Module 1

Agenda

1   **Cloud Computing**

2   **AWS Suite (with analogy)**

3   **Deployments & Models**

4   **Virtualization in AWS**

5   **Advantages**

6   **XEN Hypervisor**

Cloud Computing

# Cloud Computing

The "NET"

What is Internet/Intranet

- A global computer network using standardized communication protocols (e.g. UDP, TCP/IP) providing information and communication facilities, consisting of interconnected networks

- Intranet is a local private network created using World Wide Web.

Cloud Computing

Virtualization

- Virtualization is the primary technology that supports cloud computing.

- A service that results from virtualization, which is software that modifies hardware, is referred to as cloud computing. Virtualization is necessary for cloud computing to exist.
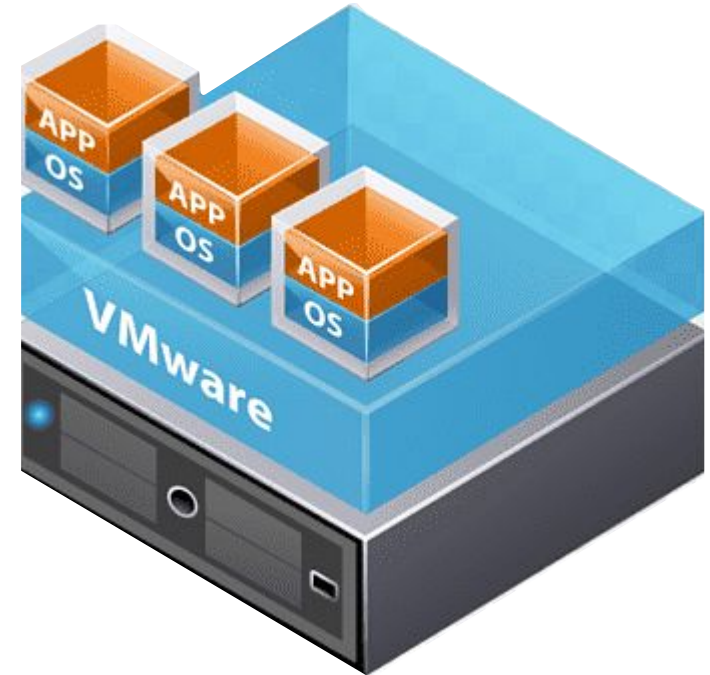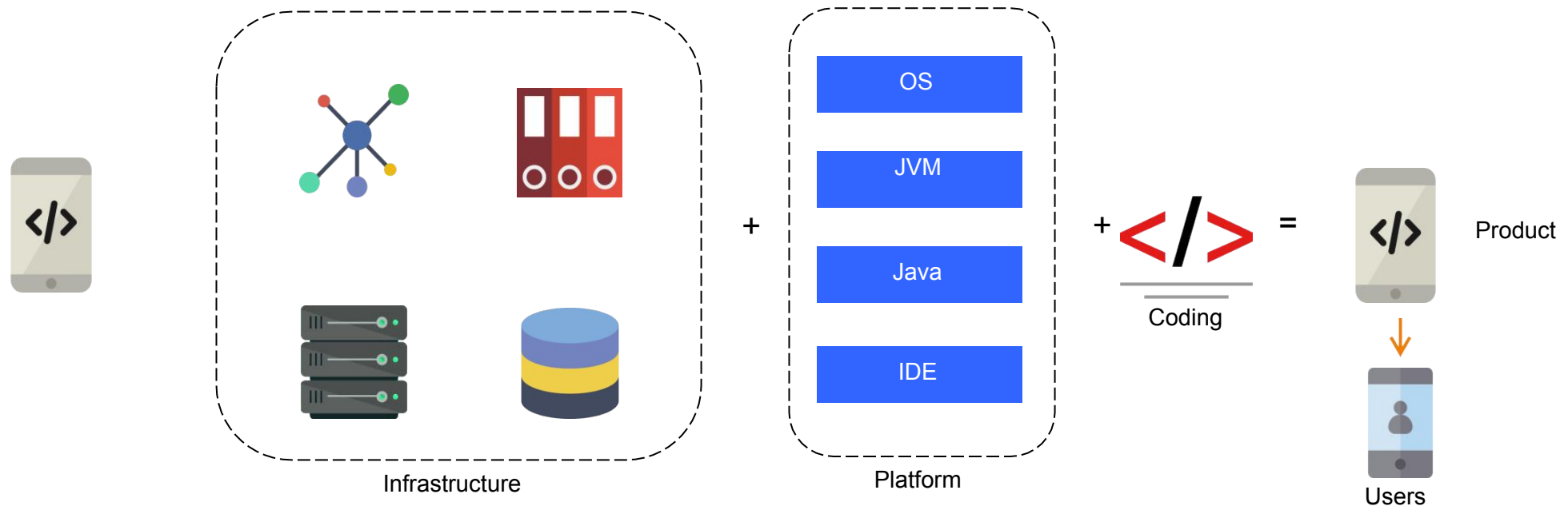
Models & Deployments

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

Models & 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

| OS |
| JVM |
| Java |
| IDE |

Platform

Coding

Product

Users
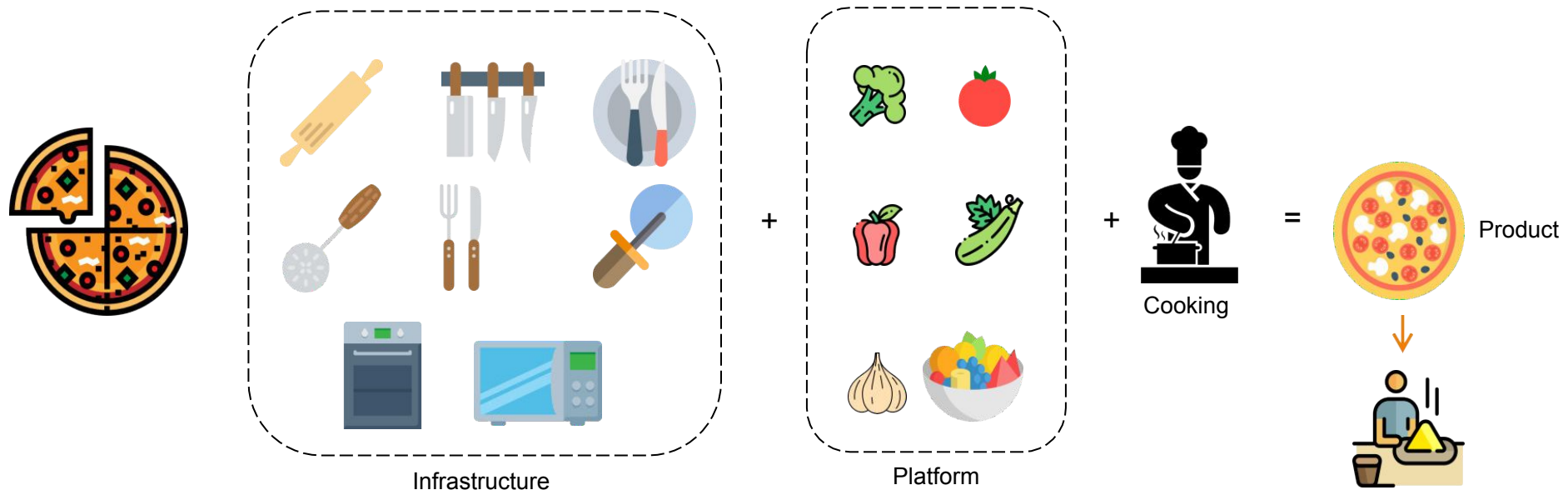
Models & Deployments

On-site	IaaS	PaaS	SaaS
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking

You manage

Service provider manages

On-Site
v/s
IaaS
v/s
PaaS
v/s
SaaS

Cloud Service Models

- IaaS (Infrastructure as a Service): AWS, Rackspace, MS Azure etc.

- PaaS (Platform as a Service): AWS Elastic Beanstalk, Heroku etc.

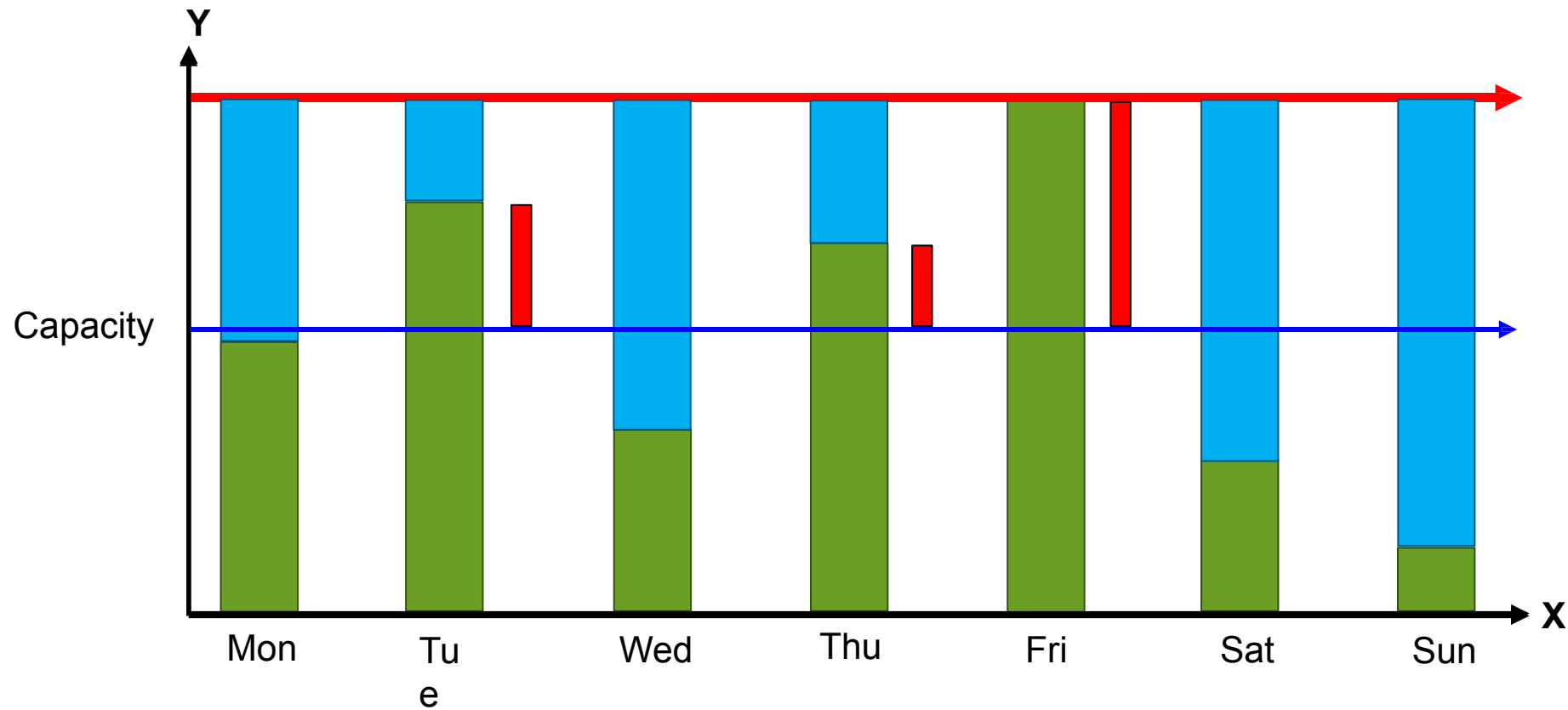- SaaS (Software as a Service): Google drive, Google docs, MS Office 365 etc.

Cloud Deployment Models

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

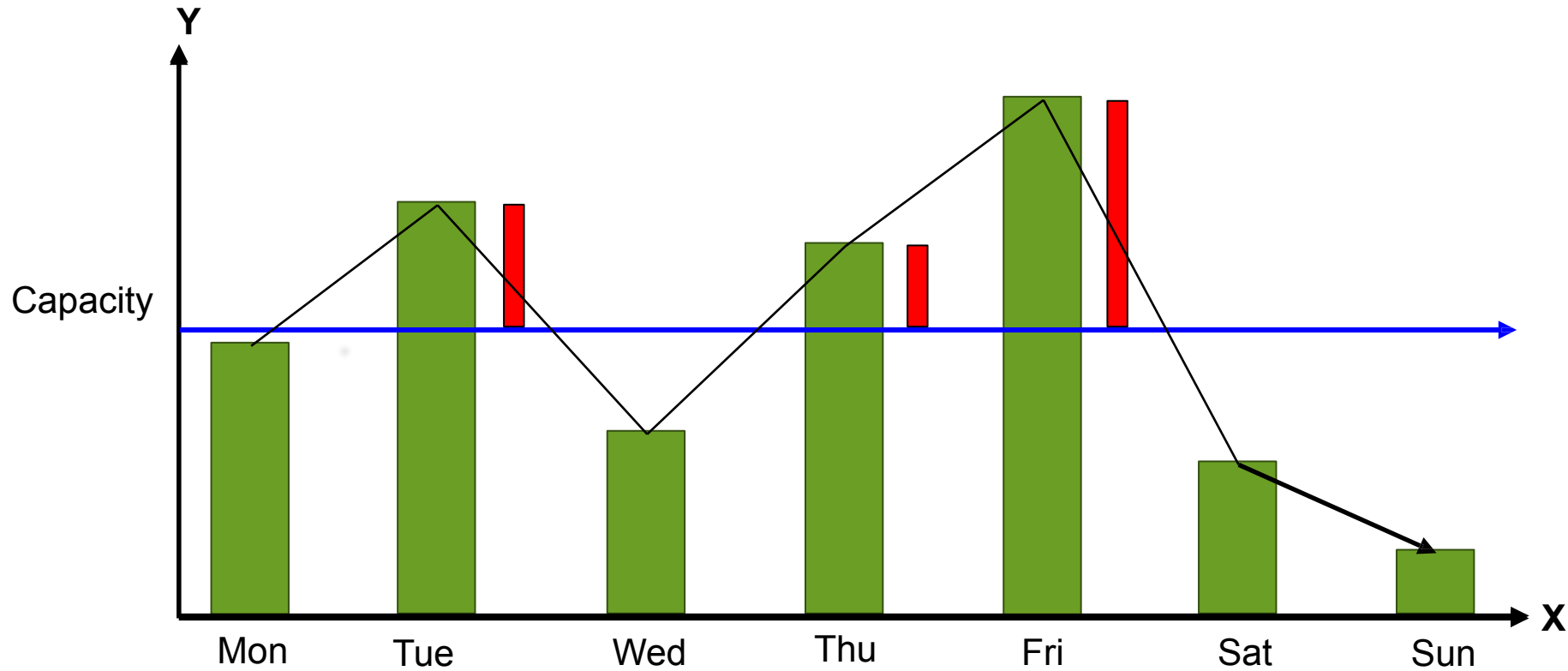- Private Cloud (HPE, VMware, RedHat OpenStack, Dell EMC etc.)

- Hybrid Cloud

Advantages over On-Premises
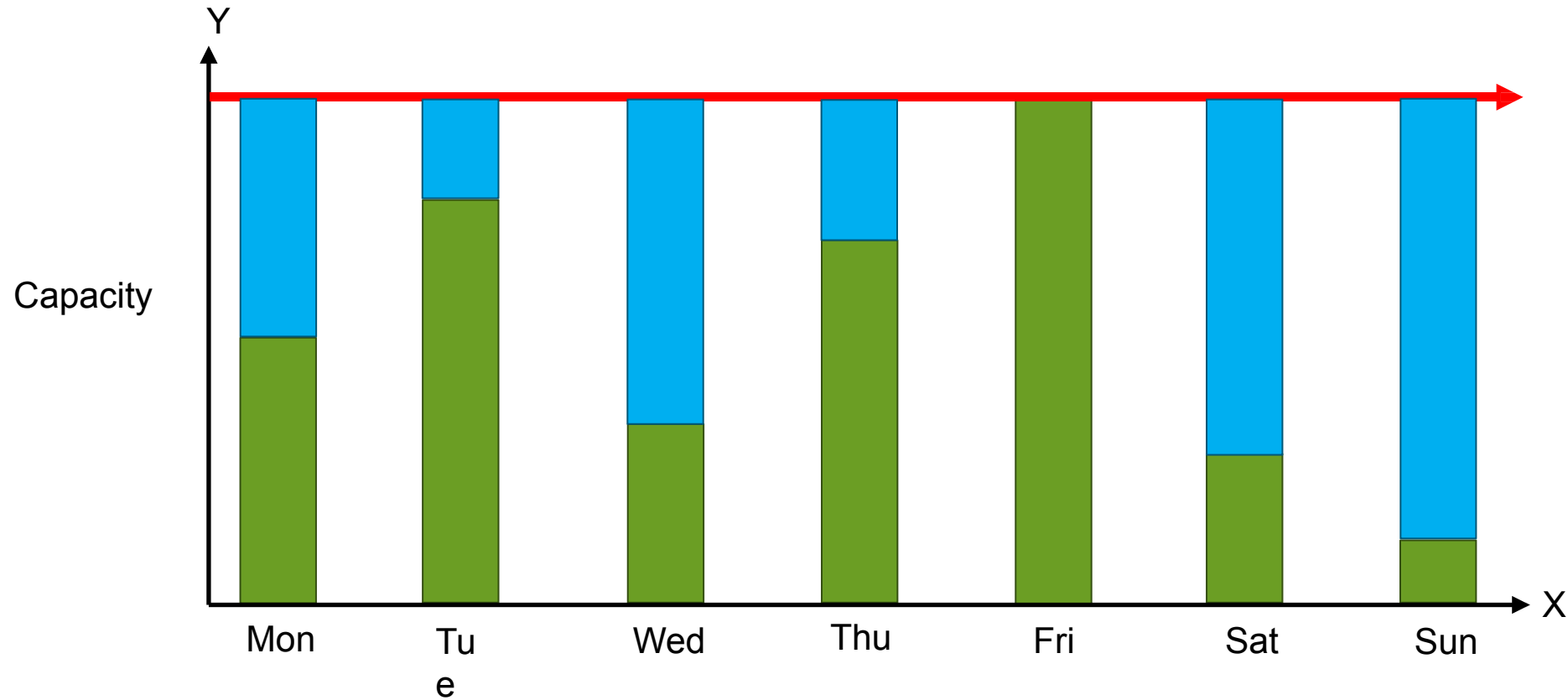
Advantages over On-Premises

Advantages over On-Premises

Advantages over On-Premises

No Capital Expenditure, whatsoever

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

Getting a new server is as easy as clicking some mouse buttons

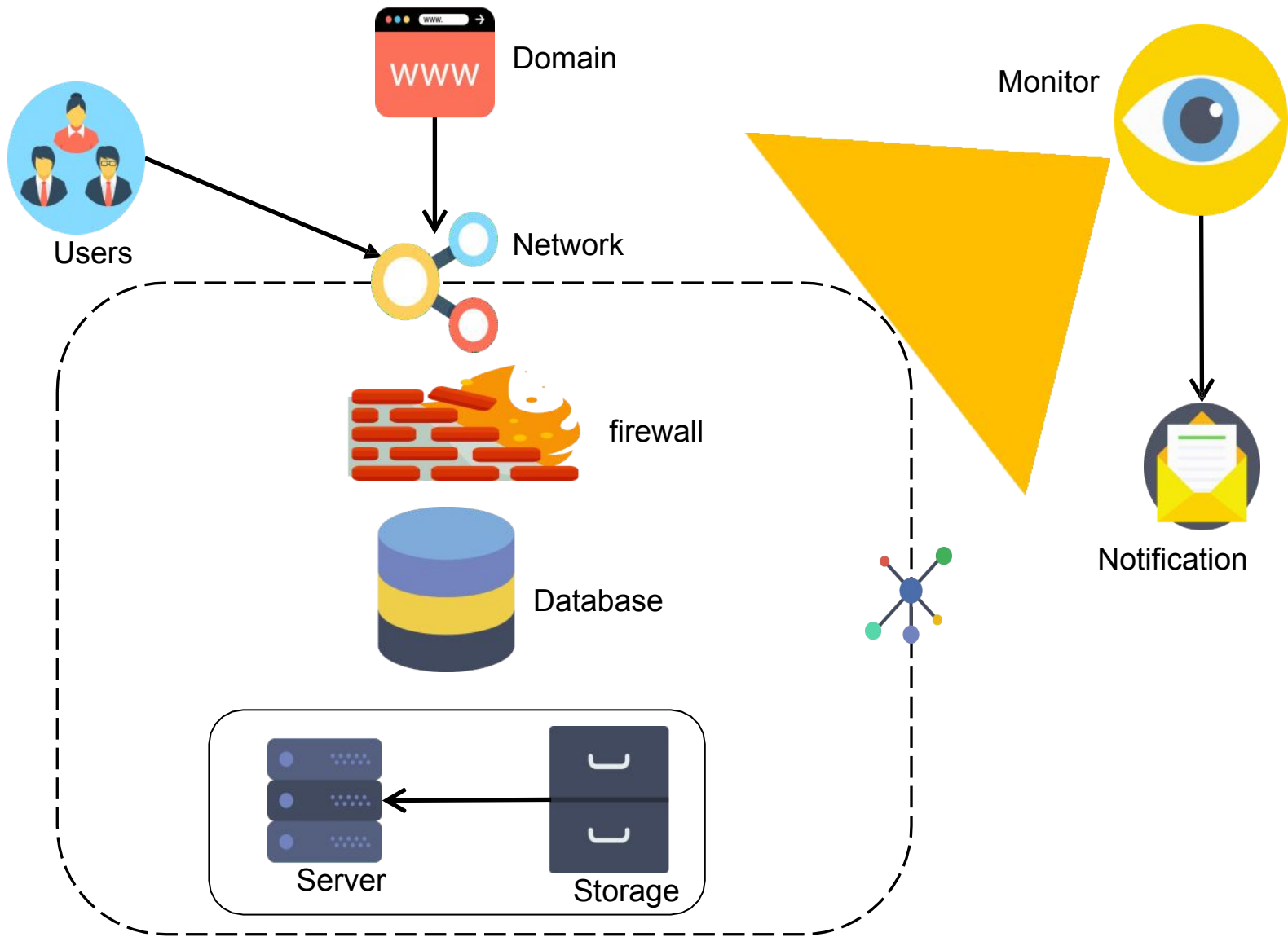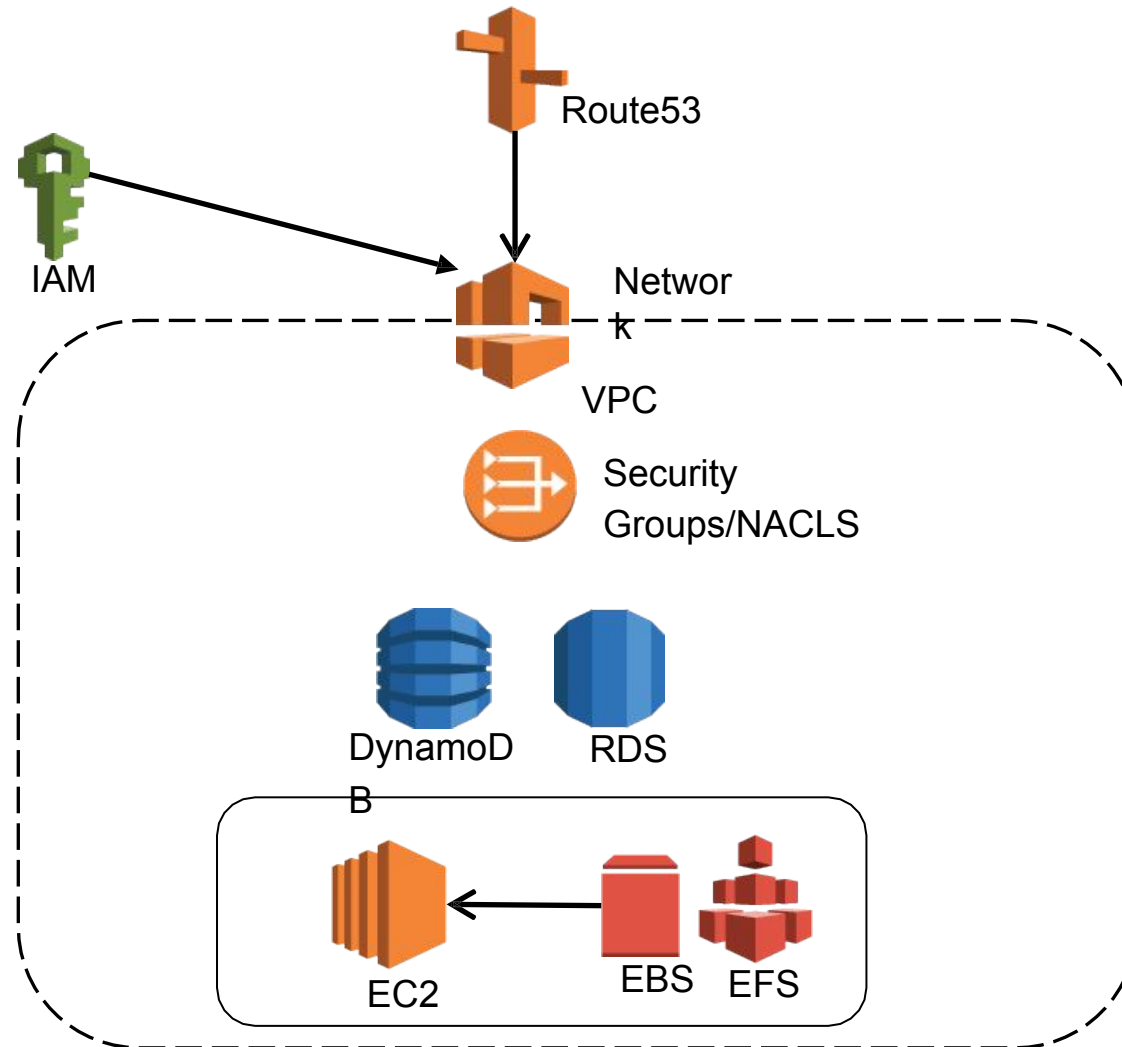Provides very high available solutions without any extra efforts
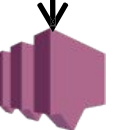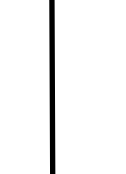
Security

Flexible and Error Shield

IntelliPaat

AWS Suite

Corporate Data Center

Domain

WWW

Monitor

Users

Network

firewall

Database

Notification

Server

Storage

AWS Suite

AWS

Route53

CloudWatch

IAM

Network

VPC

Security Groups/NACLS

DynamoDB   RDS

EC2   EBS   EFS

SNS

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
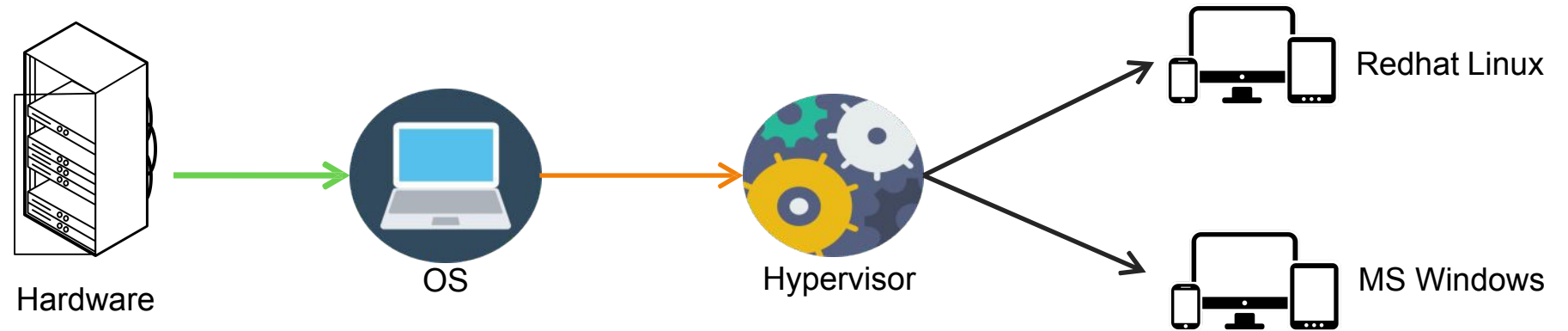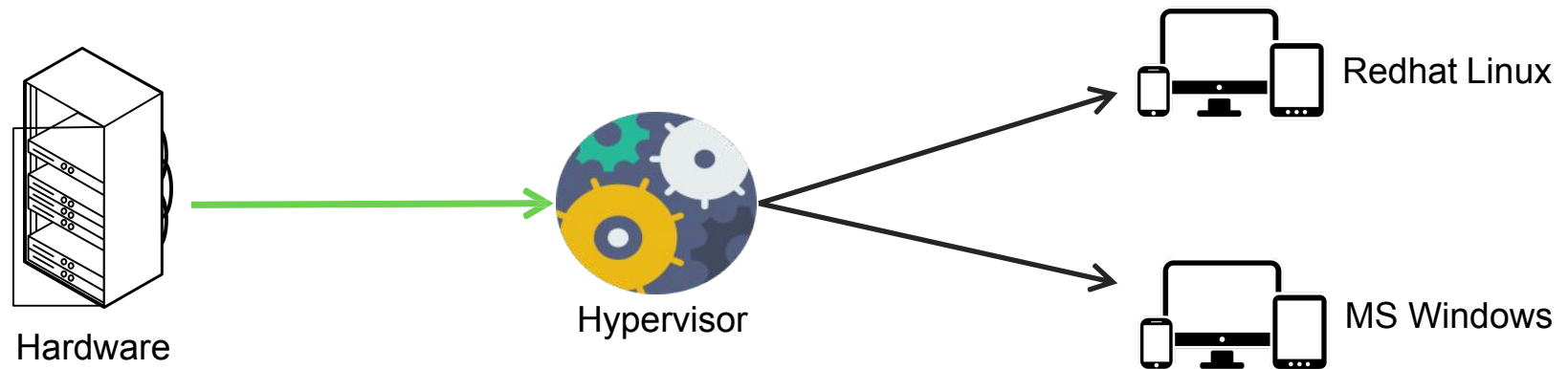
- Xen Project is a hypervisor using microkernel design

- 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

Azure vs AWS vs GCP

Azure Vs AWS Vs GCP

Microsoft Azure initially called Azure, was launched in 2010 with the intent to provide competent Cloud Computing platform for businesses.

Amazon Web Services is a subsidiary of amazon.com, which provides an on-demand Cloud Computing platform to individuals , companies and government on a paid-subscription basis.

Google Cloud Platform , which is offered by Google is a suite of Cloud Computing services that runs on the same infrastructure that Google uses internally for its end user products such as Google search engine.

Azure Vs AWS Vs GCP

Availability Zones

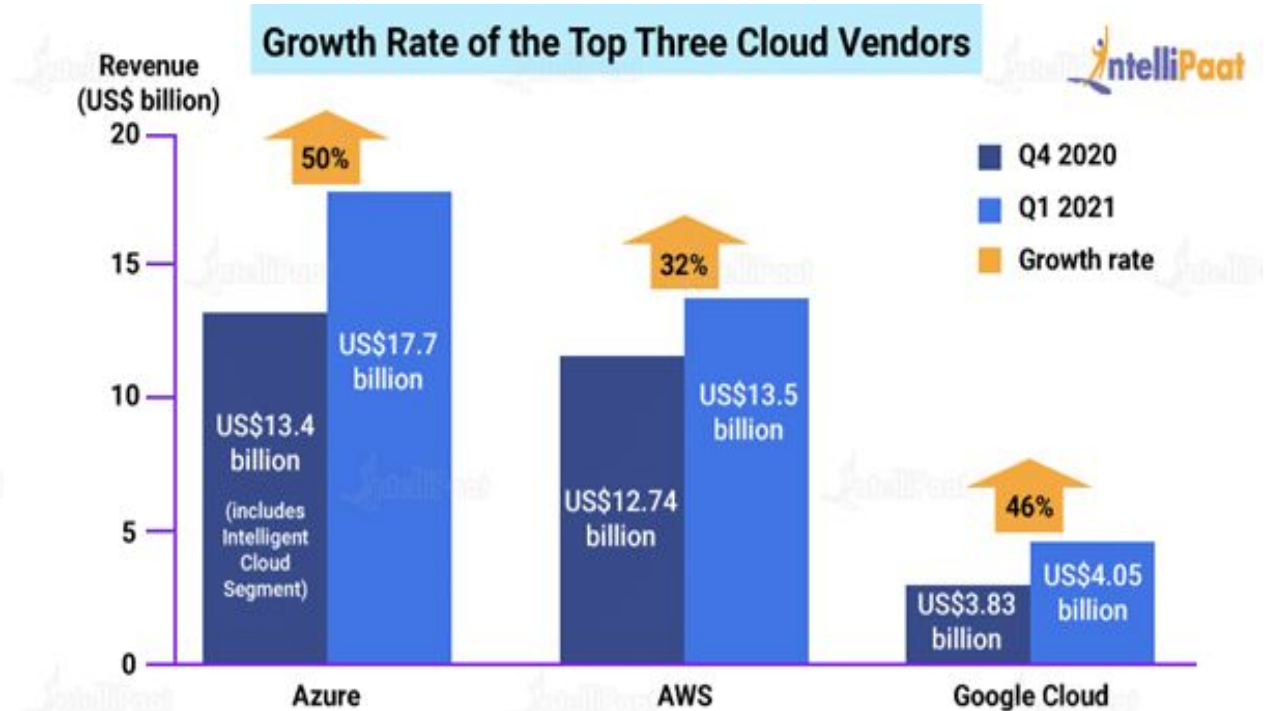AWS has 66 availability zones with 12 more on the way.

Azure has 54 regions worldwide and is available in 140 countries all around the world.

Google Cloud Platform has been made available in 20 regions around the world with 3 more on their way.

# Azure Vs AWS Vs GCP

Market Shares and Growth Rate

Growth Rate of the Top Three Cloud Vendors

Azure Vs AWS Vs GCP

Who uses them ?

Since AWS is the oldest player in the cloud market, it comparatively has a bigger community support and user base. Therefore, AWS has more high-profile and well-known customers like Netflix, Airbnb, Unilever, BMW, Samsung, MI, Zynga, etc..

Azure Vs AWS Vs GCP

Who uses them ?

Azure is also gaining its share of high-profile customers with time. As of now, Azure has almost 80 percent of Fortune 500 companies as its customers. Some of its major customers are Johnson Controls, Polycom, Fujifilm, HP, Honeywell, Apple, etc..

Azure Vs AWS Vs GCP
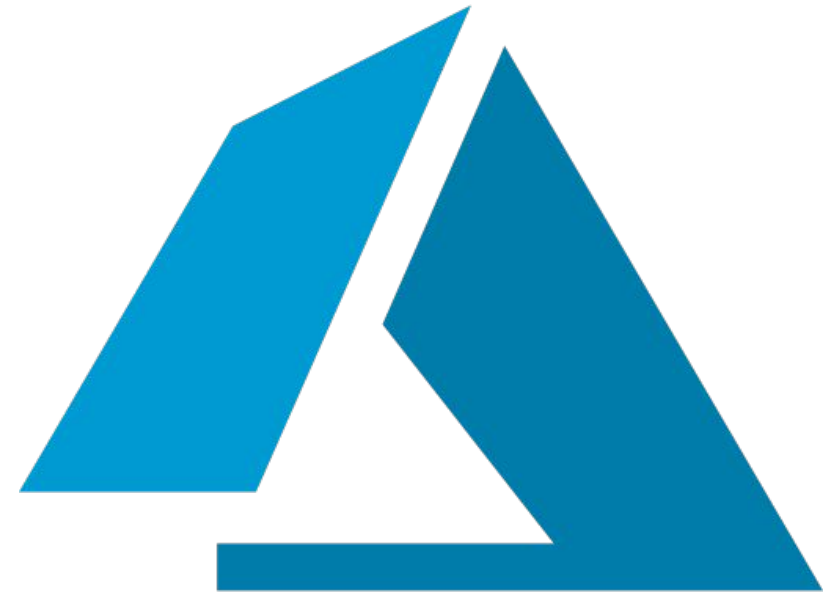
Who uses them ?

Google, on the other hand, shares the same infrastructure as that of Google Search and YouTube and, as a result, many high-end companies have put their faith in Google Cloud. Major clients of Google Cloud are HSBC, PayPal, 20th Century Fox, Bloomberg, Dominos, and more.