AWS Foundation

Introduction to Cloud Computing

Agenda

# Introduction to Cloud Computing

Introduction to Cloud Computing?

- ★ In the simplest terms, Cloud Computing is when you use a computer/server which is provided to you by someone else.
- ★ This server has to be accessed over the internet by using a web-based tool for personal or business use.

Virtualization

Virtualization is the creation of a virtual version of something, such as operating system, server, storage device or network resources.

Running windows on MacOs

Machine with MacOS

Hypervisor(VMware)
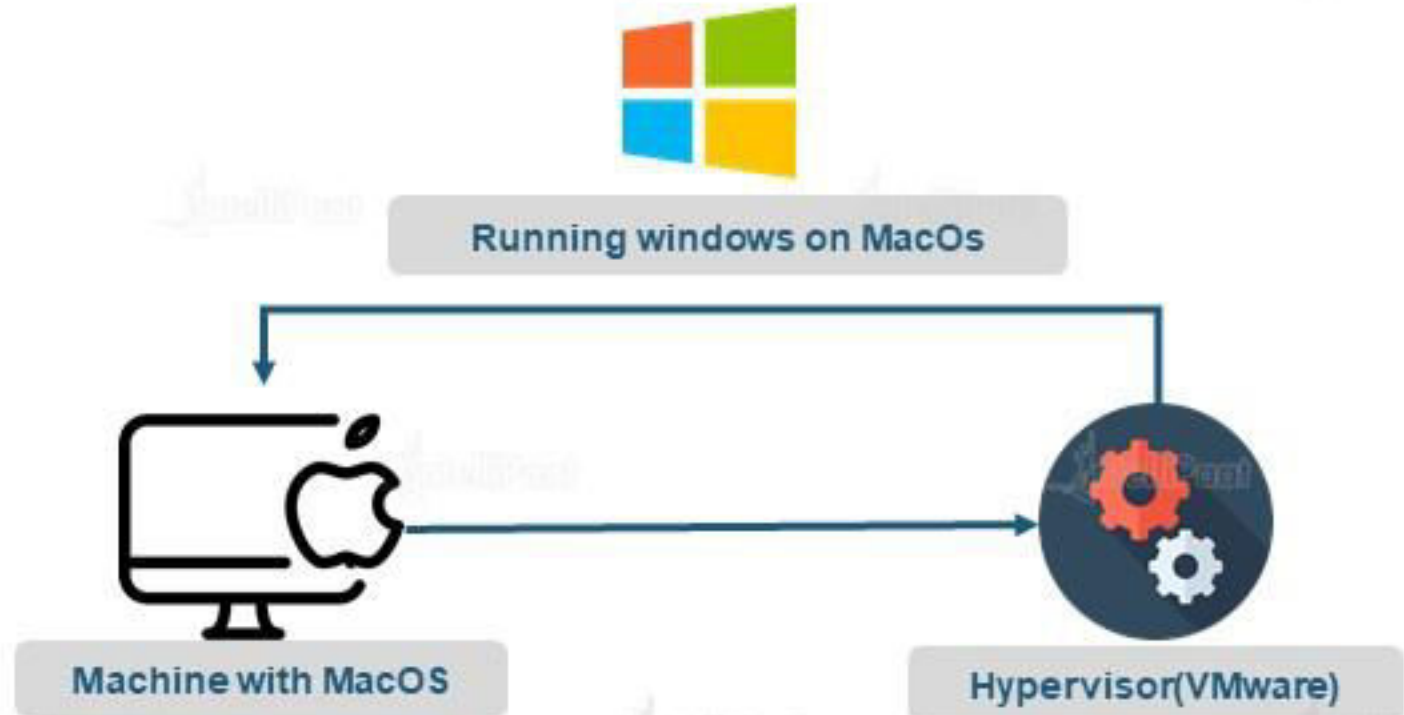
Cloud Computing

* Virtualized Compute Environment over internet/intranet is cloud.

* Cloud computing = Virtualization + Internet/Intranet

Advantages

Advantages over on-premise

No Capital Expenditure, whatsoever

Provides very high available solutions without any extra effort

Everything is charged on per second/minute/hour basis and pay only if you use
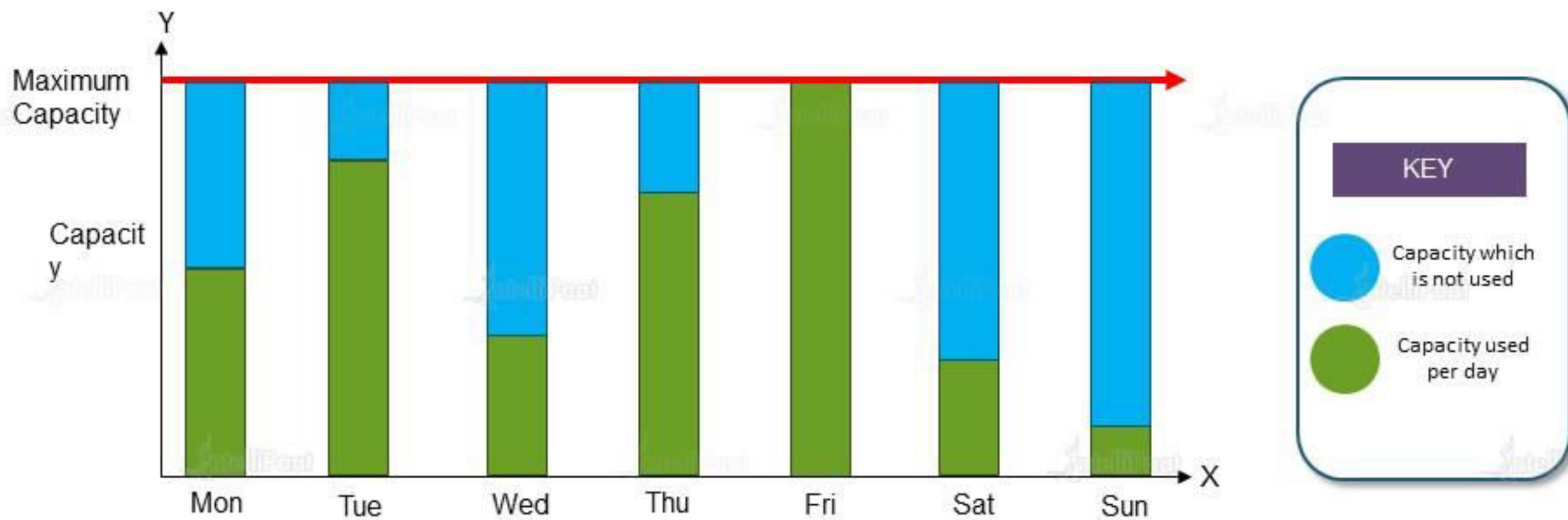
Security

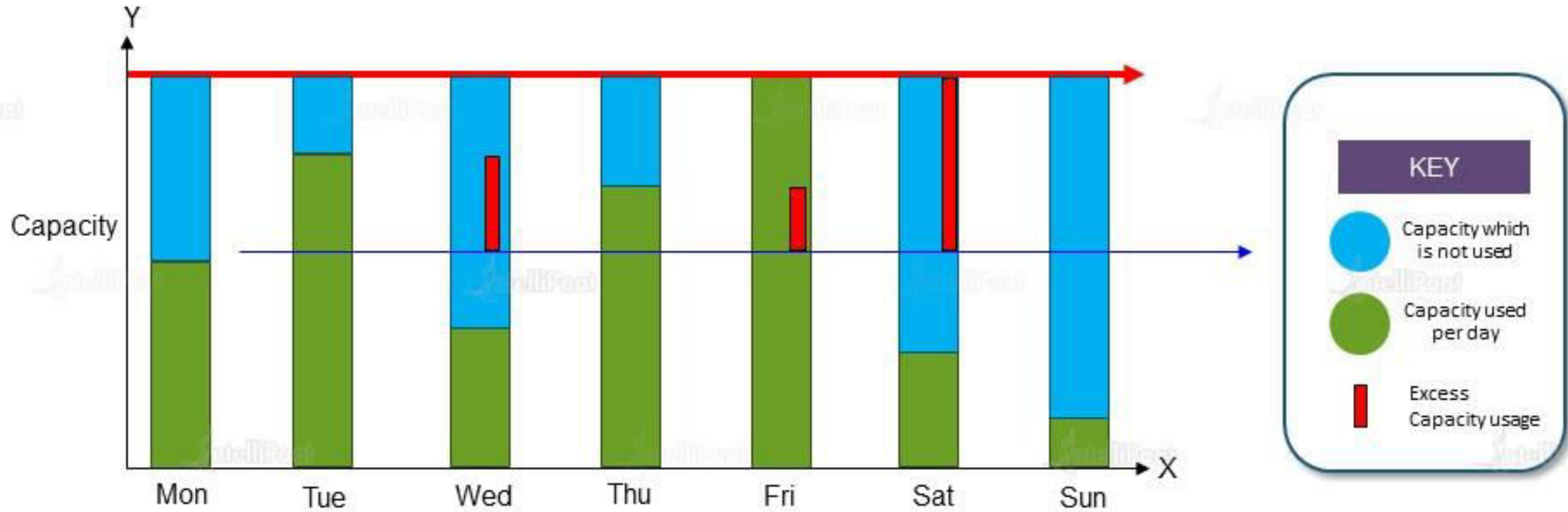Getting a new server is as easy as clicking some mouse buttons
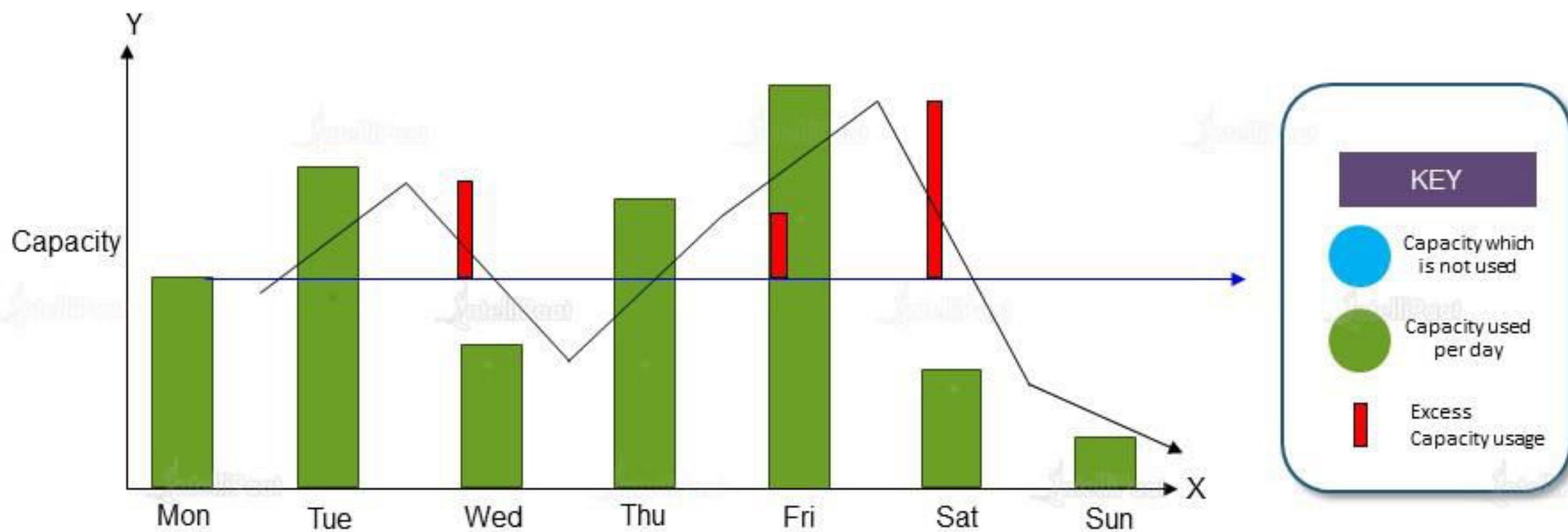
Flexibility and Error shield

Advantages over on-premise

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Advantages over on-premise
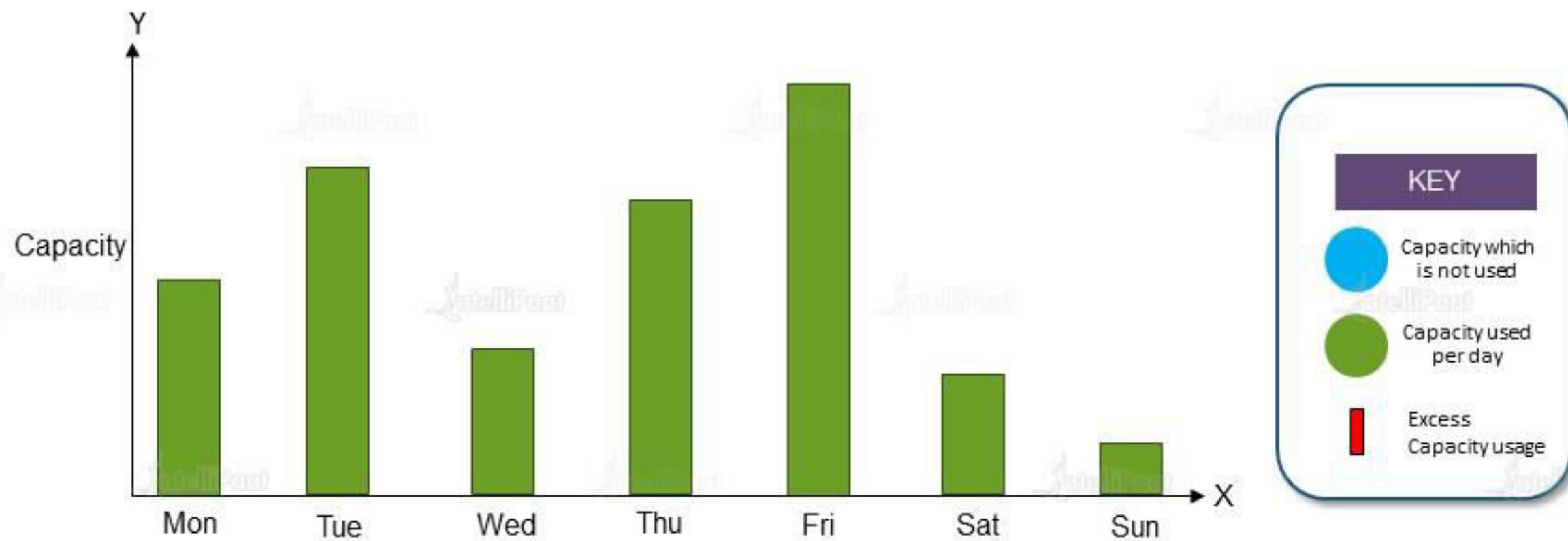
Cloud Service and Deployment Models

Models and Deployments

Cloud Service Models

- ❑ IaaS (Infrastructure as a Service): AWS, Rackspace, MS Azure etc.
- ❑ PaaS (Platform as a Service): AWS Elastic Beanstalk, Heroku etc.
- ❑ SaaS (Software as a Service): Google drive, Google docs, MS Office 365 etc.

Infrastructure + **Platform** + **Cooking** = **Product** → **Users**
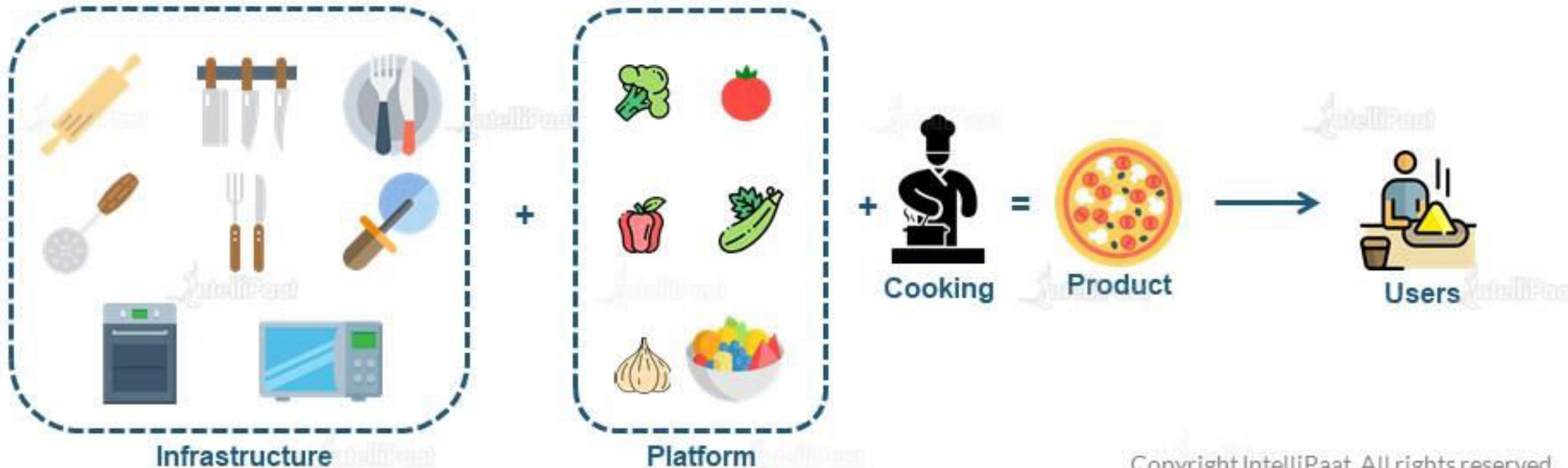
Models and Deployments

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Infrastructure + **Platform** (OS, JVM, Java, IDE) + **Coding** `</>` = **Product** → **Users**
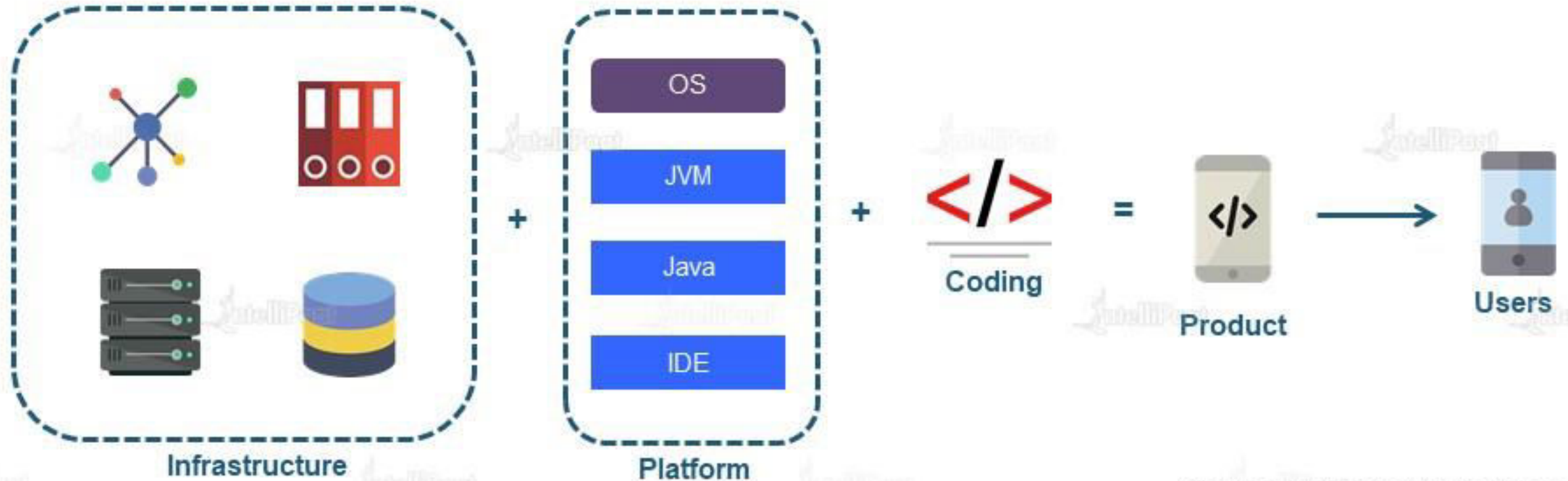
Models and Deployments

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Cloud Service Models
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On-Premise	IaaS	PaaS	SaaS
Application	Application	Application	Application
Security	Security	Security	Security
Database	Database	Database	Database
OS	OS	OS	OS
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Network	Network	Network	Network
Data Center	Data Center	Data Center	Data Center

KEY

○ Available on Premise

○ Cloud provided

Models and Deployments

Cloud Service Models
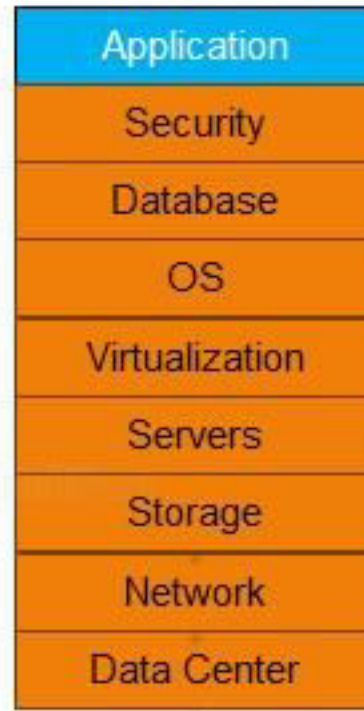
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Cloud Deployment Models

- Public Cloud (AWS, MS Azure, Google Platform, IBM Bluemix etc.)

- Private Cloud (HPE, VMware, RedHat OpenStack, Dell EMC etc.)

- Hybrid Cloud

Cloud Service Providers

Cloud Service Providers

A Cloud Provider is a company that delivers services and solutions which are based on cloud computing to businesses and/or individuals

Amazon Web Services (AWS)

AWS

Microsoft Azure

Azure

Google Cloud Platform

Cloud Service Providers

Amazon Web Services

➤ The biggest cloud service provider with 33 zones of availability spread across 17 worldwide regions!

➤ The largest companies in the world like Netflix, Reddit and NSA use AWS to host their applications

Microsoft Azure

➤ 2nd biggest market share holder in the cloud computing industry

➤ Azure ranks number in the development and testing tools

Google Cloud Platform

➤ They rank behind AWS and Azure.

➤ They mainly provide SaaS services (Google forms, Google docs)

What is AWS?

What is AWS?

- Amazon Web Services provides on-demand cloud computing services to businesses and individuals.
- It is owned by Amazon.com and specializes at providing infrastructure as a service
- AWS is a platform which helps businesses scale and grow by offering secure cloud services like compute power, content delivery, database storage, and other functionality.

What is AWS?

Competitors for AWS

* Amazon Web Services has 2 main competitors right now and they are Microsoft Azure and Google Cloud

* Both of them lack behind in experience and the number of services provided

* But Azure and Google Cloud are catching up in the race

* If you want to choose a cloud provider and you do not know anything about the industry, you place your bets surely on AWS because of their huge experience

AWS Management Console
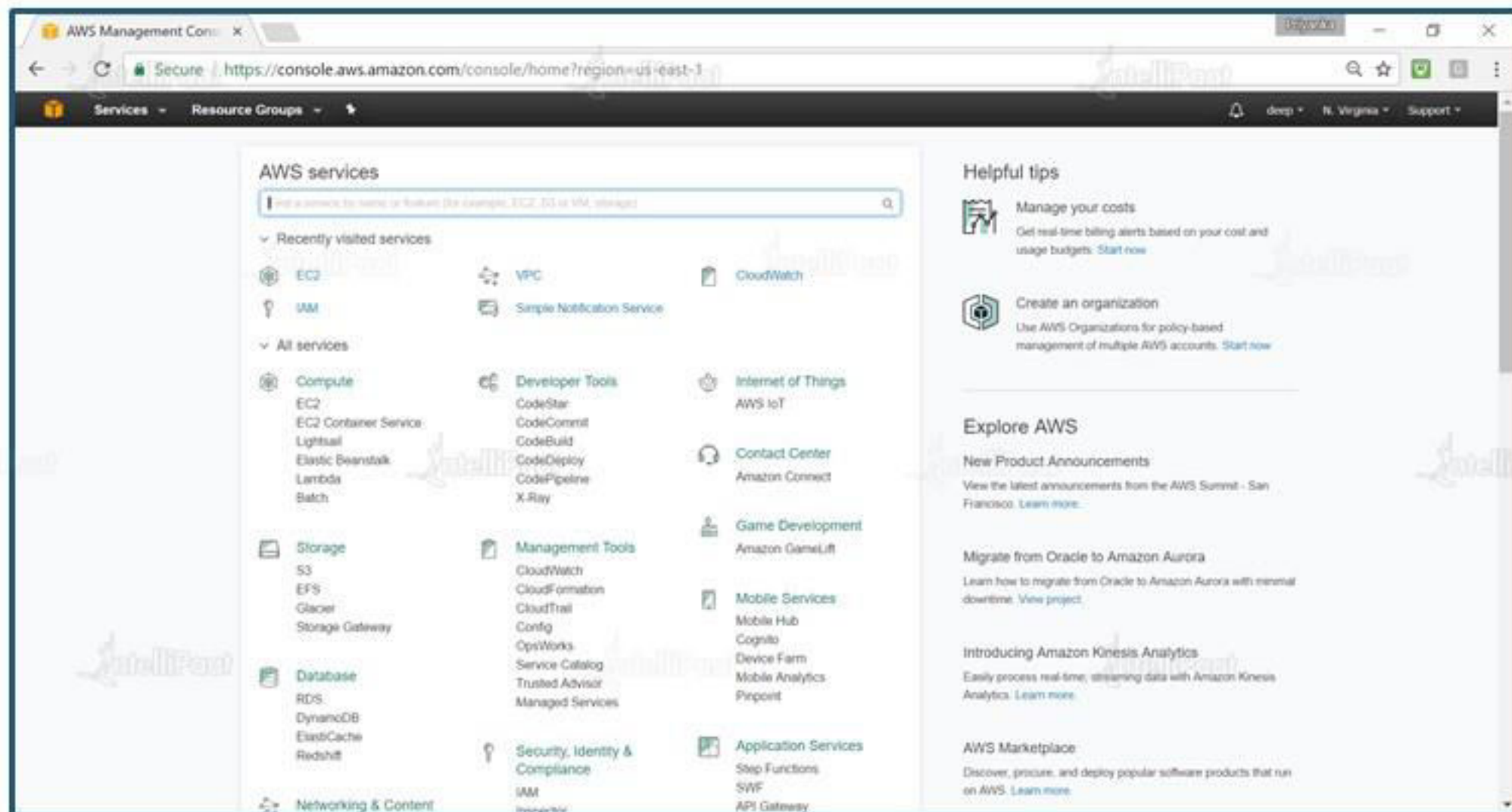
Who uses AWS?

World's largest companies in their own field of work such as Netflix and Samsung use AWS Cloud services

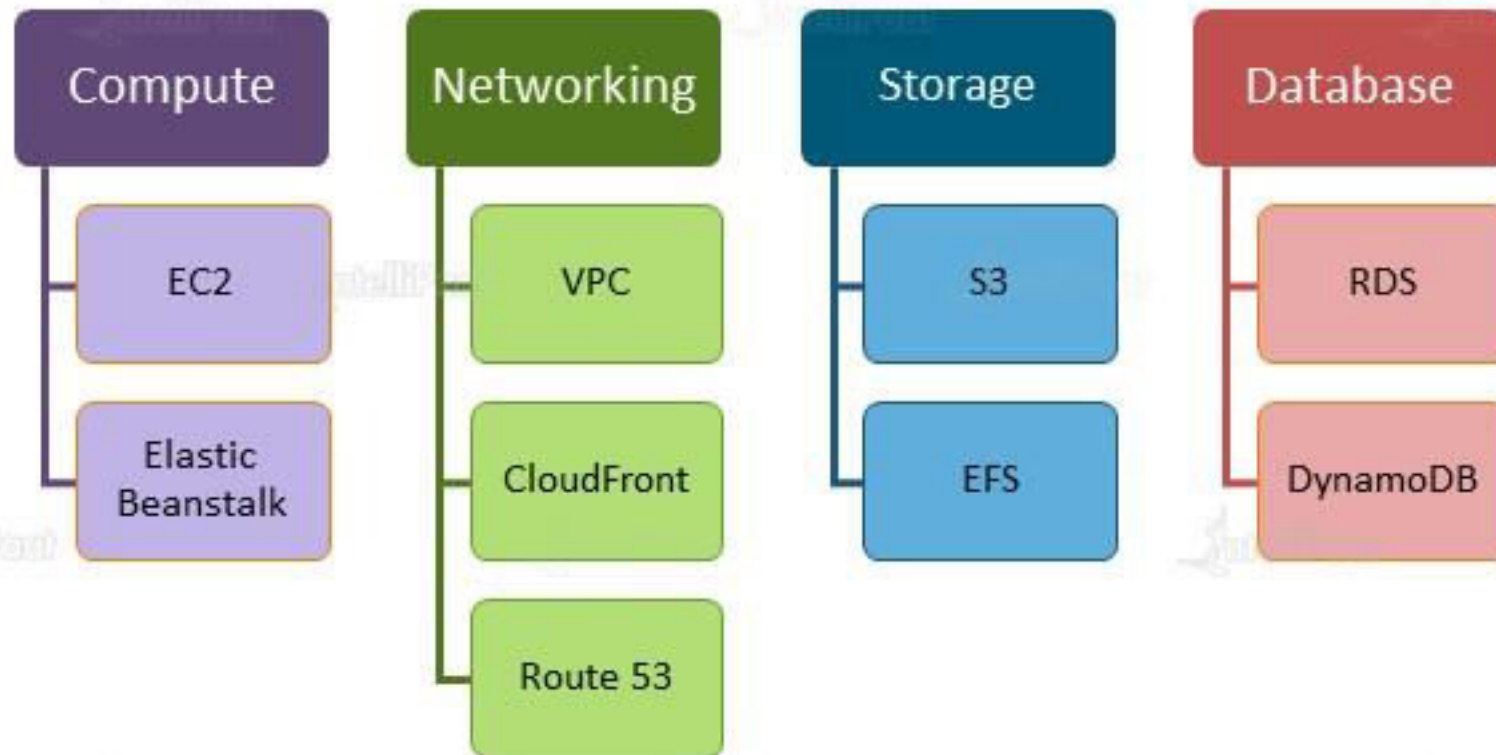# AWS Service Domains

AWS Service Domains

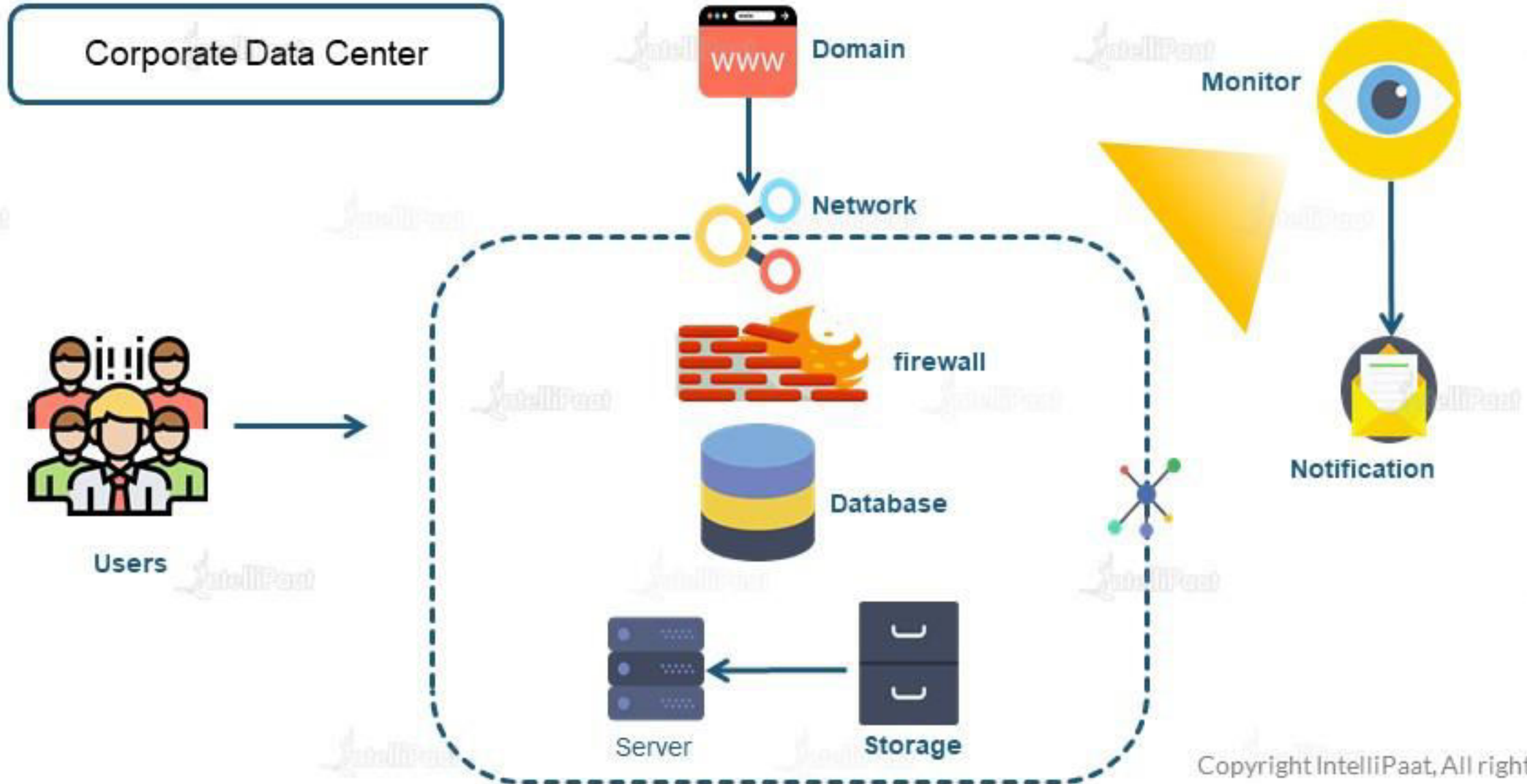Compute

Networking

Storage

Database

AWS Services

AWS Services

AWS has a rich list of on-demand cloud services to provide, and here are several of the services under the respective service domains.

Compute
- EC2
- Elastic Beanstalk

Networking
- VPC
- CloudFront
- Route 53

Storage
- S3
- EFS

Database
- RDS
- DynamoDB

AWS Suite

AWS Suite

Corporate Data Center

Domain

WWW

Monitor

Network

firewall

Users

Database

Notification

Server

Storage

AWS Suite

Route53

CloudWatch

IAM

Network

VPC

AWS

Security Groups/NACLS

SNS

DynamoDB   RDS

EC2   EBS   EFS

Starting off with AWS
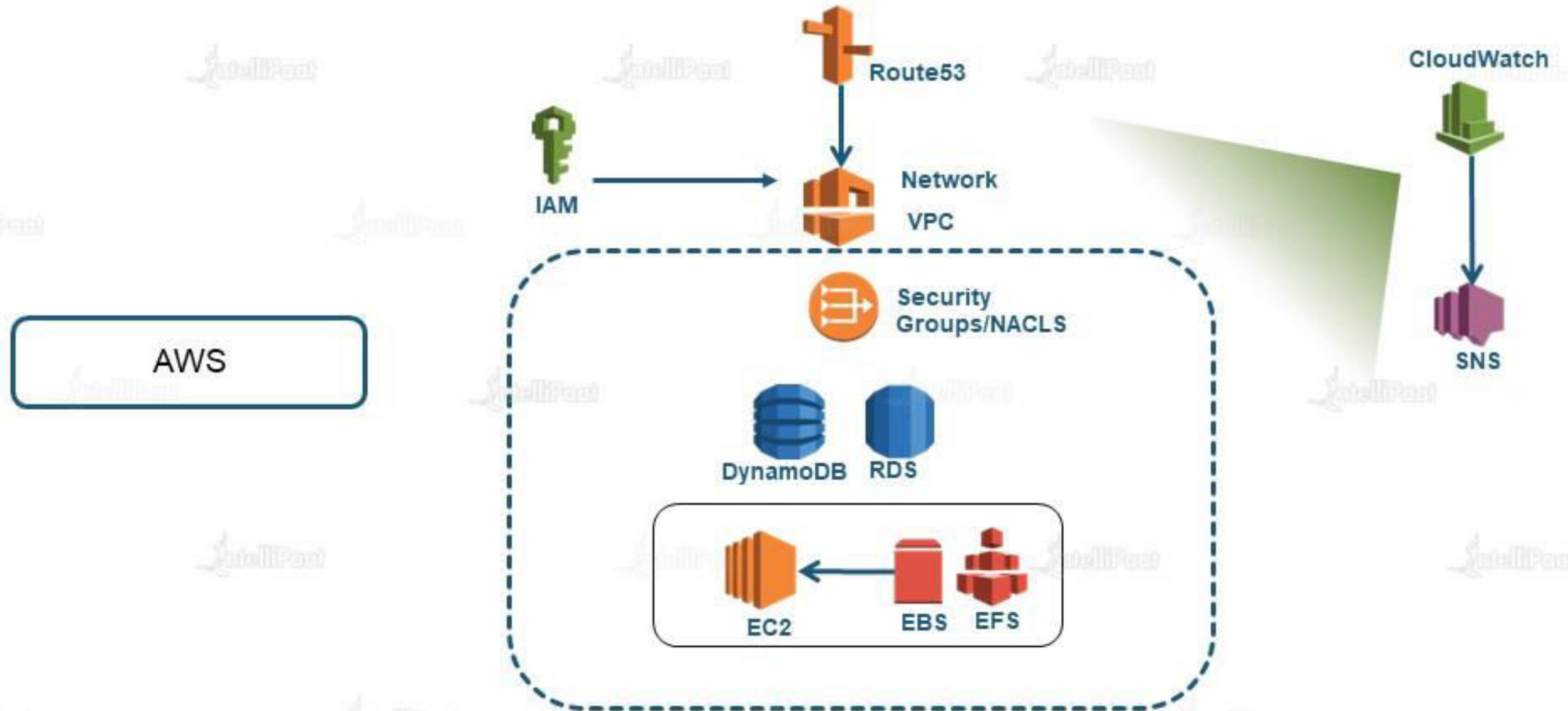
Starting off with AWS

Creating an AWS account

1. Open AWS website - https://aws.amazon.com/
2. Click on create an AWS account
3. Type all the required details and give continue
4. In the Payment page, provide your card details to authenticate your account (2 INR will be debited and refunded back after authentication)
5. Now Login and open the AWS management console
6. You are now ready begin with hands-on in the further modules
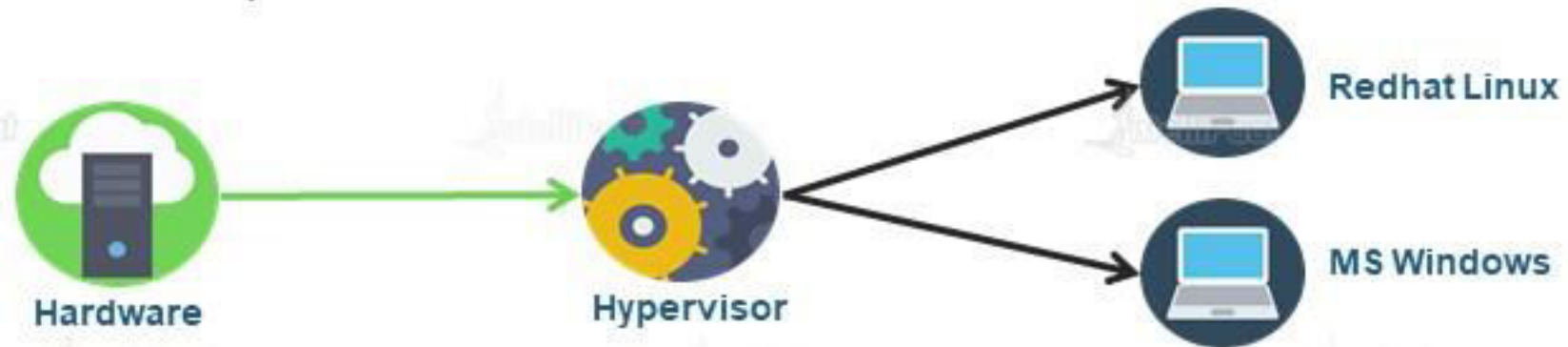
Virtualization in AWS

Virtualization in AWS

- **Types of Hypervisor**

  - TYPE-2 (Hosted)

Hardware → OS → Hypervisor → Redhat Linux / MS Windows

  - TYPE-1 (Native/Bare Metal)

Hardware → Hypervisor → Redhat Linux / MS Windows

XEN Hypervisor

- ★ Xen Project is a hypervisor using microkernel design

- ★ Was launched in October 2003 by University of Cambridge Computer Laboratory

- ★ Leading open source virtualization platform which is powering the biggest players in cloud today

- ★ AWS, RackSpace, OpenStack, Verizon Cloud etc. use Xen

- ★ For more information visit – https://www.xenproject.org

- ★ KVM is also used in some places

Summary

- In the simplest terms, Cloud Computing is storing and accessing data and programs over the internet

- Few benefits of cloud computing are Better scalability and improved security are

- Deployment and service models

- AWS services – Compute, Networking, Storage and Database

- Major cloud providers – AWS, Azure and GCP

Quiz

Quiz

1. "Cloud" in cloud computing represents what?

Wireless

Hard drives

People

Internet

Quiz

2. Which one of these is not a cloud computing pricing model?

Free

Pay per use

Subscription

Ladder

Quiz

3. What is the name of AWS compute services?

Virtual Machine

EC2

AMI

EIP

4. At least how many availability Zone regions can be there?

2

3

Depending on the region

EIP

Quiz

5. What is the name of AWS Object based Storage service?

EBS

BLOB

S3

EFS

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