HEXAWARE

Introduction to Amazon Web Service

Session Objective

- Cloud Computing
- AWS – Introduction
- AWS - Services

Cloud Computing

Cloud Computing

- Cloud computing is an internet-based computing service in which large groups of remote servers are networked to allow centralized data storage, and online access to computer services or resources.

- Using cloud computing, organizations can use shared computing and storage resources rather than building, operating, and improving infrastructure on their own.

Cloud Computing Features

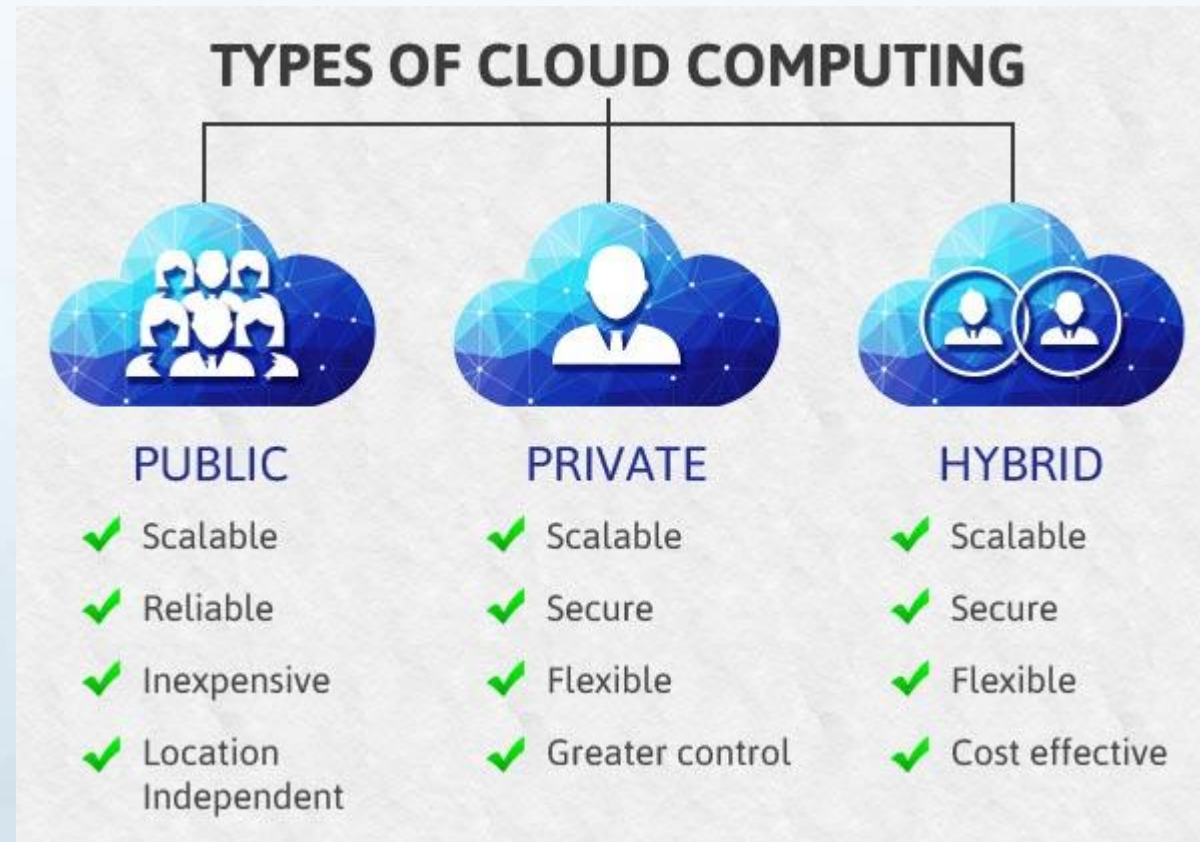Cloud computing is a model that enables the following features.

➢ Users can provision and release resources on-demand.

➢ Resources can be scaled up or down automatically, depending on the load.

➢ Resources are accessible over a network with proper security.

➢ Cloud service providers can enable a pay-as-you-go model, where customers are charged based on the type of resources and per usage.
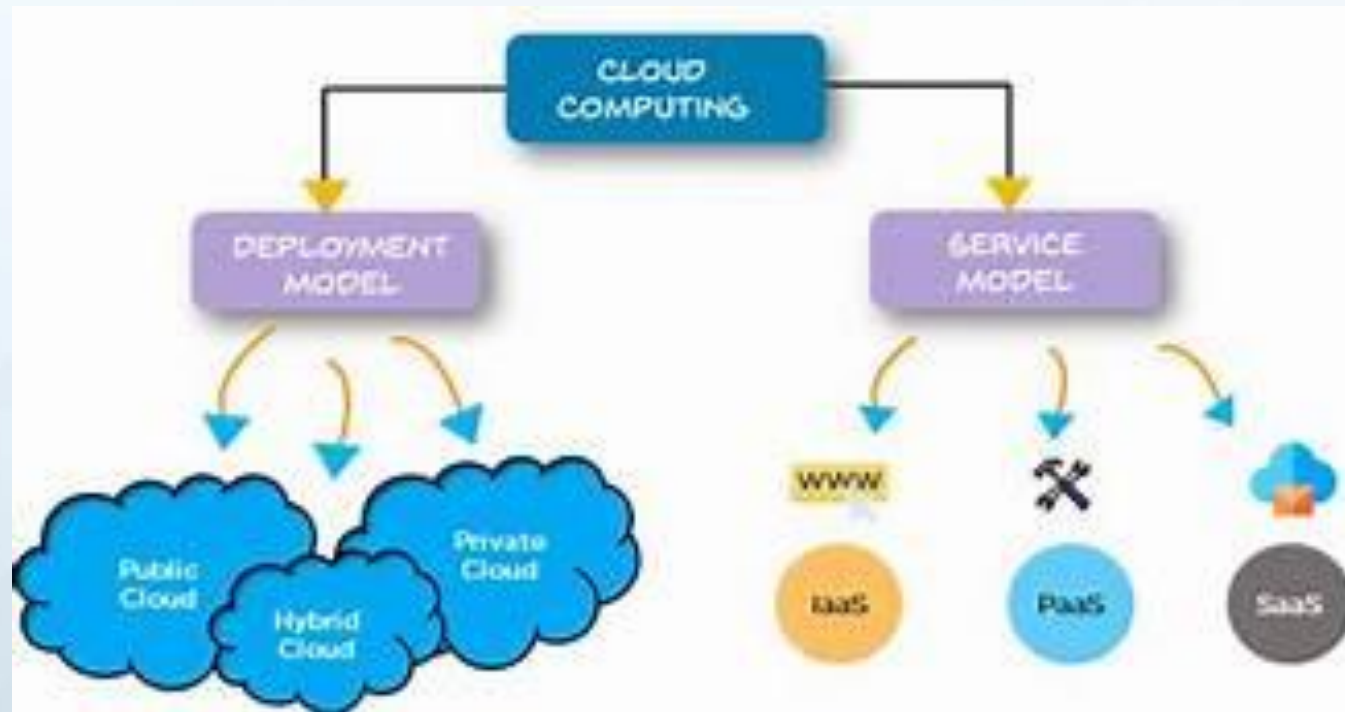
Types of Clouds   -contd

There are three types of clouds –

❖ Public cloud

❖ Private cloud
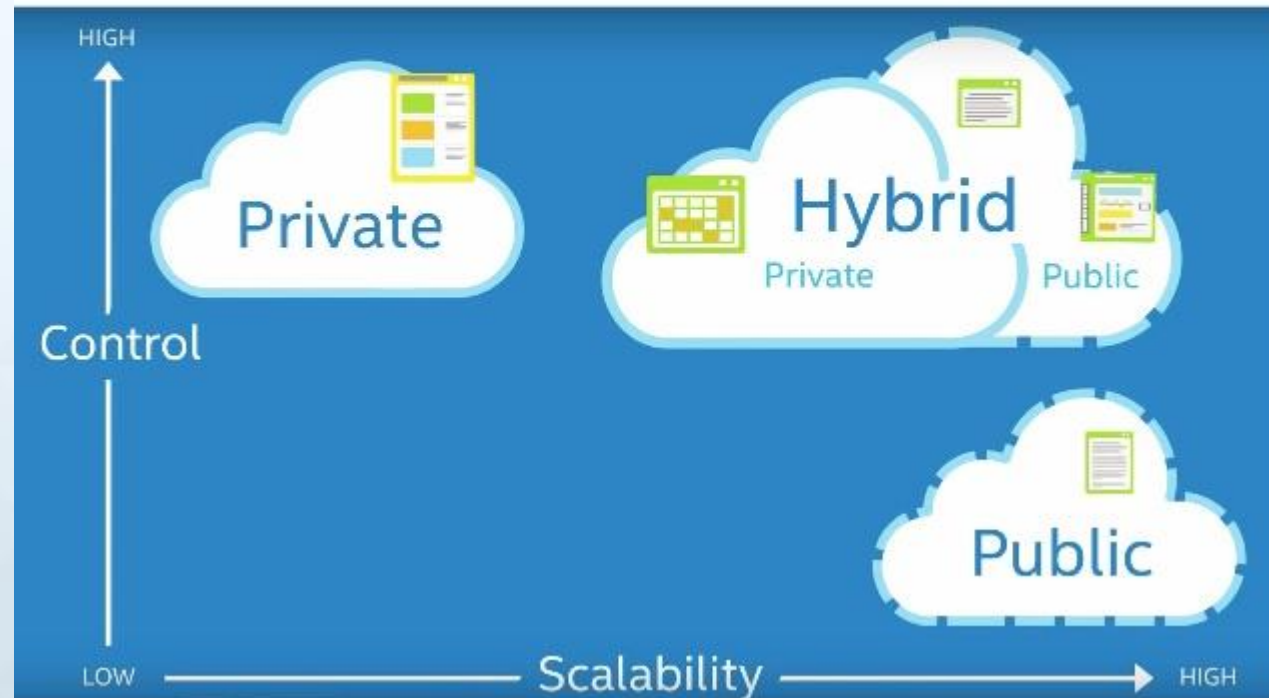
❖ Hybrid cloud

TYPES OF CLOUD COMPUTING

PUBLIC
- ✔ Scalable
- ✔ Reliable
- ✔ Inexpensive
- ✔ Location Independent

PRIVATE
- ✔ Scalable
- ✔ Secure
- ✔ Flexible
- ✔ Greater control

HYBRID
- ✔ Scalable
- ✔ Secure
- ✔ Flexible
- ✔ Cost effective

Types of Cloud

Deployment Model

Cloud Deployment Models ...

Deployment Model

Deployment Model

Public

Private

Hybrid

Deployment Model   -contd

- Public Cloud
  - In public cloud, the third-party service providers make resources and services available to their customers via Internet. Customer's data and related security is with the service providers' owned infrastructure.

- Private Cloud
  - A private cloud also provides almost similar features as public cloud, but the data and services are managed by the organization or by the third party only for the customer's organization. In this type of cloud, major control is over the infrastructure so security related issues are minimized.

Deployment Model

- Hybrid Cloud
    - A hybrid cloud is the combination of both private and public cloud. The decision to run on private or public cloud usually depends on various parameters like sensitivity of data and applications, industry certifications and required standards, regulations, etc.
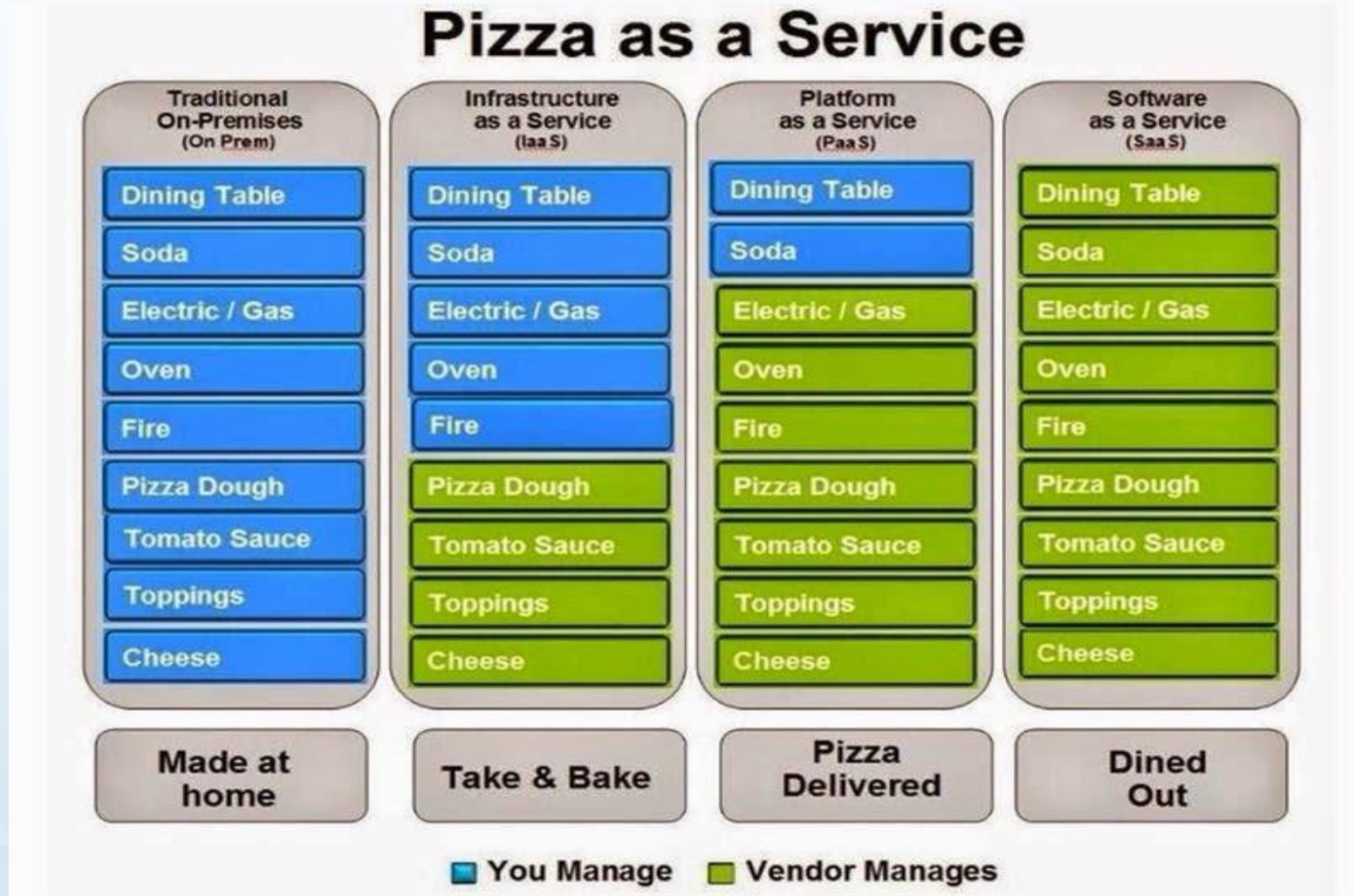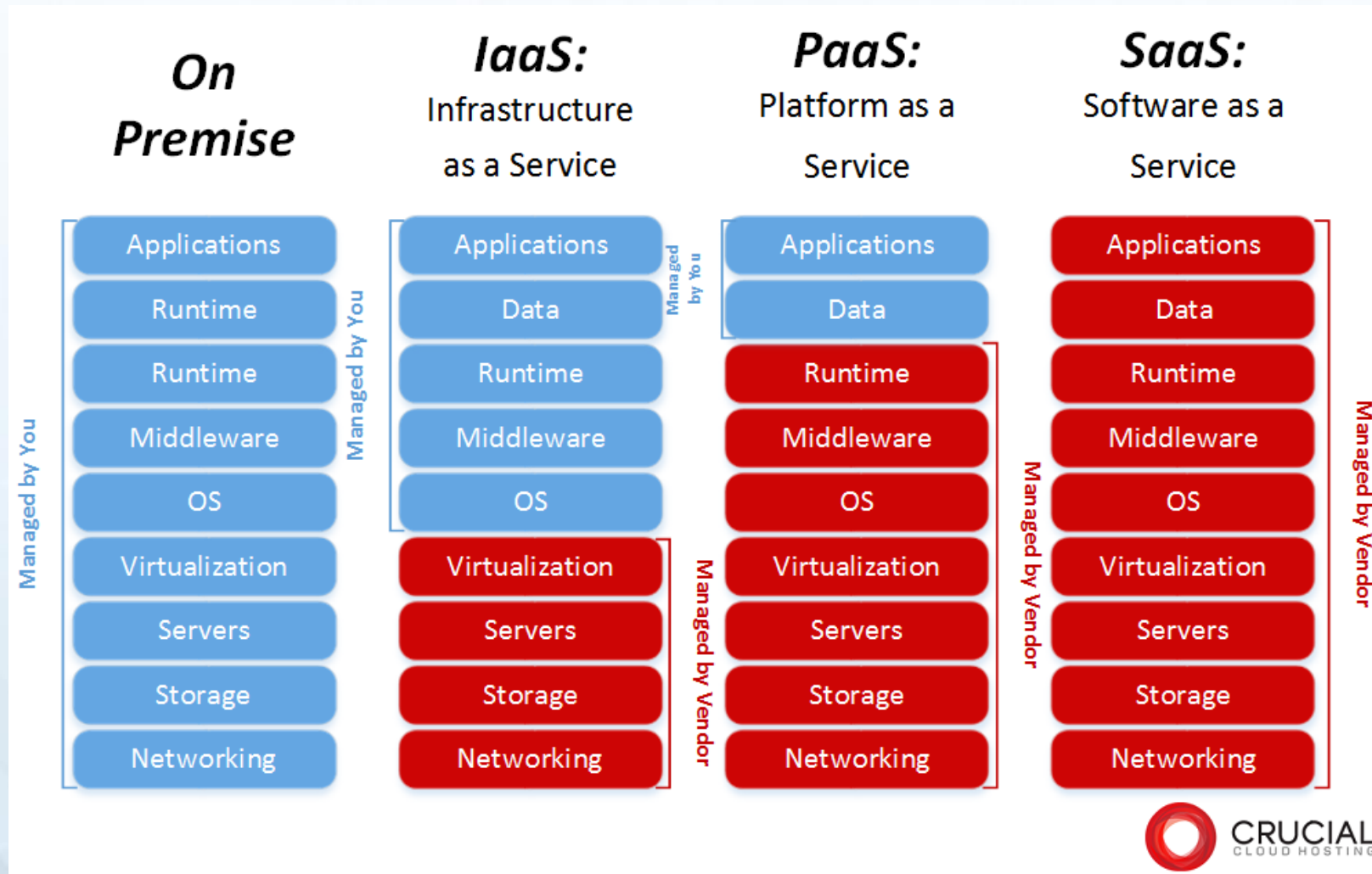
Service Model

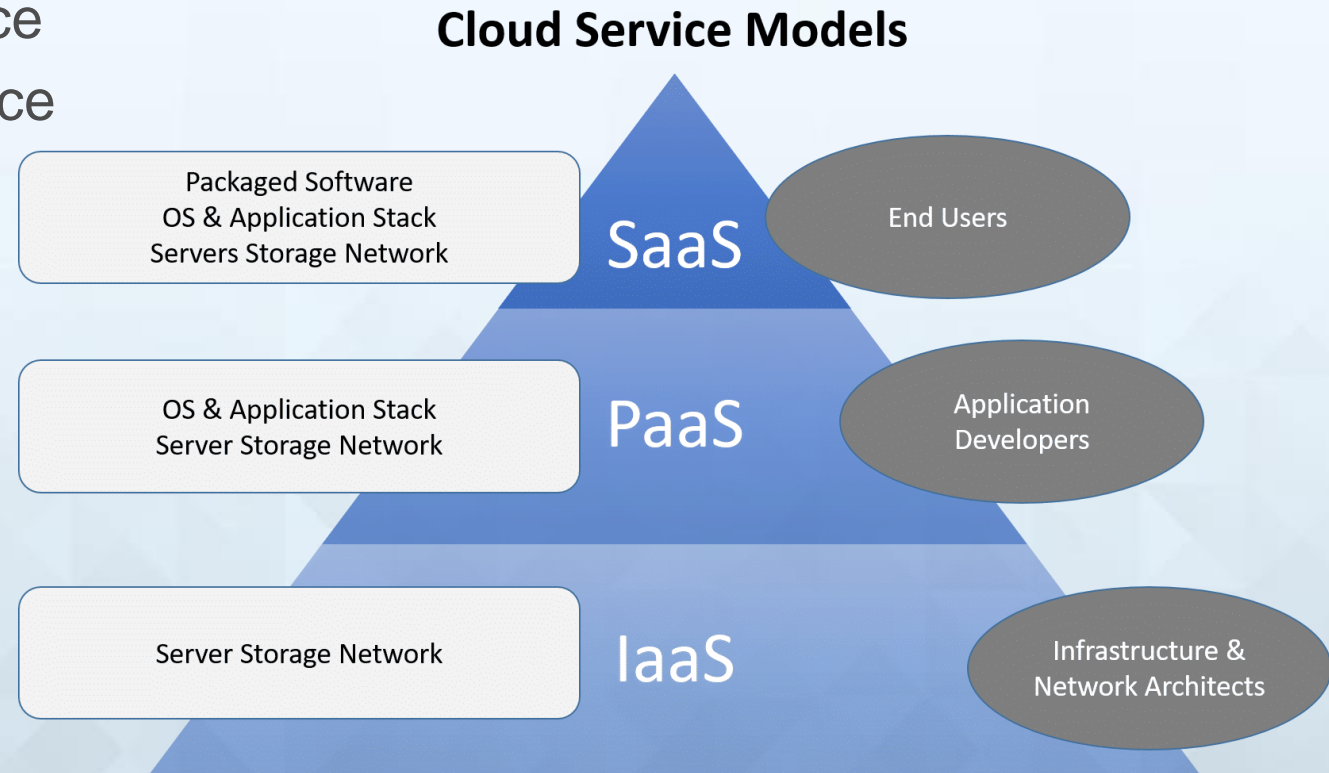# Service Model

Service Model

Pizza as a Service
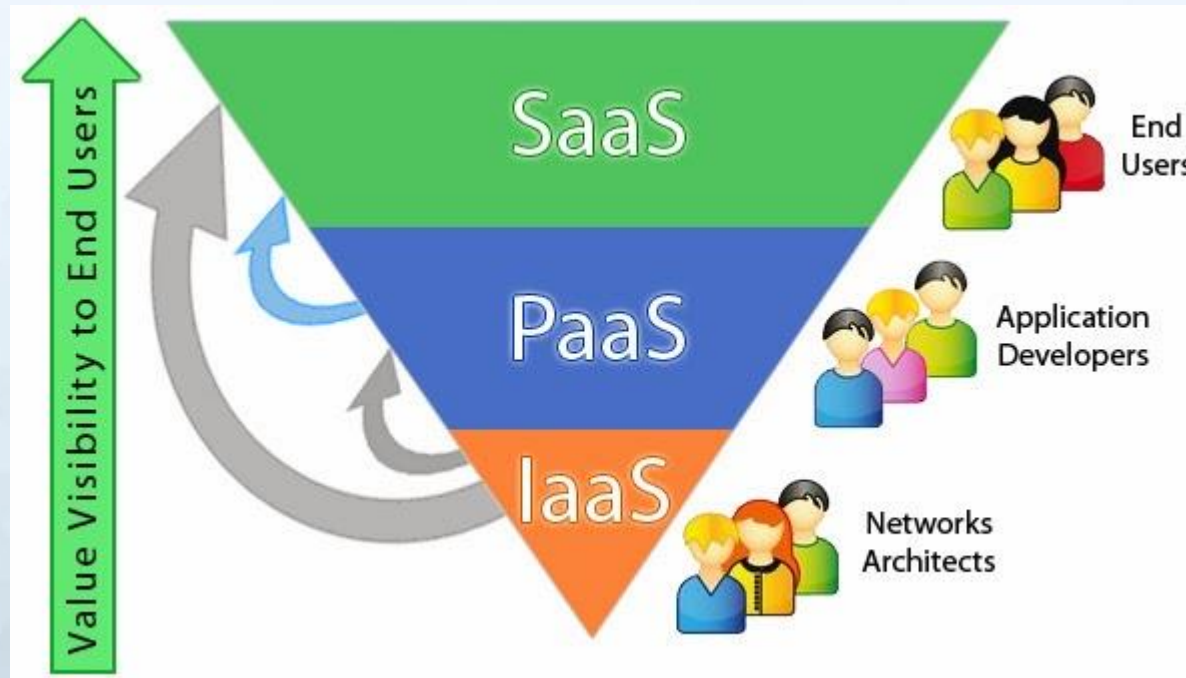
Service Model

Cloud Service Models

There are three types of service models in cloud

- ❏ IaaS - Infrastructure as a Service
- ❏ PaaS - Platform as a Service
- ❏ SaaS - Software as a Service

Cloud Service Models

Packaged Software OS & Application Stack Servers Storage Network	SaaS	End Users
OS & Application Stack Server Storage Network	PaaS	Application Developers
Server Storage Network	IaaS	Infrastructure & Network Architects

Advantages of Cloud Computing   -contd

- **Cost-Efficient**
  - ➤ Building our own servers and tools is time-consuming as well as expensive as we need to order, pay for, install, and configure expensive hardware, long before we need it.
  - ➤ Using cloud computing, we only pay for the amount we use and when we use the computing resources. In this manner, cloud computing is cost efficient.

- **Reliability**
  - ➤ A cloud computing platform provides much more managed, reliable and consistent service than an in-house IT infrastructure.
  - ➤ It guarantees 24x7 and 365 days of service. If any of the server fails, then hosted applications and services can easily be transited to any of the available servers.

Advantages of Cloud Computing   -contd

- **Backup & Recovery**
  - ➢ Storing data in the cloud, backing it up and restoring the same is relatively easier than storing it on a physical device.
  - ➢ The cloud service providers also have enough technology to recover our data, so there is the convenience of recovering our data anytime.

- **Easy Access to Information**
  - ➢ Once you register yourself in cloud, you can access your account from anywhere in the world provided there is internet connection at that point.
  - ➢ There are various storage and security facilities that vary with the account type chosen.

Advantages of Cloud Computing

- **Unlimited Storage**
  - ➢ Cloud computing provides almost unlimited storage capacity, i.e., we need not worry about running out of storage space or increasing our current storage space availability. We can access as much or as little as we need.

# Cloud Providers
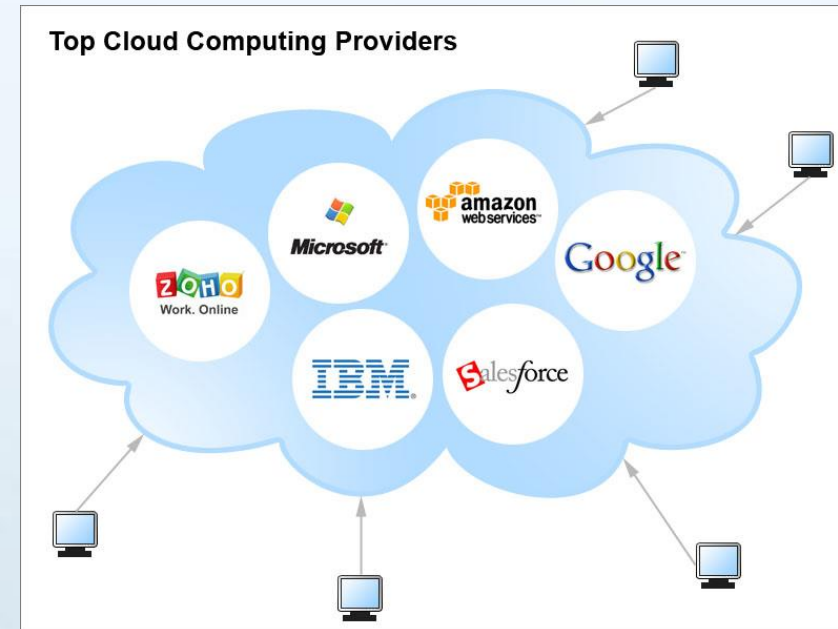
Top Cloud Computing Providers

Amazon Web Service

What is AWS?

- **Amazon Web Services(AWS)** is a cloud service from Amazon, which provides services in the form of building blocks, these building blocks can be used to create and deploy any type of application in the cloud.

- These services or building blocks are designed to work with each other, and result in applications which are sophisticated and highly scalable.

AWS ─ Basic Architecture
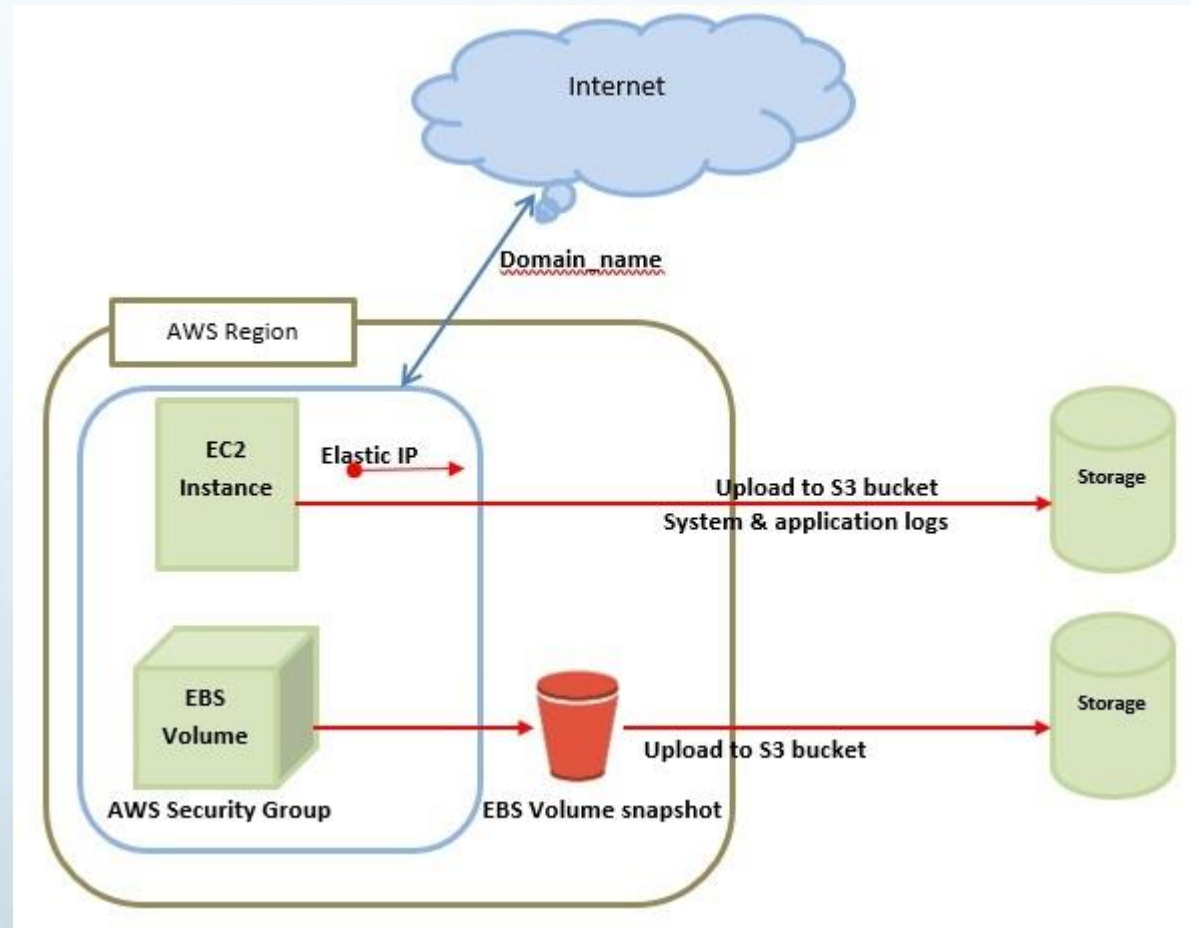
AWS Introduction

- Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform.

- Cloud computing provides a simple way to access servers, storage, databases and a broad set of application services over the Internet.

- A cloud services platform such as Amazon Web Services owns and maintains the network-connected hardware required for these application services.

Amazon Web Service

- Amazon Web Services (**AWS**) is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow

Companies using AWS

AWS – Example   -contd

- Back in 2006-2007, companies were using their own private servers to create services like for storage, computing, etc. But now with internet speeds becoming better, companies big or small have started understanding the power of the cloud, therefore they are shifting their data to the cloud for improved performance, so that they can focus on core-competency.

AWS – Example   -contd

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Powering Born-in-the-Cloud and Startups

AWS – Example   -contd

Famous services that use AWS

AWS – Example   -contd

AWS – Example   -contd

Pinterest:

- Pinterest, Inc. is a social media web and mobile application company that operates a software system designed to discover information on the World Wide Web, mainly using images and, on a smaller scale, GIFs and videos

Spotify

- Spotify is a Swedish audio streaming platform that provides DRM-protected music and podcasts from record labels and media companies

Netflix

- The company's primary business is its subscription-based streaming OTT [**Over the top (OTT)** is a term used to refer to content providers that distribute streaming media]service which offers online streaming of a library of films and television programs, including those produced in-house

Expedia

- **Expedia**.com is a travel booking website owned by **Expedia** Group. The website can be used to book airline tickets, hotel reservations, car rentals, cruises and vacation packages.

AWS Services

AWS product categories

AWS offers a wide range of services that can be categorized in following categories –

- ✓ Compute and Networking Services
- ✓ Storage and Content Delivery Services
- ✓ Security and Identity Services
- ✓ Database Services
- ✓ Analytics Services
- ✓ Application Services
- ✓ Management Tools

AWS – Compute Service

- The **Compute** domain includes services related to compute workloads, it includes the following services:
  - ➢ EC2 (Elastic Compute Cloud)
  - ➢ Lambda
  - ➢ Elastic Beanstalk
  - ➢ Amazon LightSail

AWS – Storage Service

- The **Storage** domain includes services related data storage, it includes the following services:
  - ➤ S3 (Simple Storage Service)
  - ➤ Elastic Block Store
  - ➤ Amazon Glacier
  - ➤ AWS Snowball

AWS – Database Service

- The **Database** domain is used for database related workloads, it includes the following services:
  - ➢ Amazon Aurora
  - ➢ Amazon RDS
  - ➢ Amazon DynamoDB
  - ➢ Amazon RedShift

AWS – Migration Service

- The **Migration** domain is used for transferring data to or from the AWS Infrastructure, it includes the following services:
  - ➢ AWS database Migration Service
  - ➢ AWS SnowBall

AWS – Networking & Content Delivery Service

- The **Networking and Content Delivery** domain is used for isolating your network infrastructure, and content delivery is used for faster delivery of content. It includes the following services:
  - ➤ Amazon Route 53
  - ➤ AWS CloudFront

AWS – Management Tools

- The **Management Tools** domain consists of services which are used to manage other services in AWS, it includes the following services:
  - ➢ AWS CloudWatch
  - ➢ AWS CloudFomation
  - ➢ AWS CloudTrail

AWS - Security & Identity, Compliance

- The **Security & Identity, Compliance** domain consist of services which are used to manage to authenticate and provide security to your AWS resources. It consists of the following services:
  - ➢ AWS IAM
  - ➢ AWS KMS
  - ➢ AWS Shield

AWS – Messaging Service

- The **Messaging** domain consists of services which are used for queuing, notifying or emailing messages. It consists of the following domains:
  - ➢ Amazon SQS
  - ➢ Amazon SNS
  - ➢ Amazon SES
  - ➢ Amazon Pinpoint

Advantages of AWS   -contd

- Flexibility
  - AWS provides effortless hosting of legacy applications. AWS does not require learning new technologies and migration of applications to the AWS provides the advanced computing and efficient storage.

- Cost-effectiveness
  - AWS requires no upfront investment, long-term commitment, and minimum expense when compared to traditional IT infrastructure that requires a huge investment.

Advantages of AWS

- Scalability/Elasticity
  - Through AWS, autoscaling and elastic load balancing techniques are automatically scaled up or down, when demand increases or decreases respectively. AWS techniques are ideal for handling unpredictable or very high loads. Due to this reason, organizations enjoy the benefits of reduced cost and increased user satisfaction.

- Security
  - AWS provides end-to-end security and privacy to customers.
  - AWS has a virtual infrastructure that offers optimum availability while managing full privacy and isolation of their operations.
  - Customers can expect high-level of physical security because of Amazon's several years of experience in designing, developing and maintaining large-scale IT operation centers.

Pay-As-You-Go

- AWS provides services to customers when required without any prior commitment or upfront investment. Pay-As-You-Go enables the customers to procure services from AWS.
  – Computing
  – Programming models
  – Database storage
  – Networking