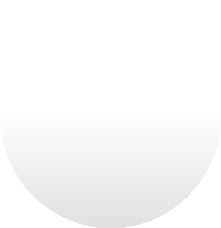
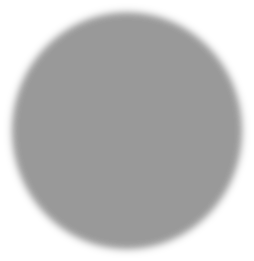
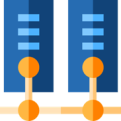
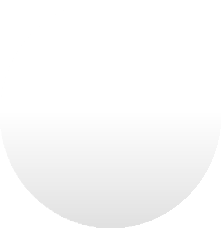
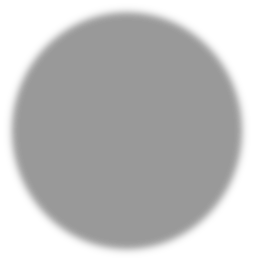
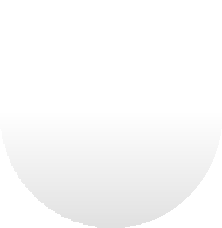
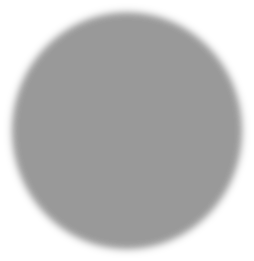
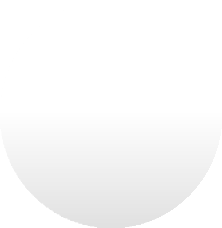
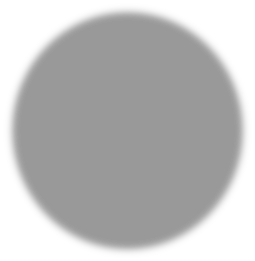
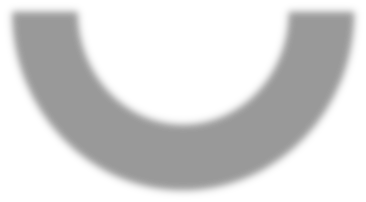
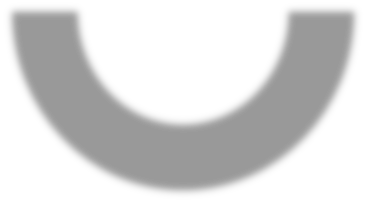
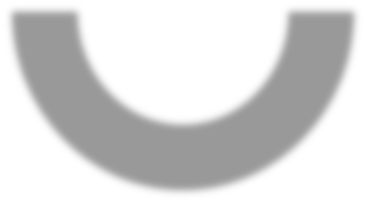
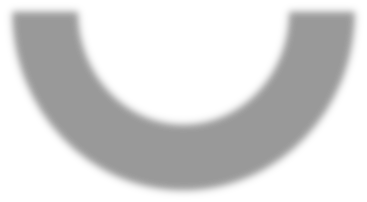


There is another scenario, where the traffic may decrease with time. This poses a problem to the extra servers that were bought earlier. However, keeping the extra servers also mean maintaining them regularly adds to your billing.



**What to do?**



###### 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 Maintenanc e

Servers need to be managed and monitored continuously

###### Slow Data

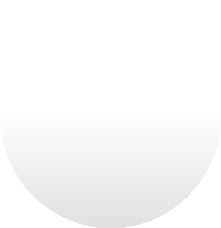
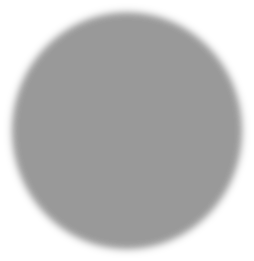
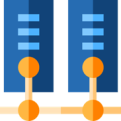
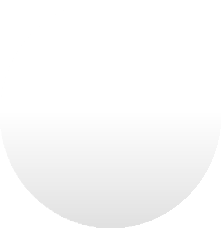
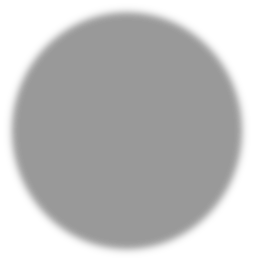
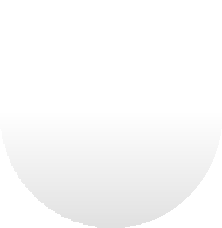
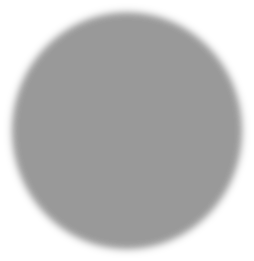
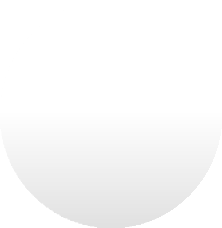
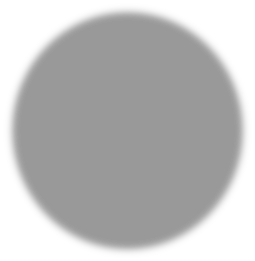
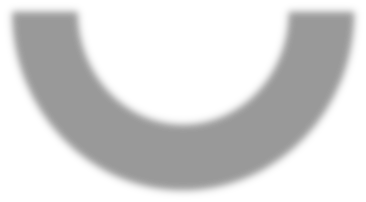
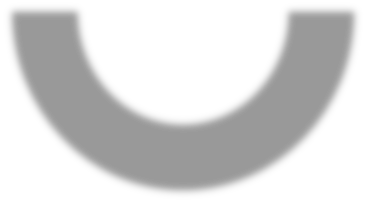
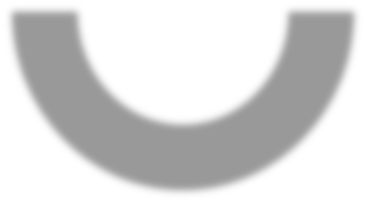
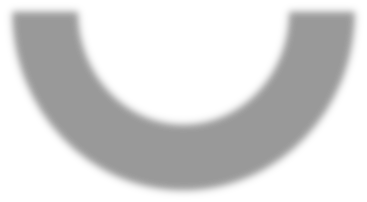
**Recovery**

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

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

High upfront expenses and capital expenditure; high maintenance costs

Servers need to be managed and monitored continuously



**Scalability**

**Cost**

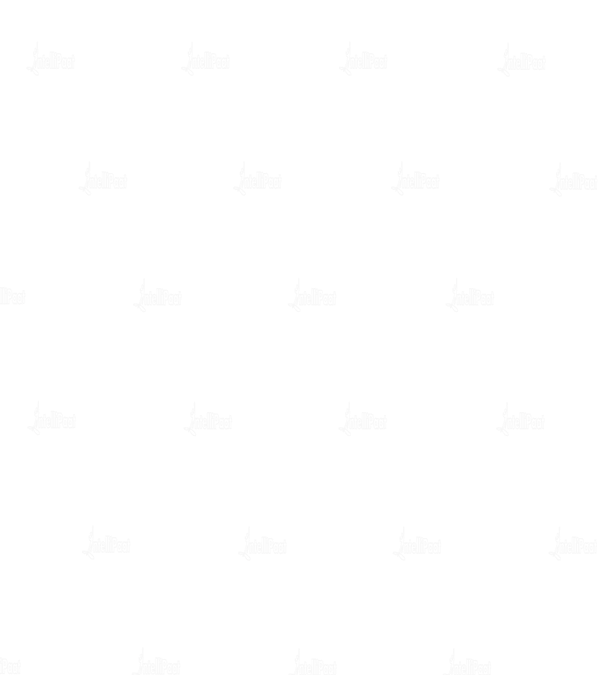
Need to increase hardware as user demand increases; need to increase staff to maintain the servers

**Server Maintenanc e**

**Slow Data**

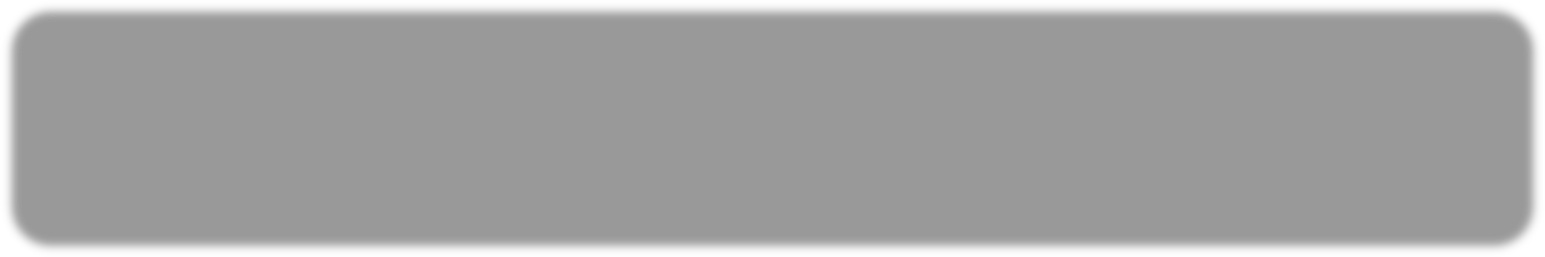
**Recovery**





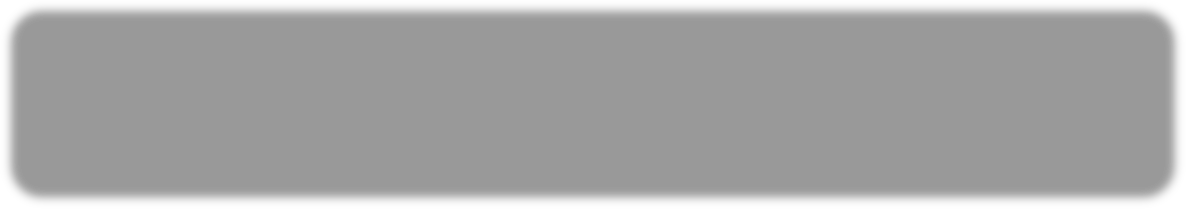
# What is Cloud Computing?

Copyright Intellipaat. All rights reserved.



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





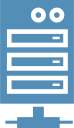
Cloud Computing is the use of various computing services on a Pay-As-

You-Go model via the internet

**User Virtual machines, storage,**



**Cloud Provider**

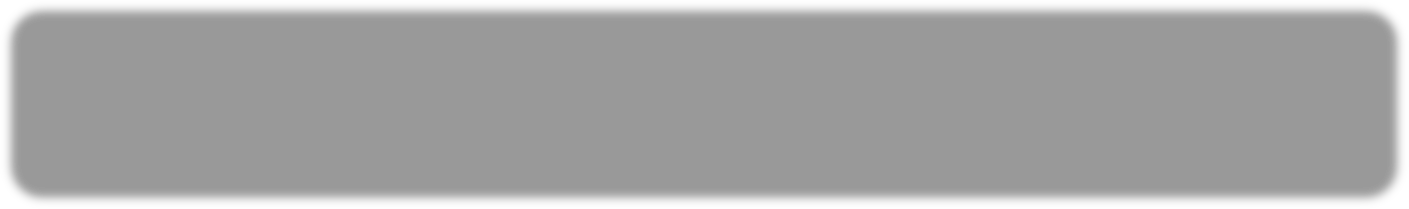


**etc.**



# 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**

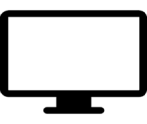
**Deployment Models**



**Iaa S**

**PaaS SaaS**



**Publi c Cloud**

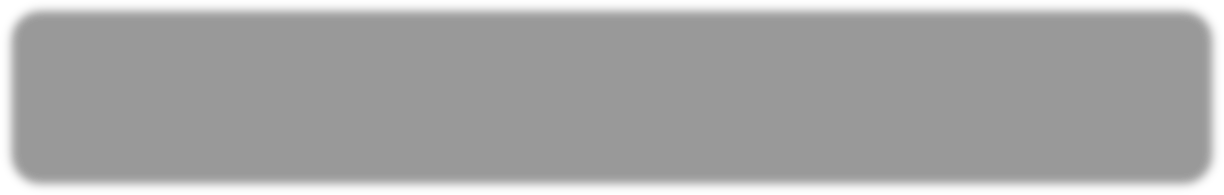
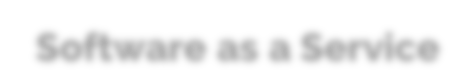
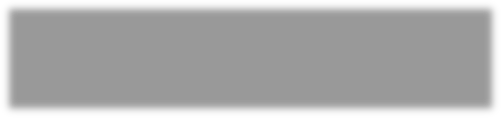
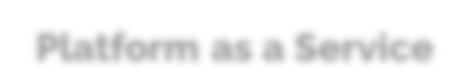
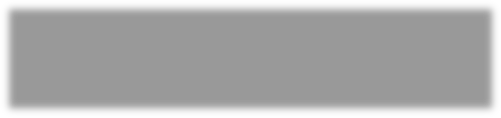
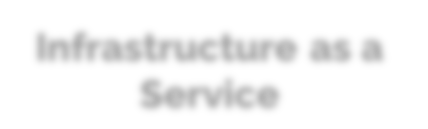
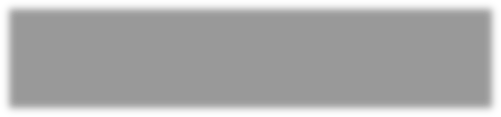
**Private Cloud**

**Hybrid**

**Cloud**



# Types of Cloud Models: Service Models

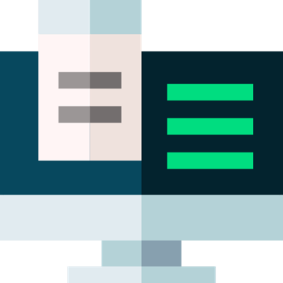
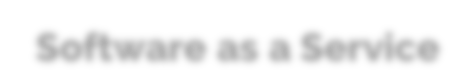
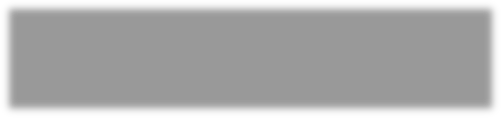
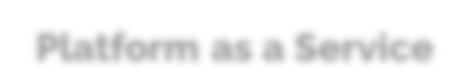
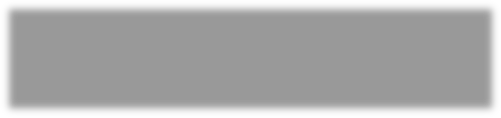
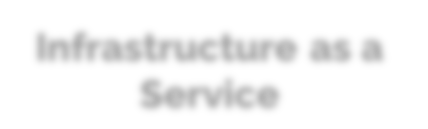
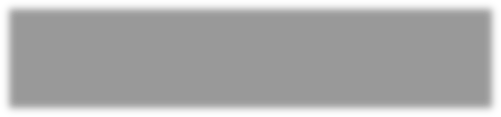
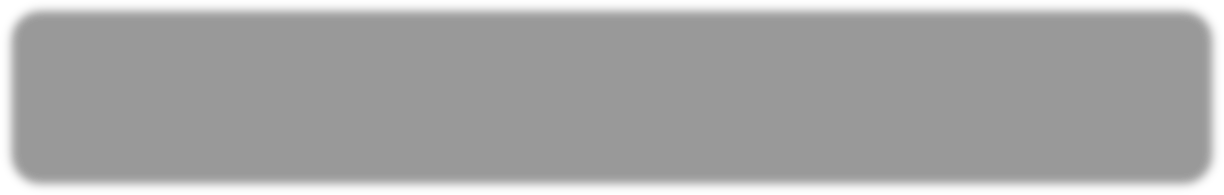


Infrastructure as a Service gives you full access to the server. You can install any custom software on this server as if it was your own infrastructure

**Infrastructure as a Service**

**Platform as a Service**

**Software as a Service**

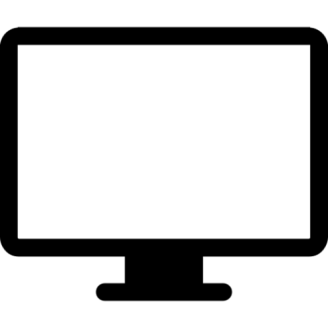
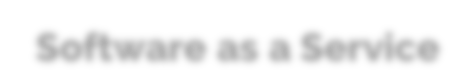
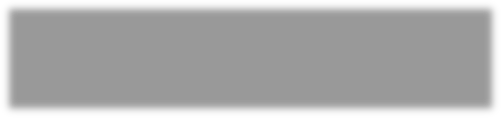
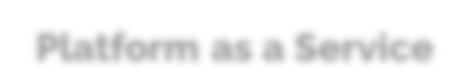
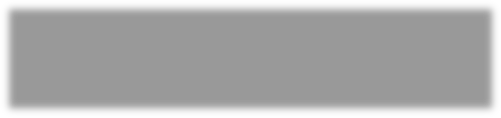
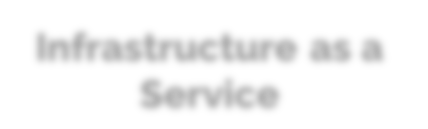
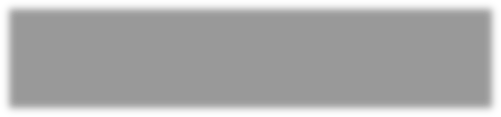
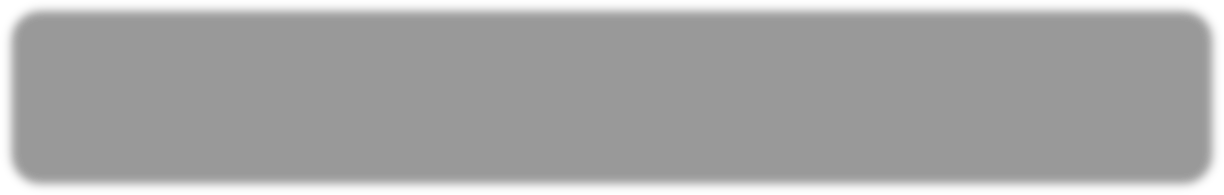


As opposed to IaaS, in PaaS, we do not get access to the whole server. We get a pre-configured server in which we are limited to only changing a few settings

**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

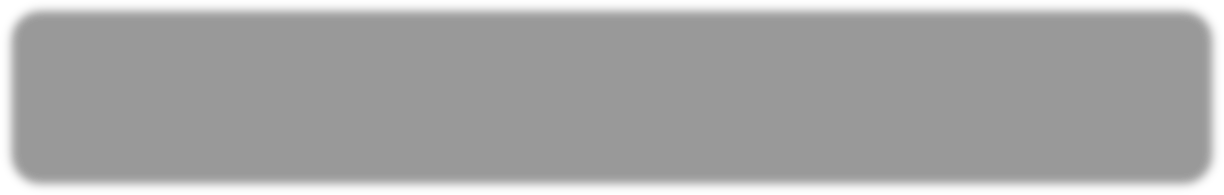
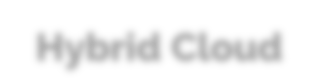
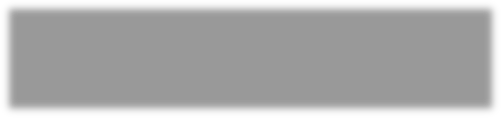
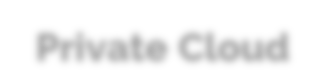
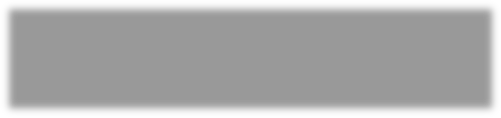
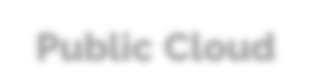
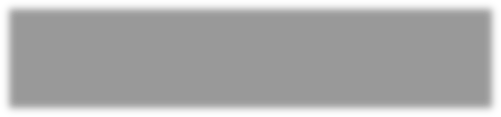
**Infrastructure as a Service**

**Platform as a Service**

**Software as a Service**



# Types of Cloud Models: Deployment Models



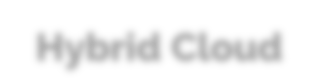
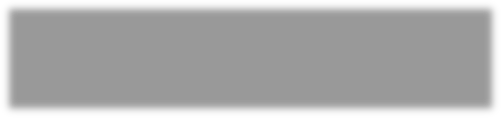
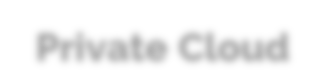
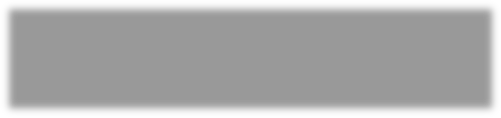
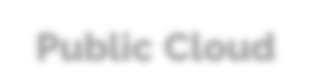
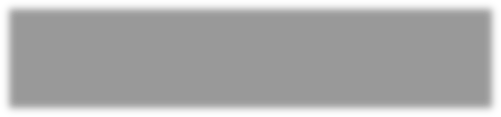
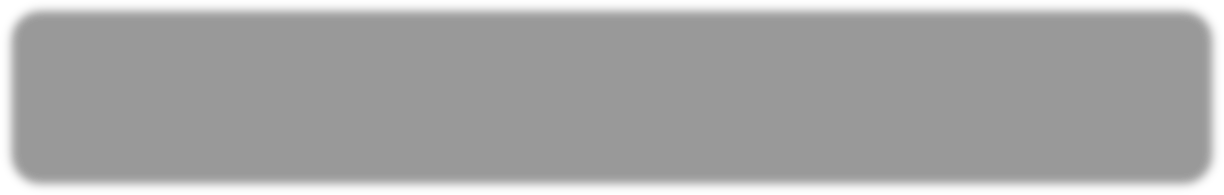
In Public cloud, the shared access to computing services are given to the users that is, users can share the same infrastructure for their applications.

**Public Cloud**

**Private Cloud**

**Hybrid Cloud**

Public 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.

**Public Cloud**

**Private Cloud**

**Hybrid Cloud**

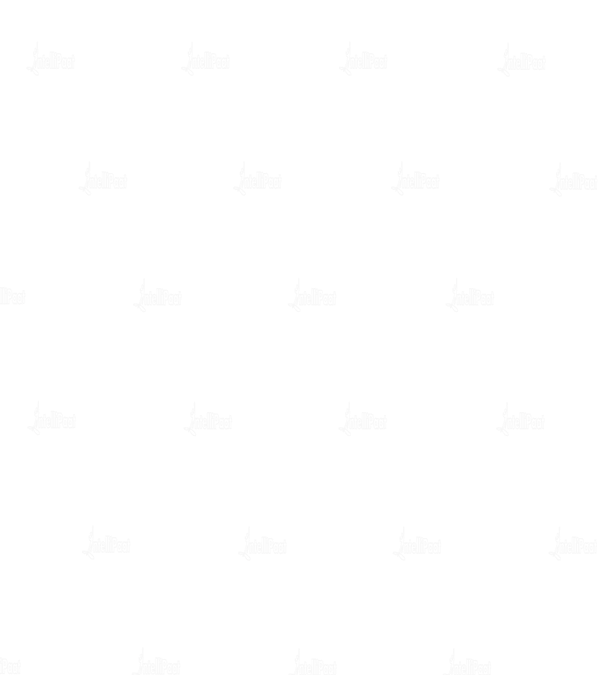
Private Cloud

**Deployment Models**

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

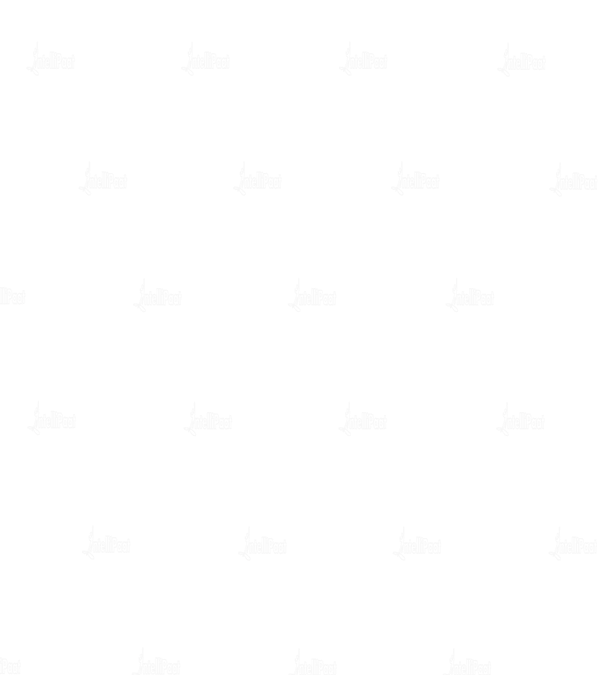


**Owned by a single person; not meant for the general public**



**Bus Car**

Copyright Intellipaat. All rights reserved.



## Deployment Models



#### Public Cloud Private Cloud

**Bus**

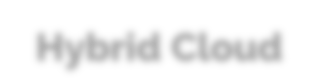
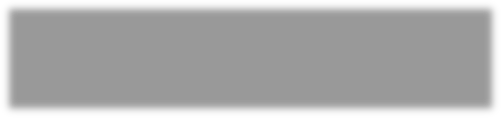
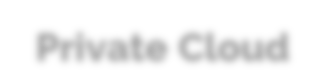
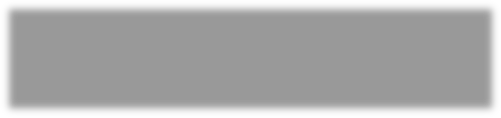
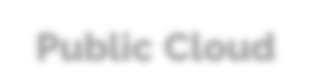
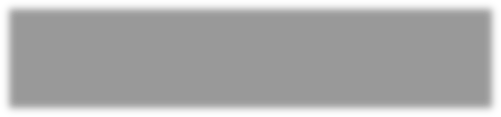
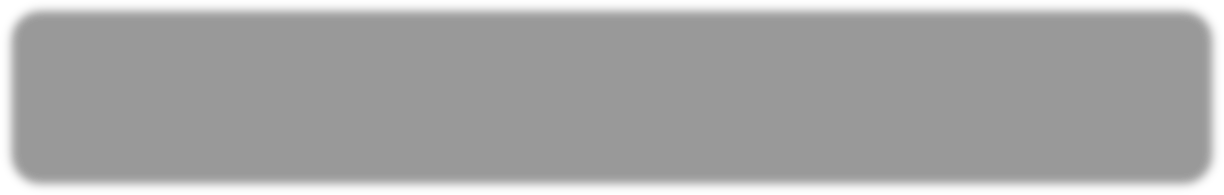
**Car**



Copyright Intellipaat. All rights reserved.

## Deployment Models

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



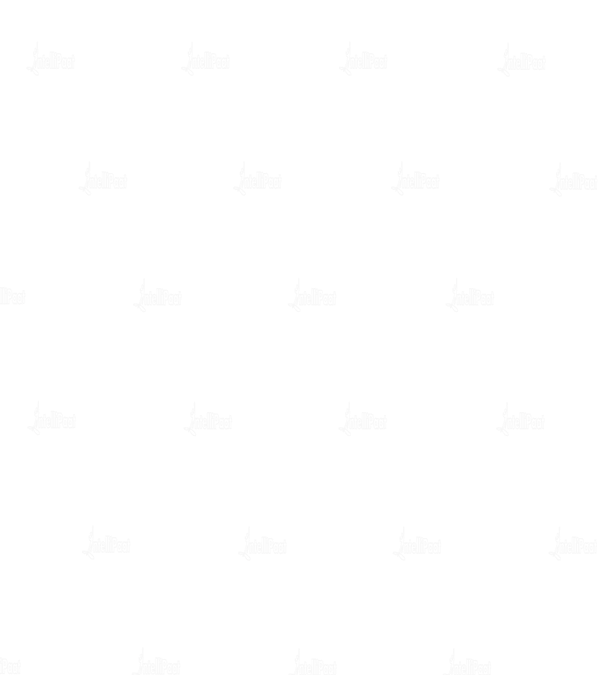
**Public Cloud**

**Private Cloud**

**Hybrid Cloud**

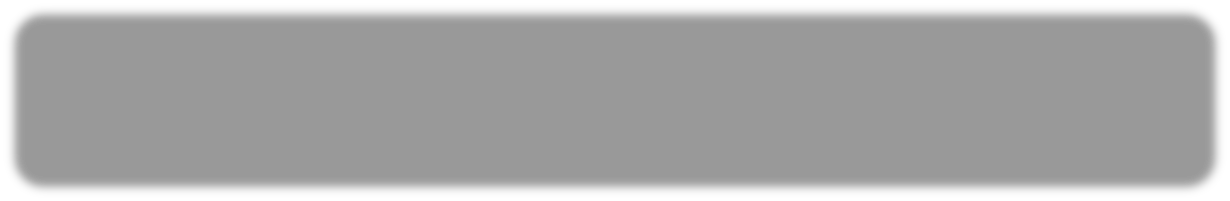
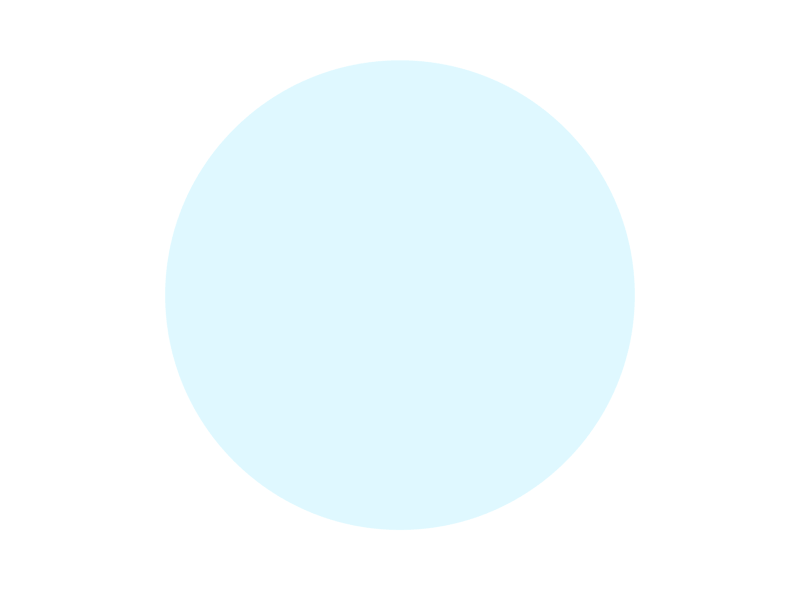
Hybrid Cloud

Copyright Intellipaat. All rights reserved.

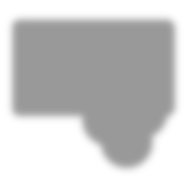
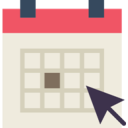
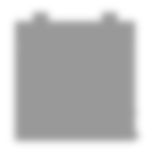
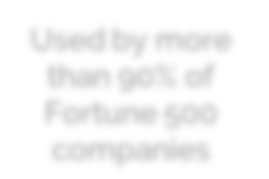
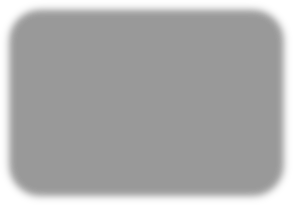
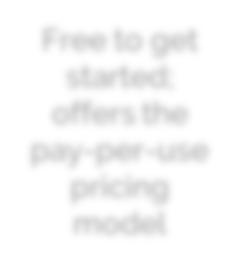
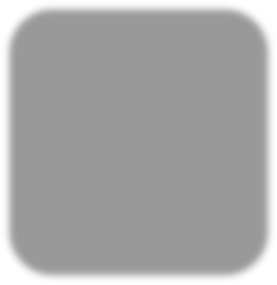
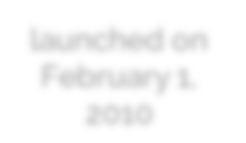
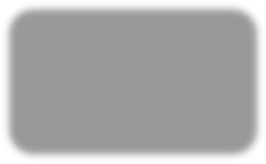


# What is Microsoft Azure?

Copyright Intellipaat. All rights reserved.



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



**Establishment**

launched on

February 1,

2010

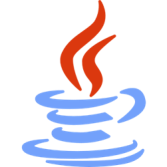
**Widely**

**Recognized**

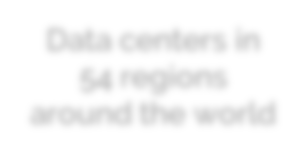
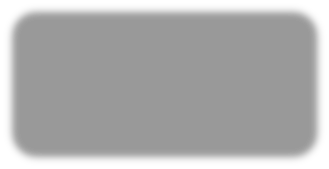
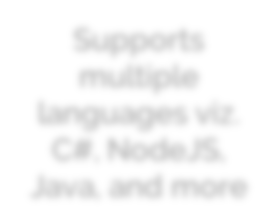
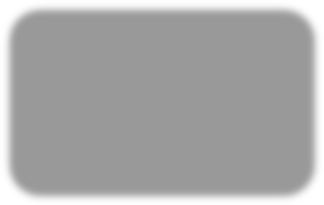
Used by more than 90% of

Fortune 500 companies

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



**Cost Effective**



**Multi-language Support**

Supports multiple languages viz.

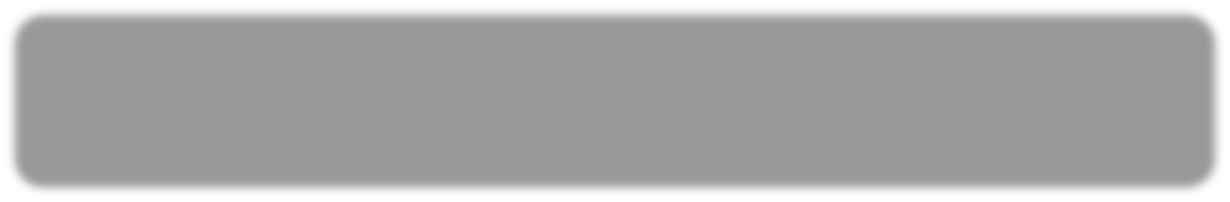
C#, NodeJS,

Java, and more

Data centers in 54 regions around the world

**Availability Zones**

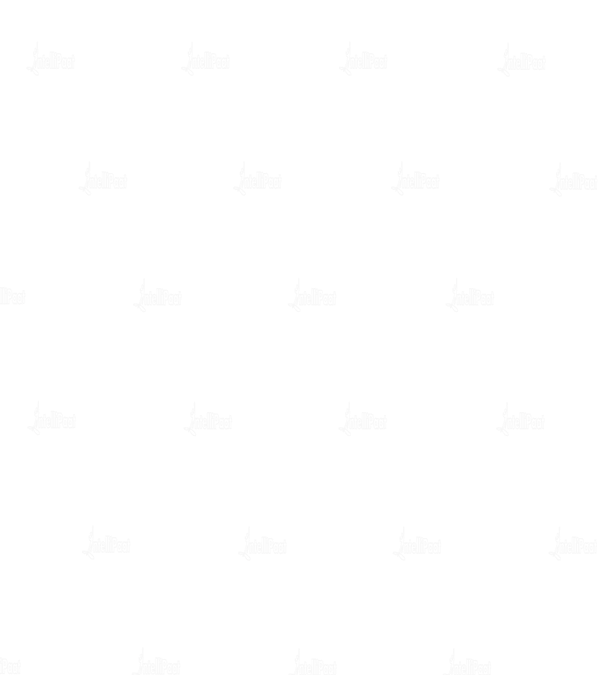
## Azure Regions and Availability Zones



Azure has more global regions than any other cloud provider. In total,

there are 54 regions worldwide, and Azure is available in 140 countries

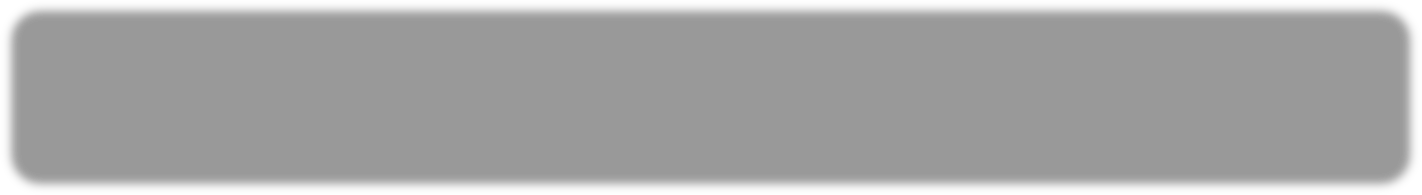
Copyright Intellipaat. All rights reserved.



# Microsoft Azure Services

Copyright Intellipaat. All rights reserved.

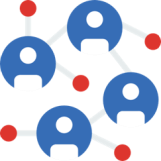
## Microsoft Azure Services



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:



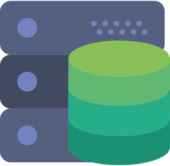
**Compute**



**Networking**

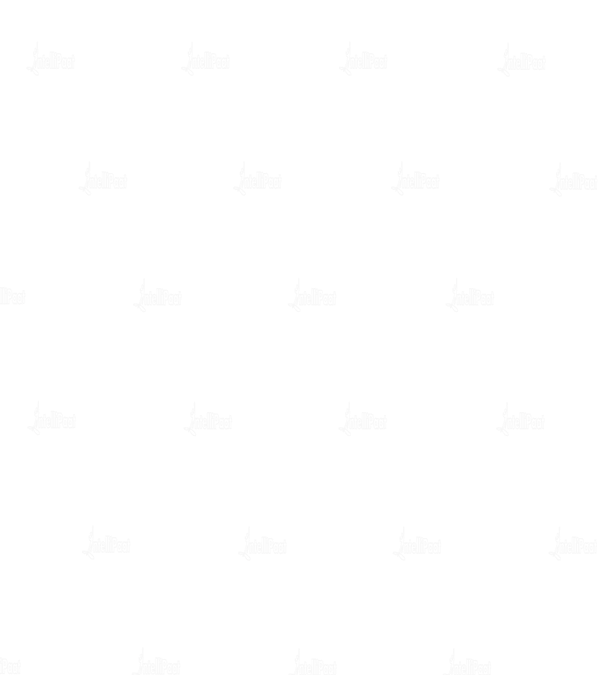


**Storage**

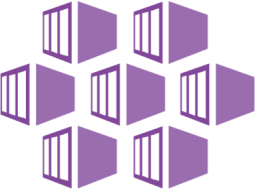


**Database**

Copyright Intellipaat. All rights reserved.



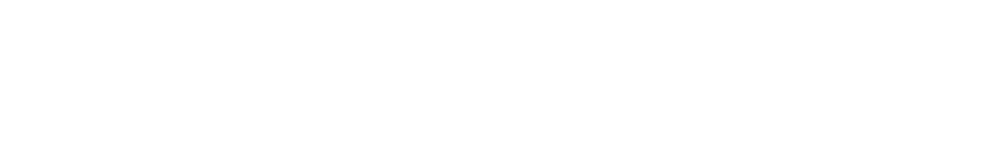
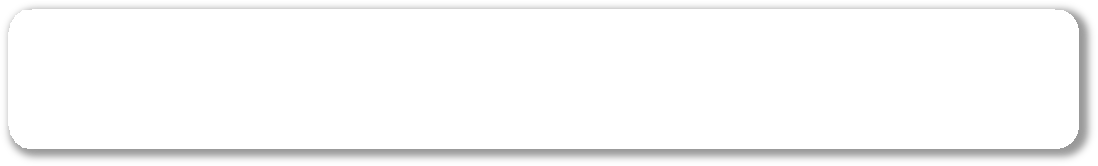
# Azure Services: Compute



**Virtual Machine Function App App Service Kubernetes Service**

Copyright Intellipaat. All rights reserved.

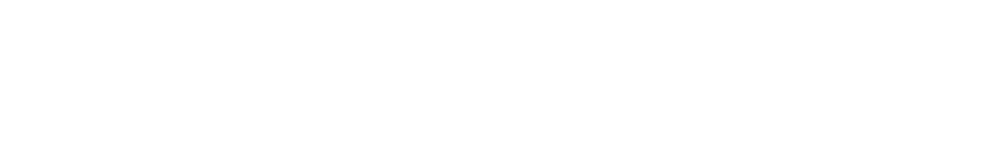
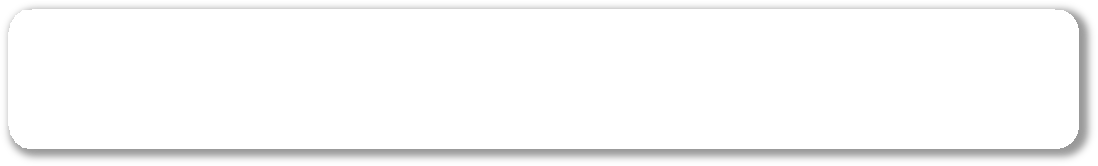




Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

Virtual Machine

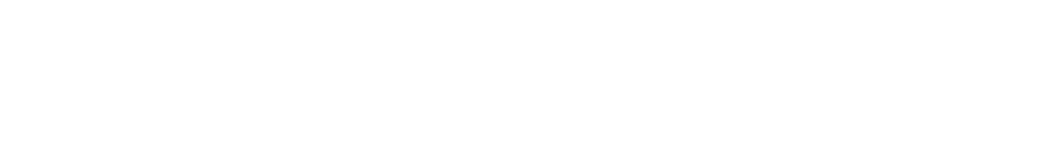
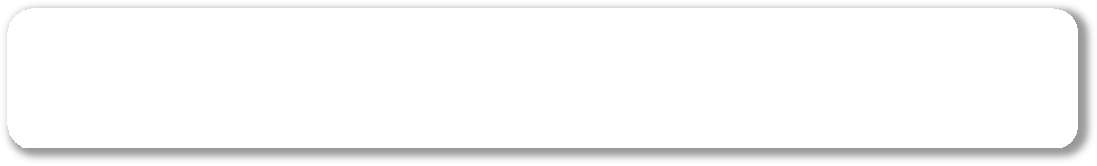




Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

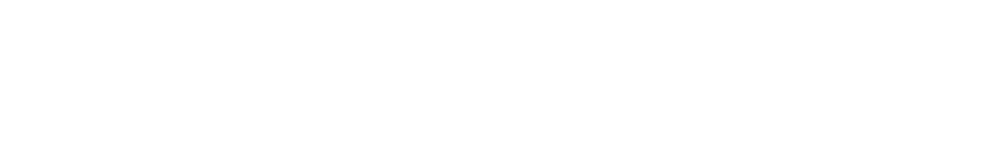
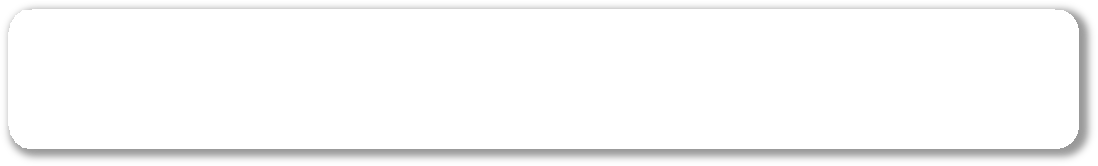
Virtual Machine

App Service



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



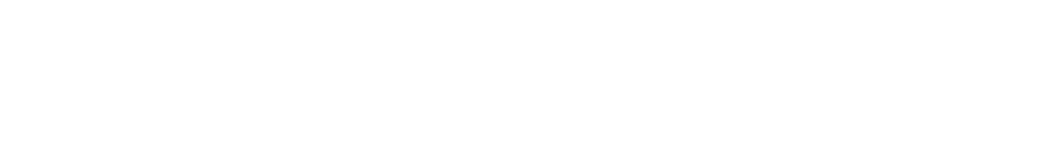
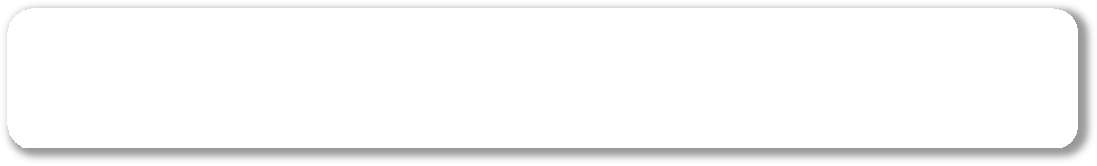


Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

Virtual Machine

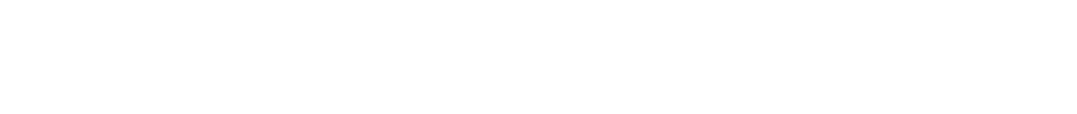
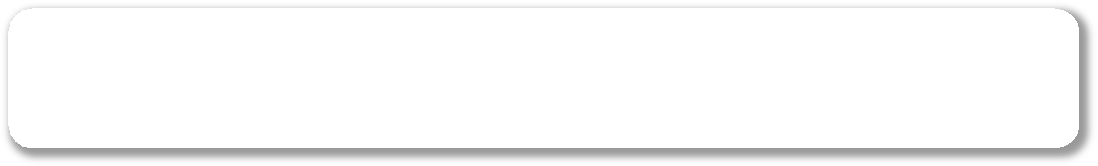
App Service

T



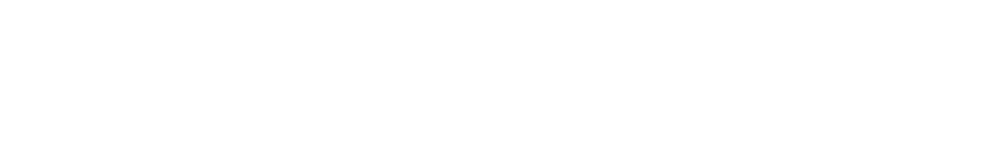
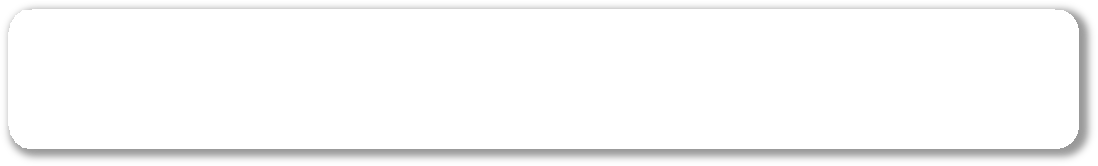
App Service is a PaaS offering from Azure. It provides already set-up environments for developers for hosting and managing their applications

Function App



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



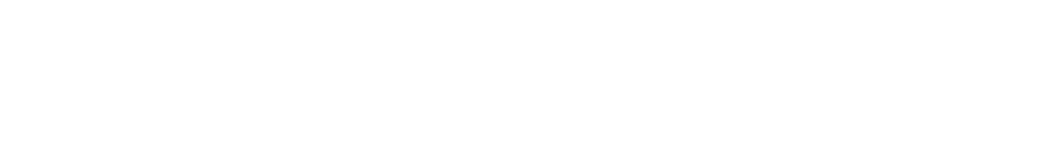
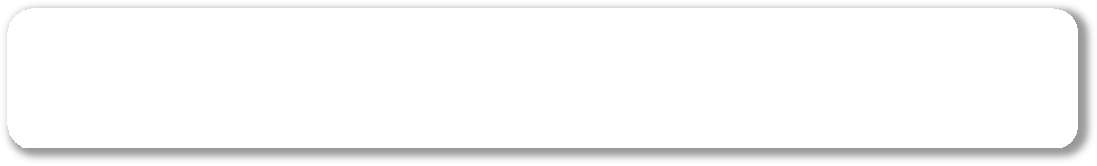


Virtual machines (VMs) are IaaS offerings from Azure. Azure allows users to launch Windows and Linux VMs of their own choice of configuration

Virtual Machine

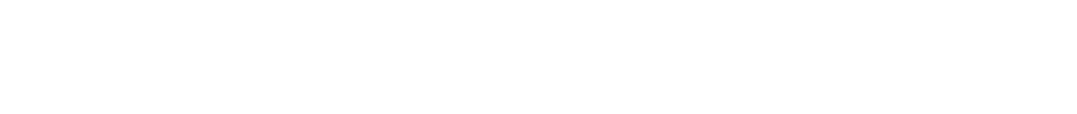
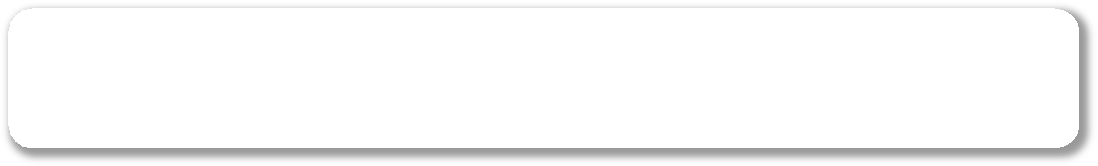
App Service

T

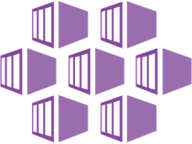


App Service is a PaaS offering from Azure. It provides already set-up environments for developers for hosting and managing their applications

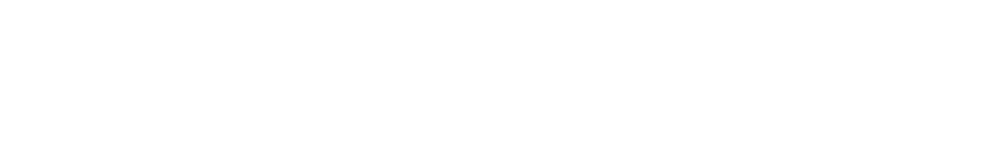
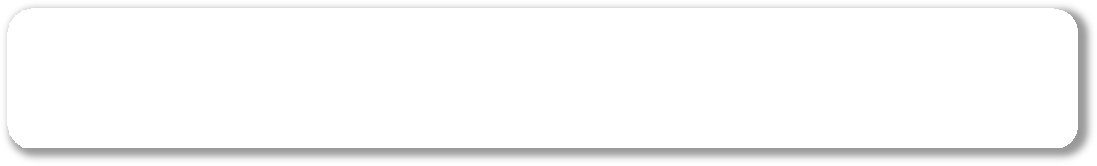
Function App



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



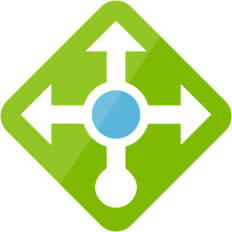
Kubernetes Service



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



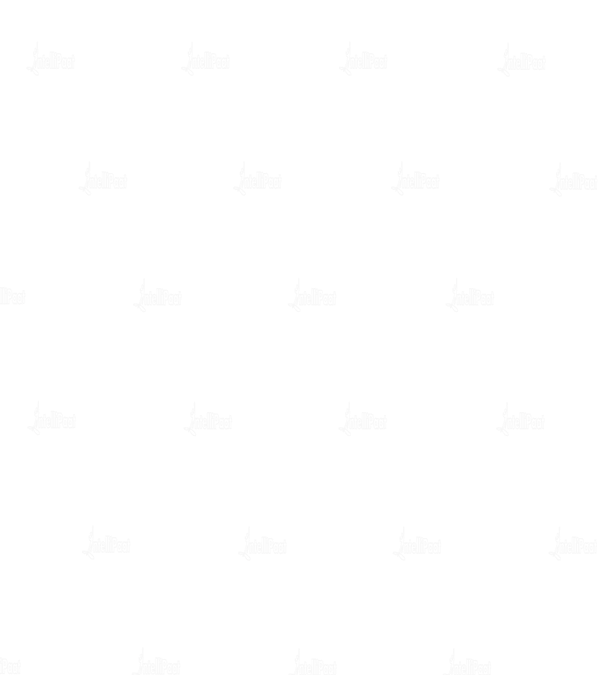
# Azure Services: Networking



**Virtual Networks**

**Load Balancers**

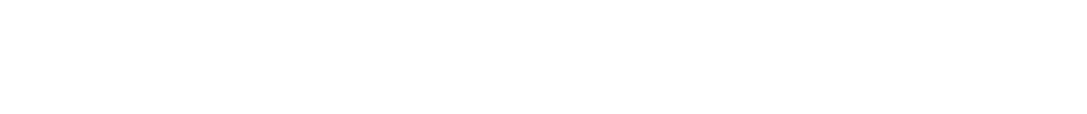
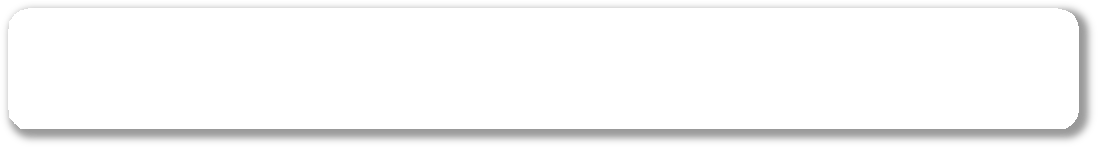
**Application Gateway DNS Zones CDN Profiles**



Copyright Intellipaat. All rights reserved.



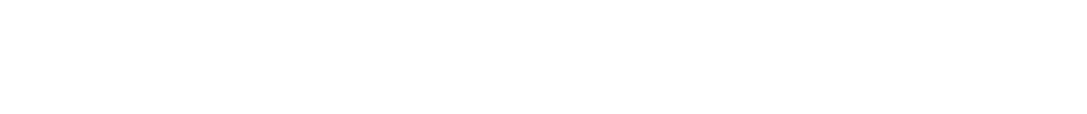
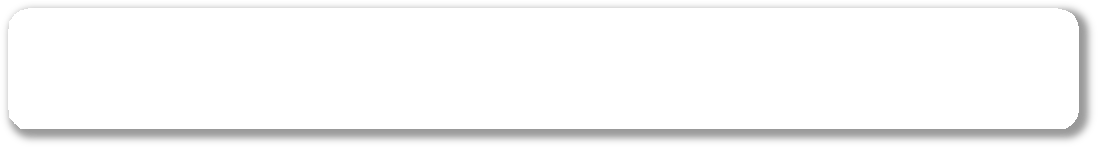
Virtual Networks



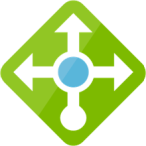
Virtual network (VNet) is a logically isolated network in the whole Azure cloud dedicated to our subscription



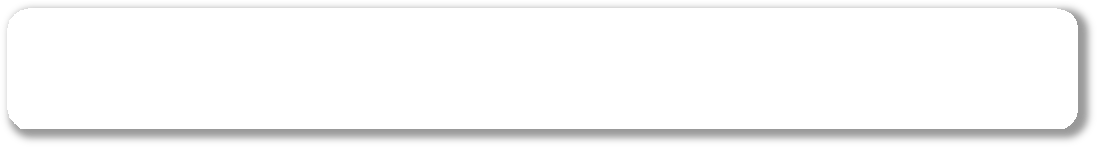
Virtual Networks



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



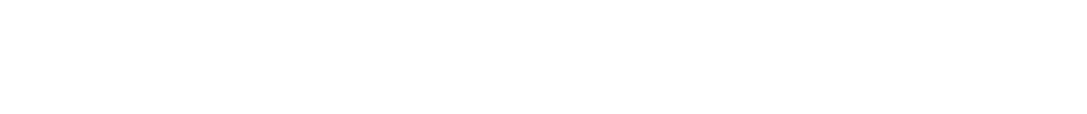
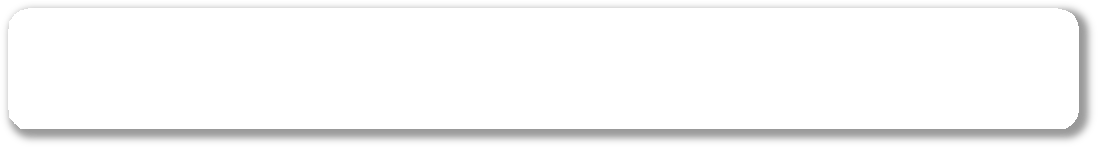
Load Balancers



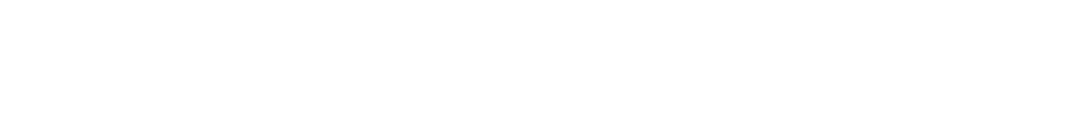
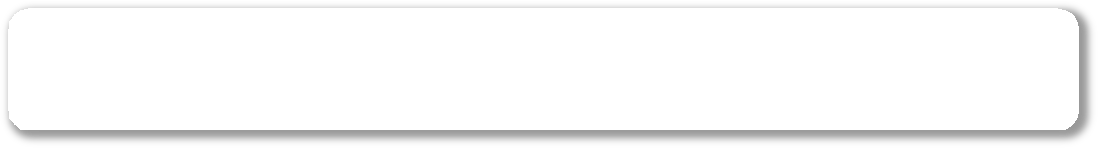
This service is used to distribute the incoming traffic among multiple healthy virtual machines



Virtual Networks



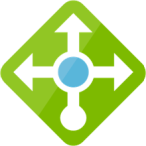
Virtual network (VNet) is a logically isolated network in the whole Azure cloud dedicated to our subscription



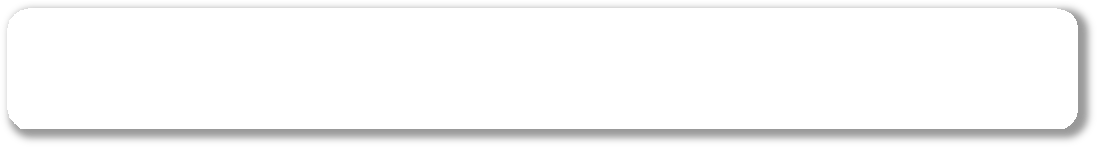
Application gateway is a web traffic load balancer that lets users manage the traffic to their web applications



Application Gateway



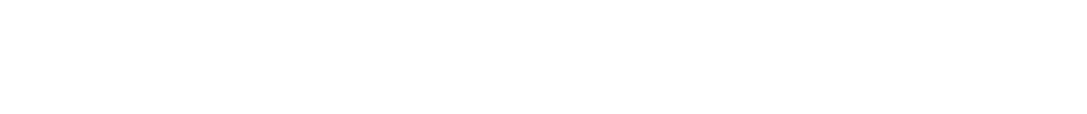
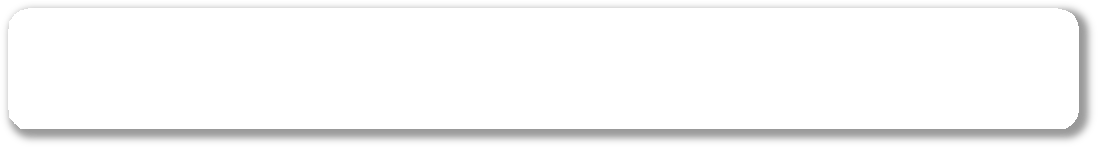
Load Balancers



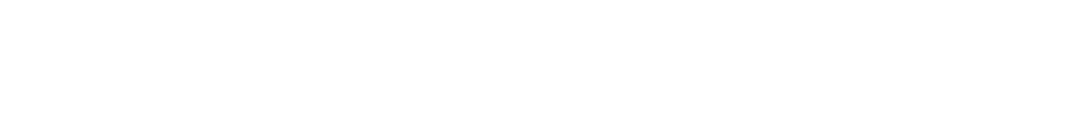
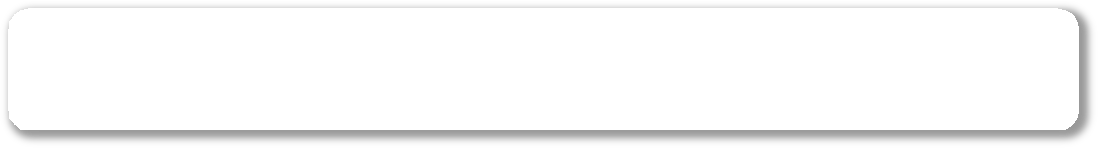
This service is used to distribute the incoming traffic among multiple healthy virtual machines



Virtual Networks



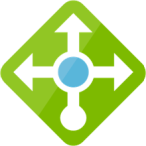
Virtual network (VNet) is a logically isolated network in the whole Azure cloud dedicated to our subscription



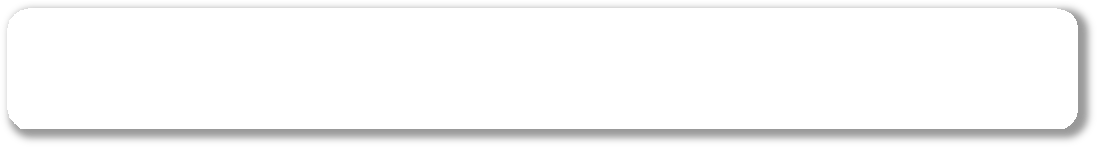
Application gateway is a web traffic load balancer that lets users manage the traffic to their web applications



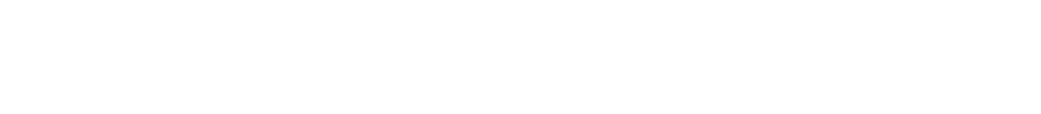
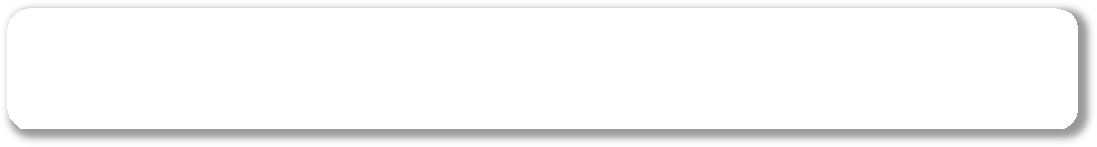
Application Gateway



Load Balancers



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



This is a hosting service for domains in Azure. We can manage

our DNS records by hosting our domain in Azure

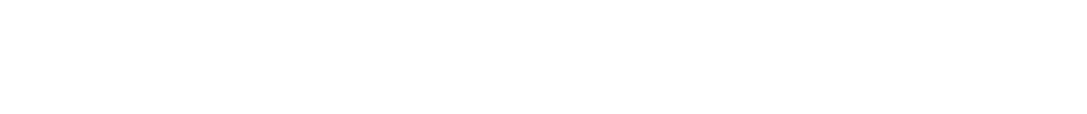
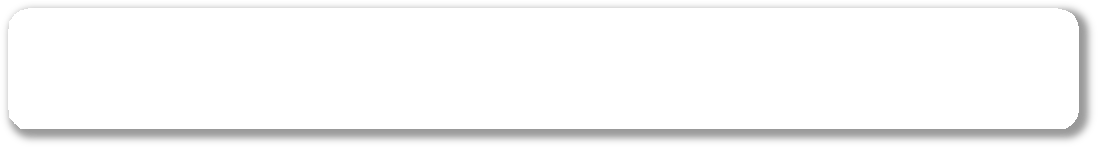


DNS Zones

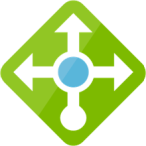
**Microsoft Azure Services: Networking**



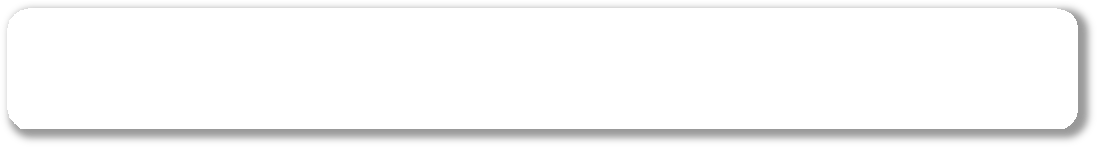
Virtual Networks



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

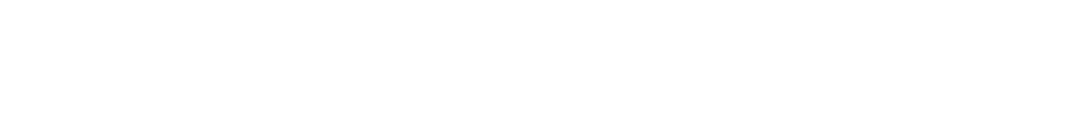
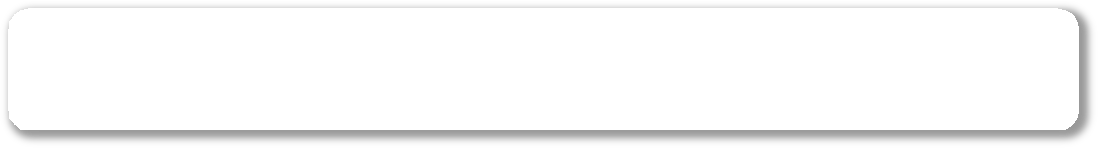


Load Balancers



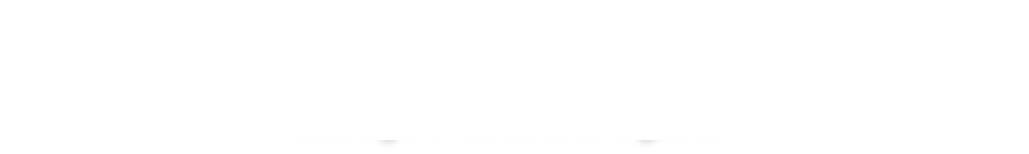
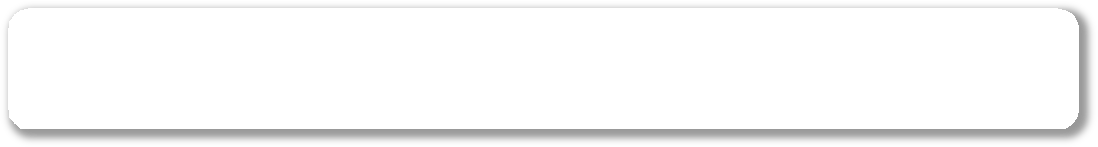
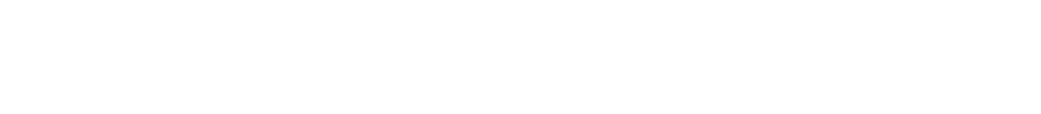
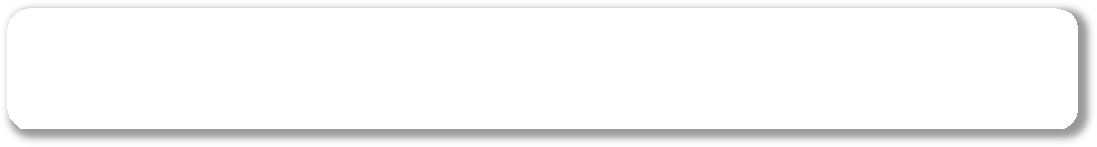
This service is used to distribute the incoming traffic among multiple healthy virtual machines





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

Application Gateway





CDN Profiles

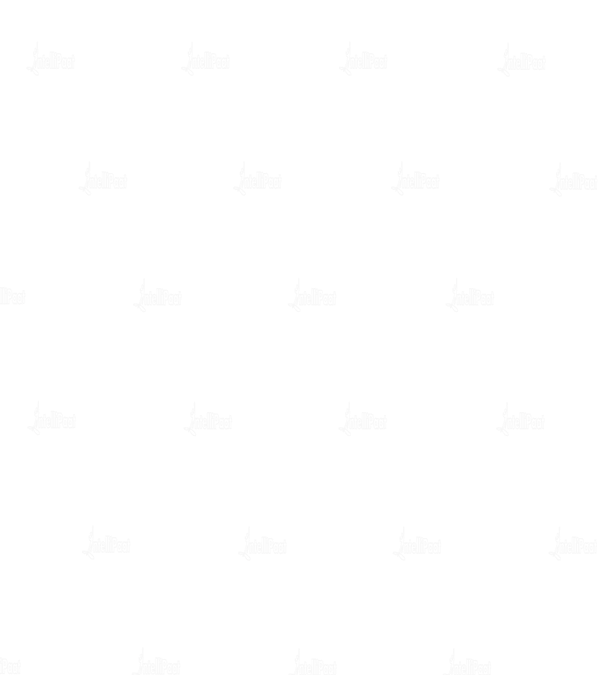
This is a hosting service for domains in Azure. We can manage

our DNS records by hosting our domain in Azure

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

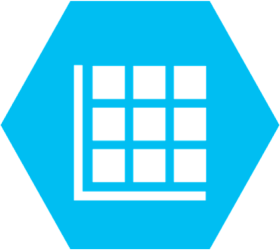
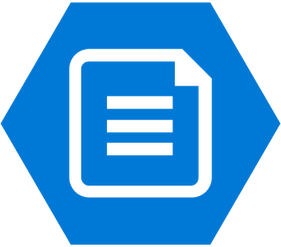
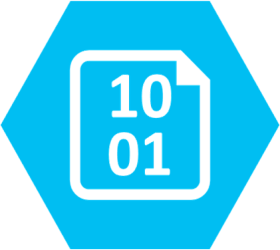


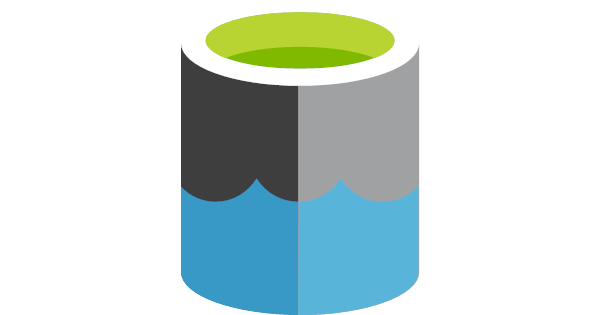
DNS Zones

Copyright Intellipaat. All rights reserved.



# Azure Services: Storage





**Blob File**

**Storage**

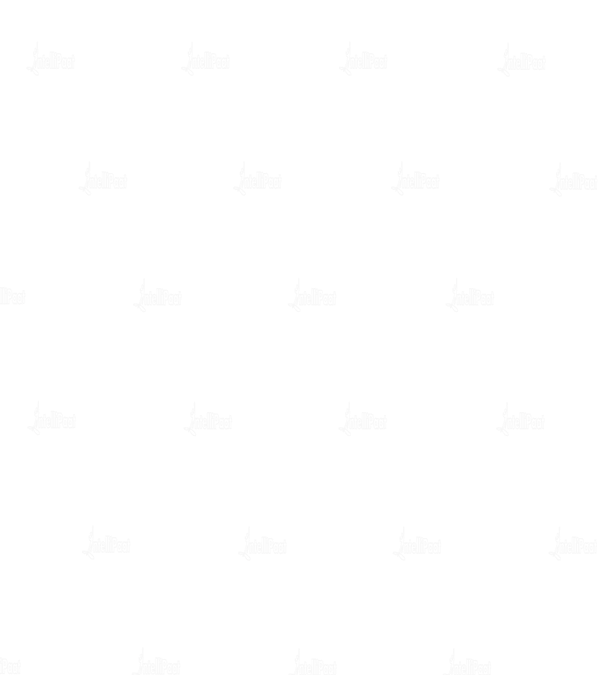
**Tabl**

**e**

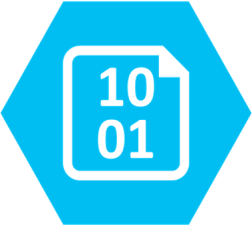
**Queue**

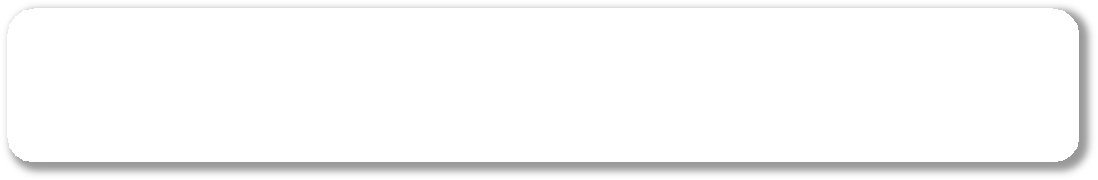
**Data Lake Storage**

**Data Box**



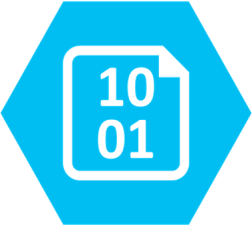
Copyright Intellipaat. All rights reserved.

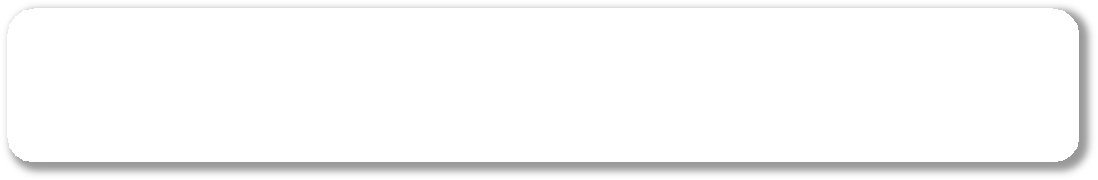




Azure blog is an object-type storage in Azure. It is used for storing large amounts of structured or unstructured data

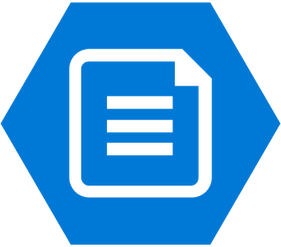
Blob



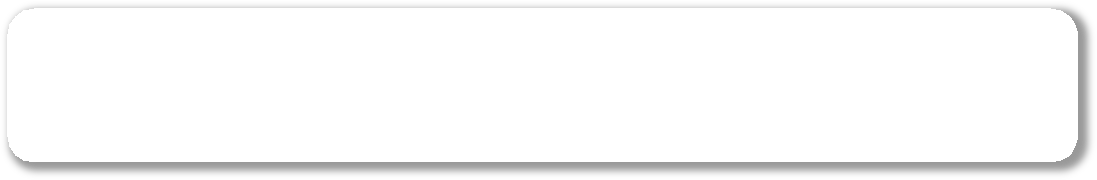


Azure blog is an object-type storage in Azure. It is used for storing large amounts of structured or unstructured data

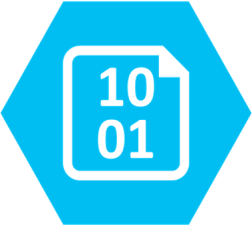
Blob

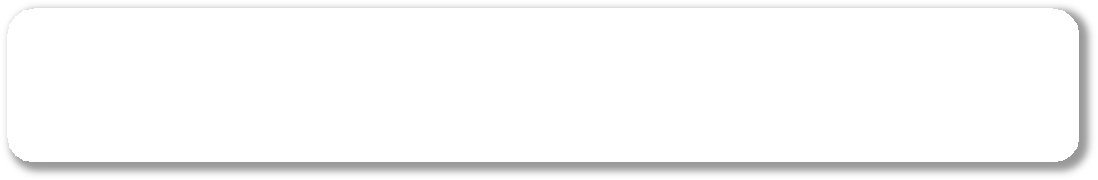


File Storage



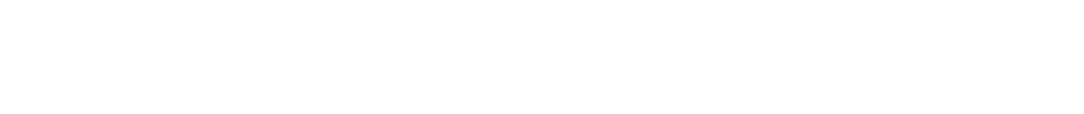
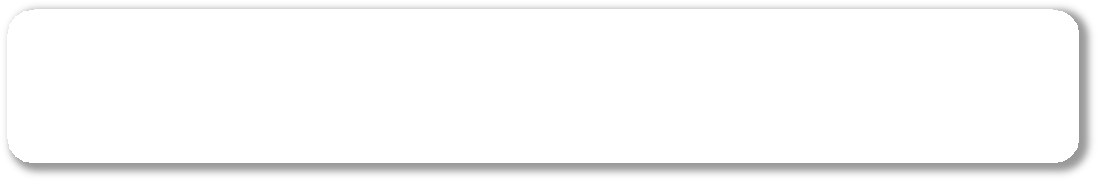
This is a file storage solution by Azure. It supports the SMB (Server Message Block) protocol



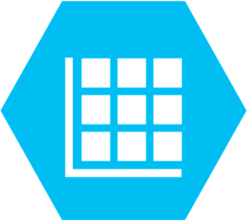


Azure blog is an object-type storage in Azure. It is used for storing large amounts of structured or unstructured data

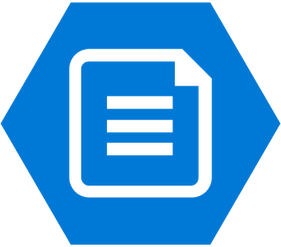
Blob



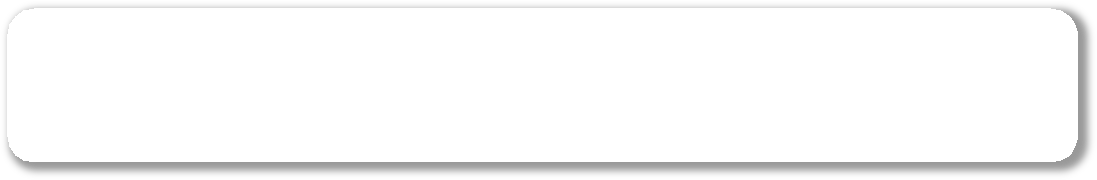
Azure tables are used to store large amount of structured data. It is a NoSQL database, so it can store non-relational data



Tabl e

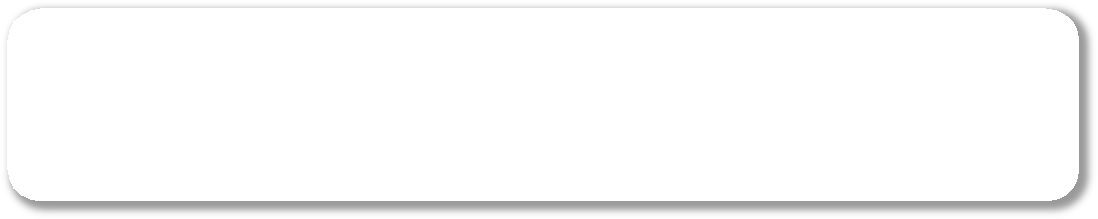


File Storage



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

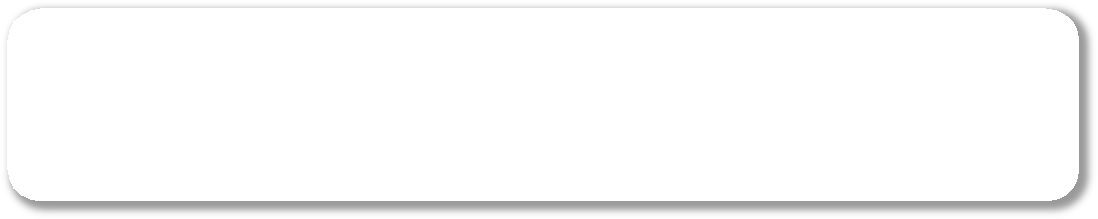




This service is used for storing large number of messages that can be accessed from anywhere in the world using authenticated HTTP or HTTPS calls

Queue



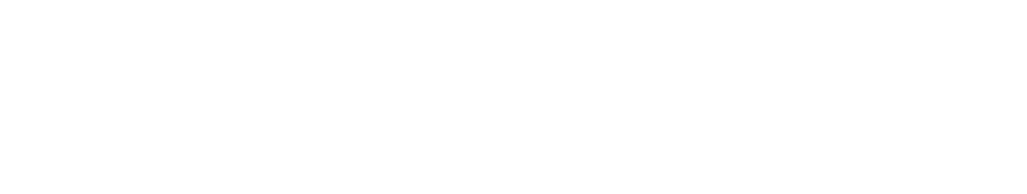
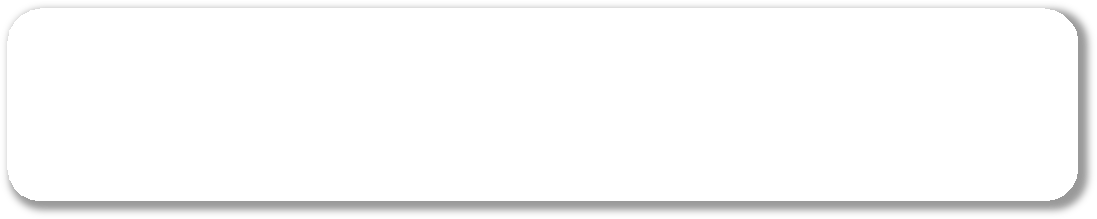


This service is used for storing large number of messages that can be accessed from anywhere in the world using authenticated HTTP or HTTPS calls

Queue

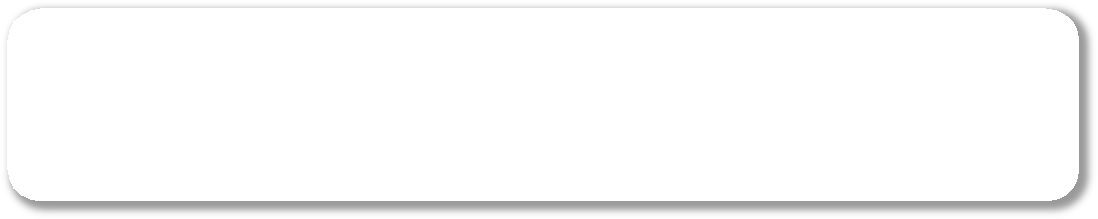


Data Lake Storage



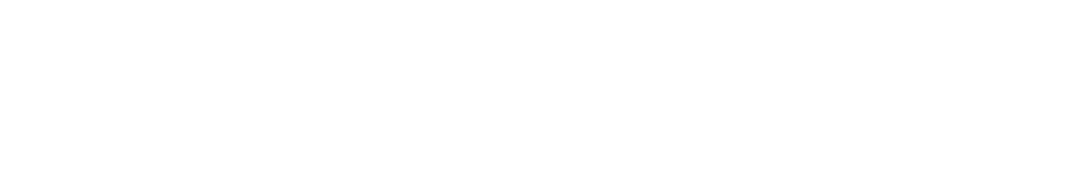
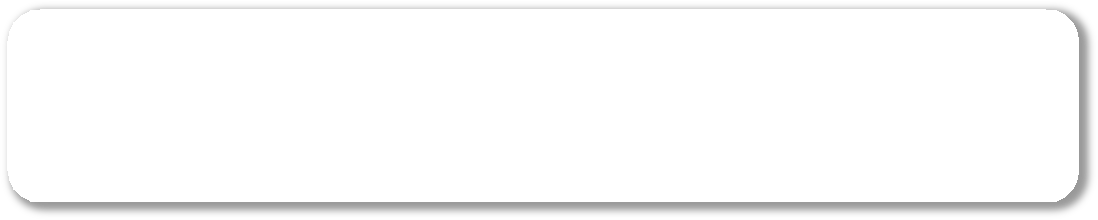
Azure Data Lake Storage is an enterprise-wide hyper-scale repository for Big Data Analytics workloads. It enables us to capture data of any size, type, and ingestion speed in a single place for operational and exploratory analytics



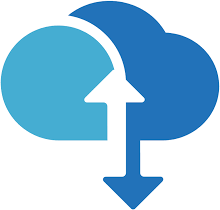


This service is used for storing large number of messages that can be accessed from anywhere in the world using authenticated HTTP or HTTPS calls

Queue



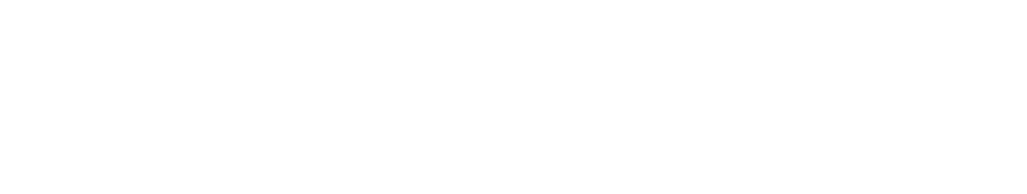
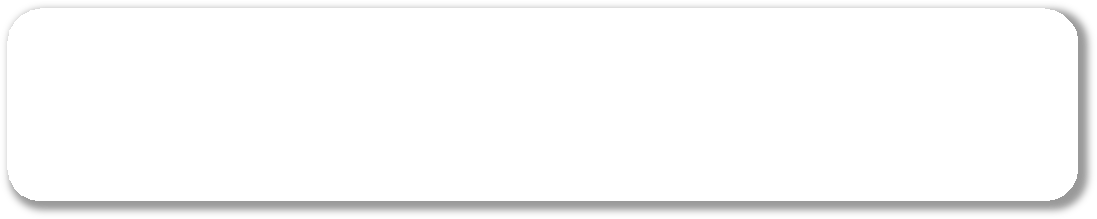
This service can be used to move data to Azure quickly. Data Box offline devices easily move data to Azure when busy networks are not an option. Data Box online appliances transfer data to and from Azure over the network



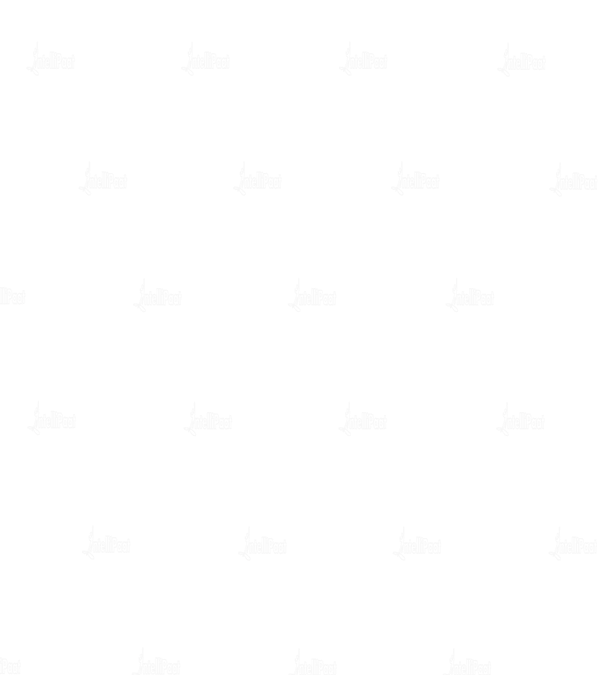
Data Box



Data Lake Storage



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



# Azure Services: Database



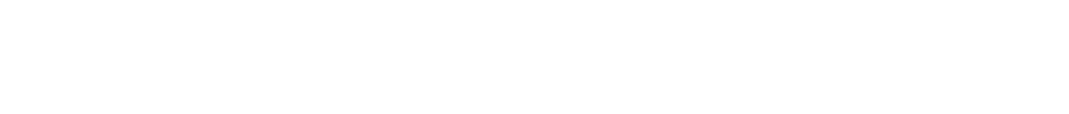
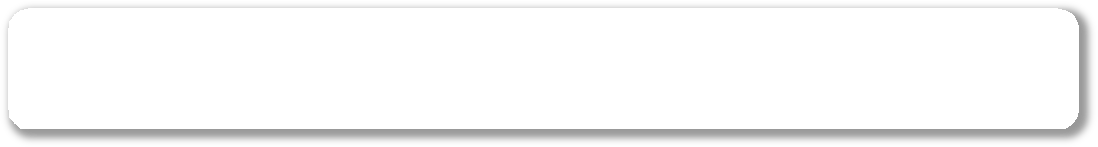
**SQL Database CosmosDB Data Factory Data Lake**

**Analytics**

Copyright Intellipaat. All rights reserved.



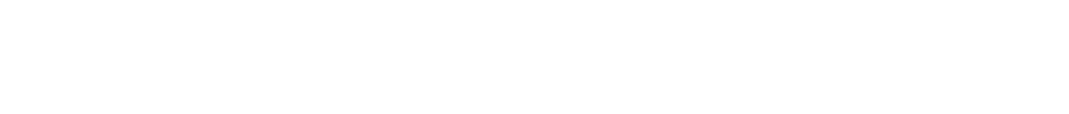
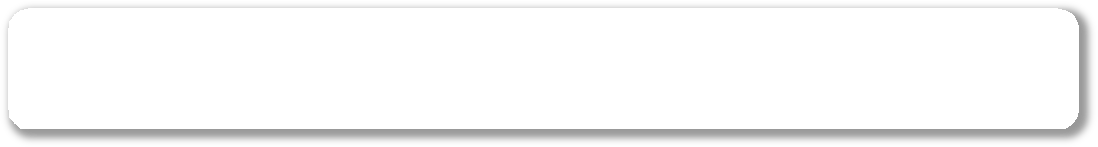
SQL Database



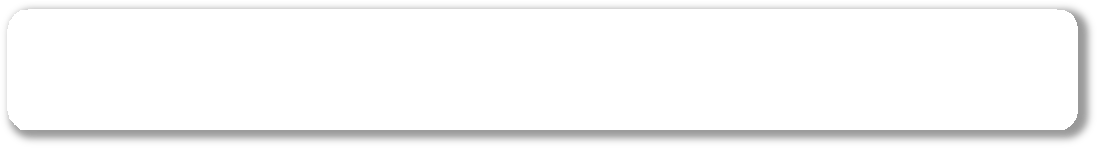
It's basically a SQL Server but on cloud. It works to create, scale, and extend applications into the cloud using MS SQL Server



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



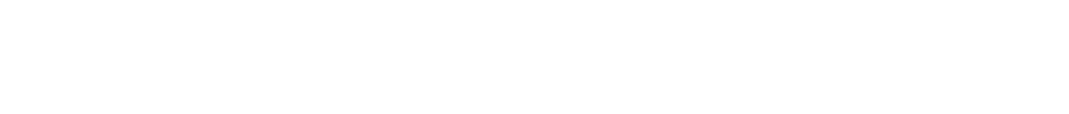
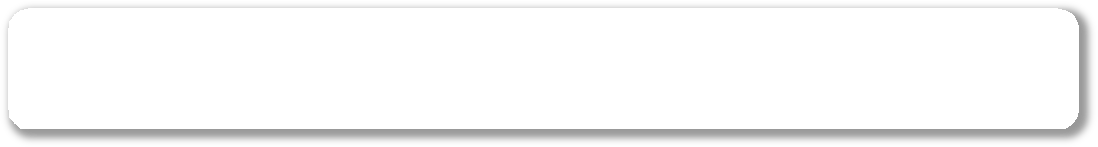
Cosmos DB is a NoSQL database service that implements a

subset of the SQL SELECT statement on the JSON documents

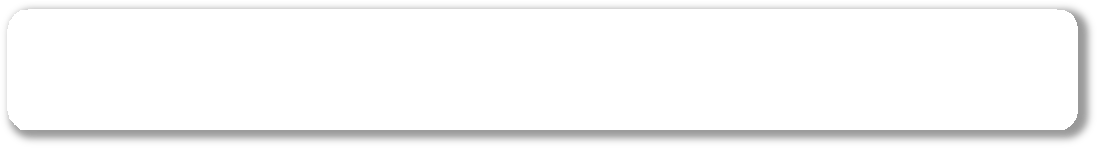
CosmosDB



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

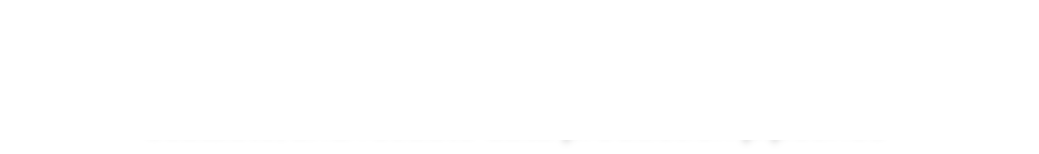
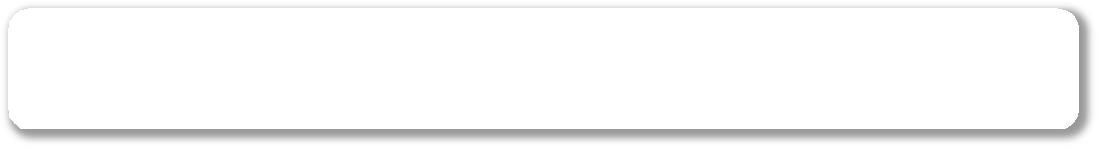


Cosmos DB is a NoSQL database service that implements a

subset of the SQL SELECT statement on the JSON documents

CosmosDB



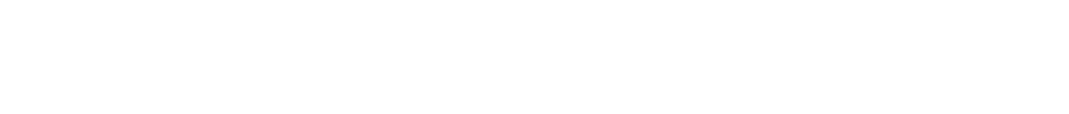
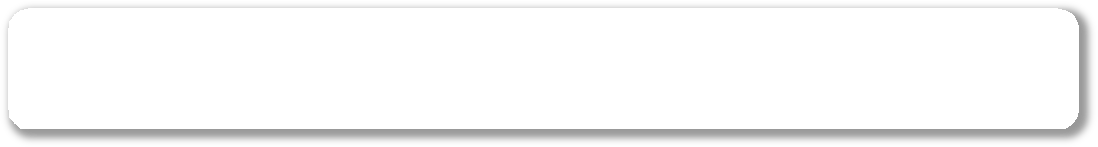


This service is a fully managed service for composing data storage, processing, and movement services into streamlined, scalable, and reliable data production pipelines

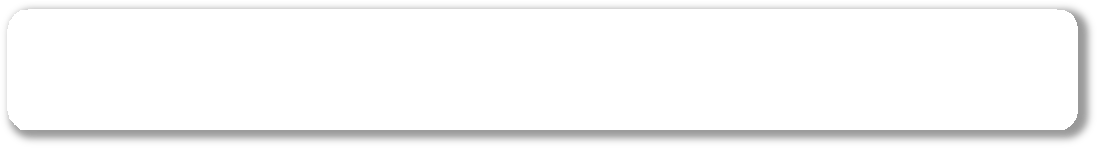
Data Factory



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

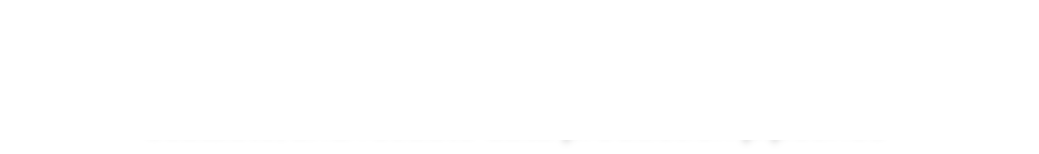
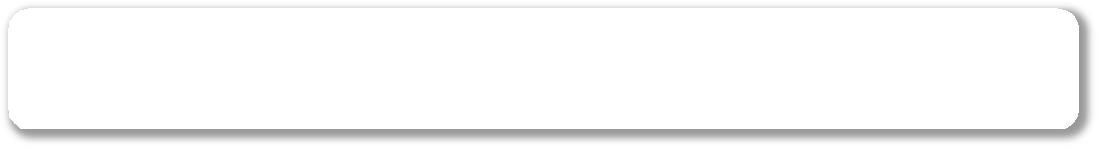


Cosmos DB is a NoSQL database service that implements a

subset of the SQL SELECT statement on the JSON documents

CosmosDB

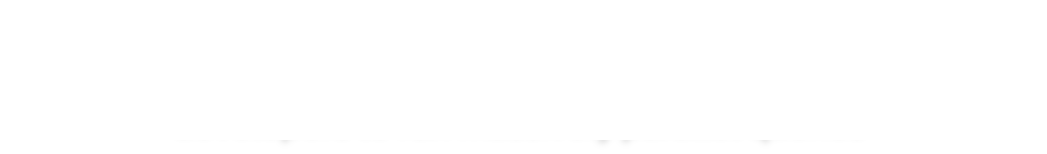
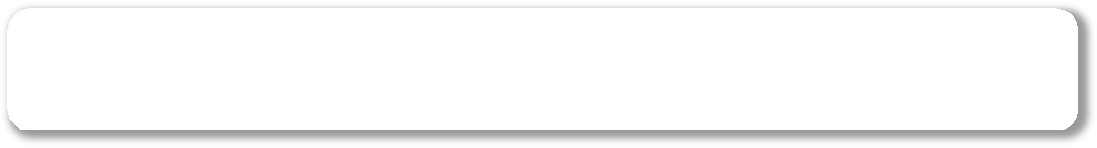




This service is a fully managed service for composing data storage, processing, and movement services into streamlined, scalable, and reliable data production pipelines

Data Factory

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

**Step 1**

Go to Azure home

And click opnag"Setart free to create a new account

**Step 4**

Enter

the email ID and

**Step 5**

Check the inbox to

passwor We widsh to

associate with our

new Azure account

get the and then enctoedr ethe

code here to

verify

**Step 8**

Agree to the terms and

Conditions, and then click on ‘Sign up

**Step 9**

We are

now

signed and ready utopgo

**Step 2**

Click on the

**Step 3**

green

on the buluteton banner labelled ‘Start for free’

Now, click on

‘Create Microsoft account’ to create a new account

Enter a

**Step 6** phone number for the

and then, eanccteorutnhte code that is received by text to verify

Fill in valid

**Step 7** details in

the

given

We won’t befocrhmar;ged

in the free period

**Step 10**

Click on the green button to

start using Microsoft Azure

Refer to Hands-on 1 in LMS

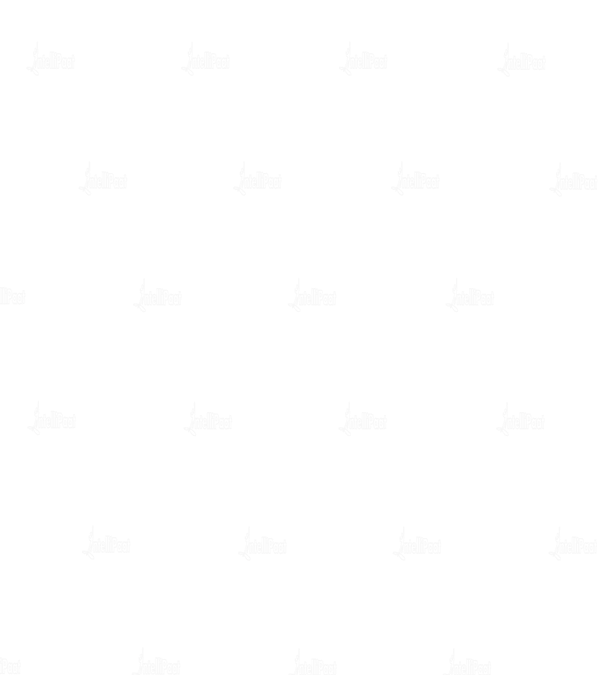


# Hands-on : Creating a Microsoft Azure Account

## Hands-on

### Creating a new Microsoft Azure Account

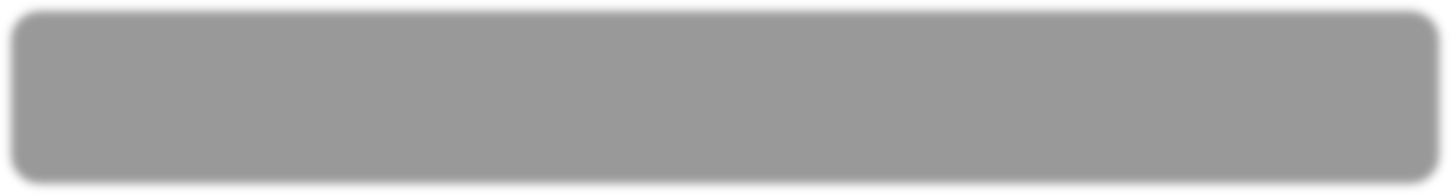
* 1. **Signing up on the Azure Portal and starting with a free trial subscription**



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

Copyright Intellipaat. All rights reserved.

## Ways of Accessing Microsoft Azure



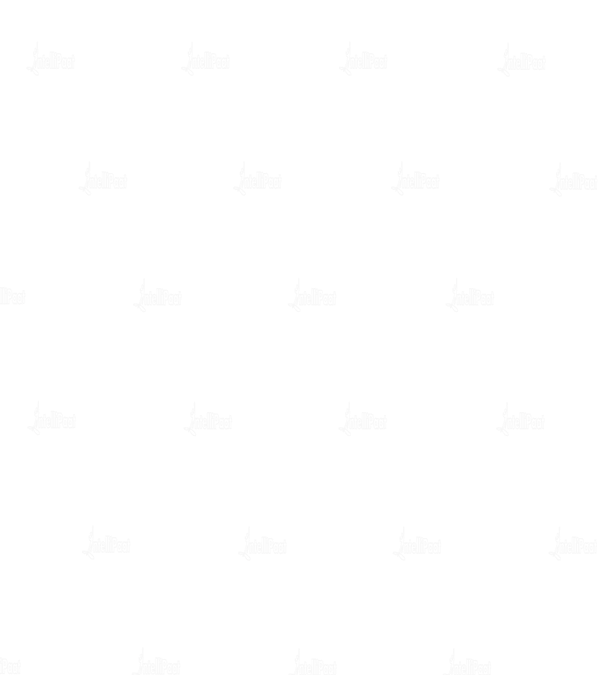
Microsoft provides various ways to access the Microsoft Azure platform. For those who prefer a GUI, there is Azure Classic Portal. For those who prefer command-line tools, there is Azure PowerShell or Azure CLI



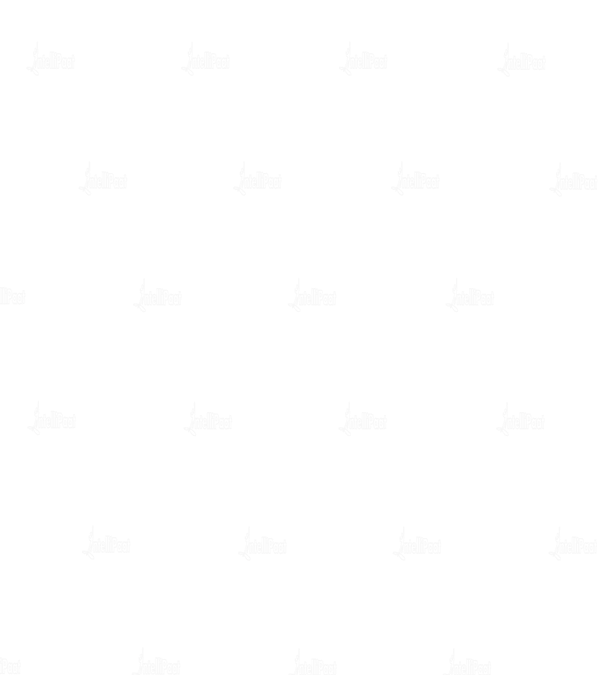
##### Azure Portal

**Azure CLI**

##### Windows PowerShell



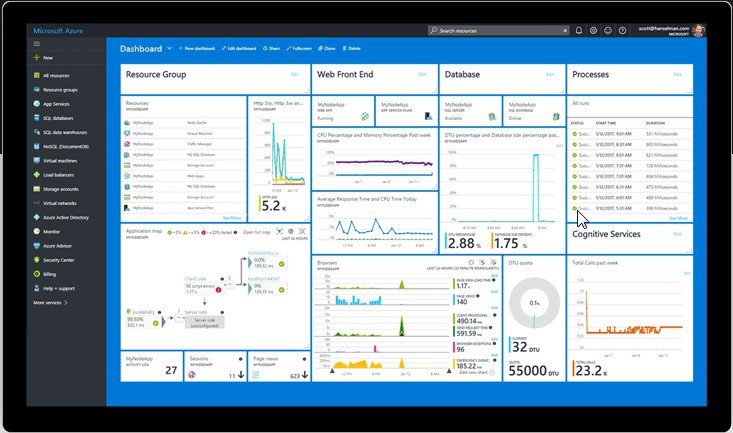
Copyright Intellipaat. All rights reserved.



## Azure Portals

##### Azure

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

**Portal**

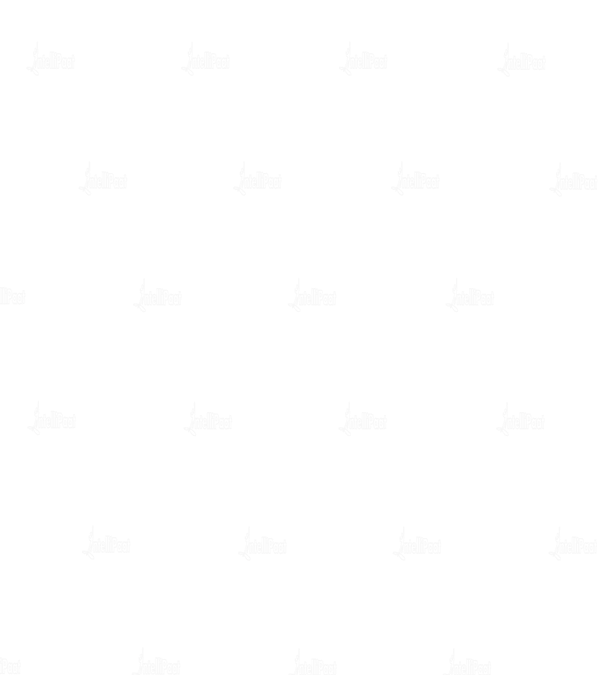
Copyright Intellipaat. All rights reserved.

## 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



Copyright Intellipaat. All rights reserved.

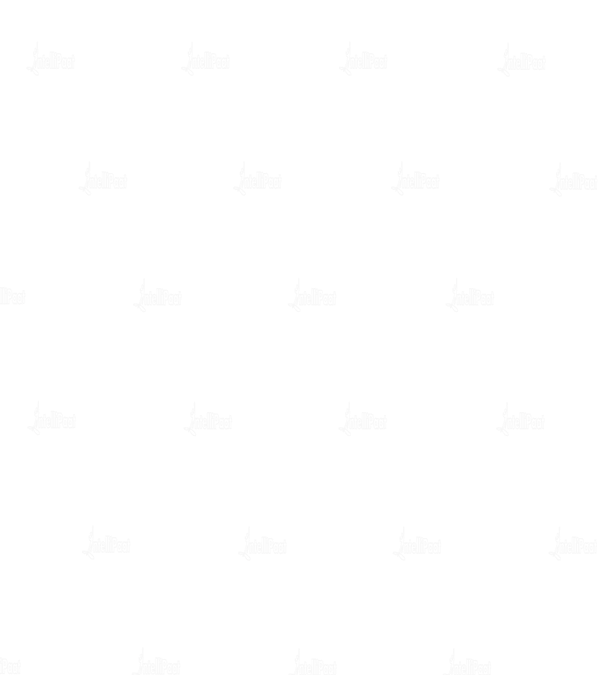
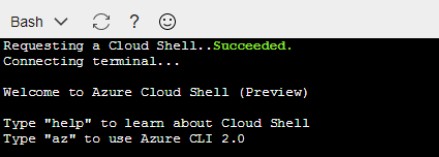


# Hands-on: Setting up Azure PowerShell

## Hands-on

### Set up the PowerShell Client on Azure Portal

* 1. **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

Copyright Intellipaat. All rights reserved.

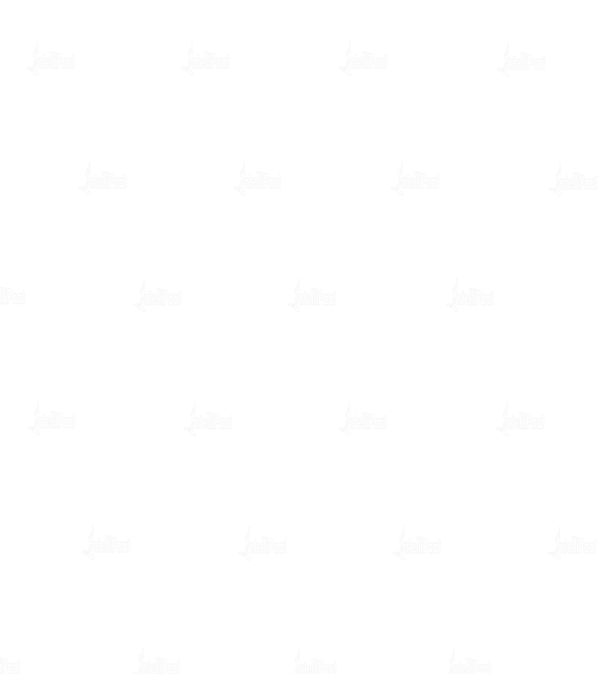


# Hands-on: Setting up Azure CLI

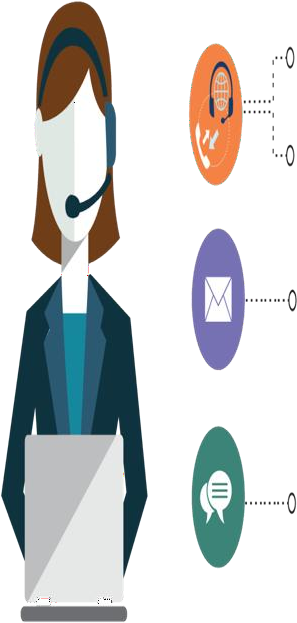
## Hands-on

### Set up the Azure CLI on the Azure Portal

* 1. **Run a basic command to create a Resource Group using Azure CLI**





**India: +91-7847955955**



**US: 1-800-216-8930 (TOLL FREE)**

[**support@intellipaat.co**](mailto:support@intellipaat.co) **m**

**24/7 Chat with Our Course**

**Advisor**

Copyright Intellipaat. All rights reserved.