AWS

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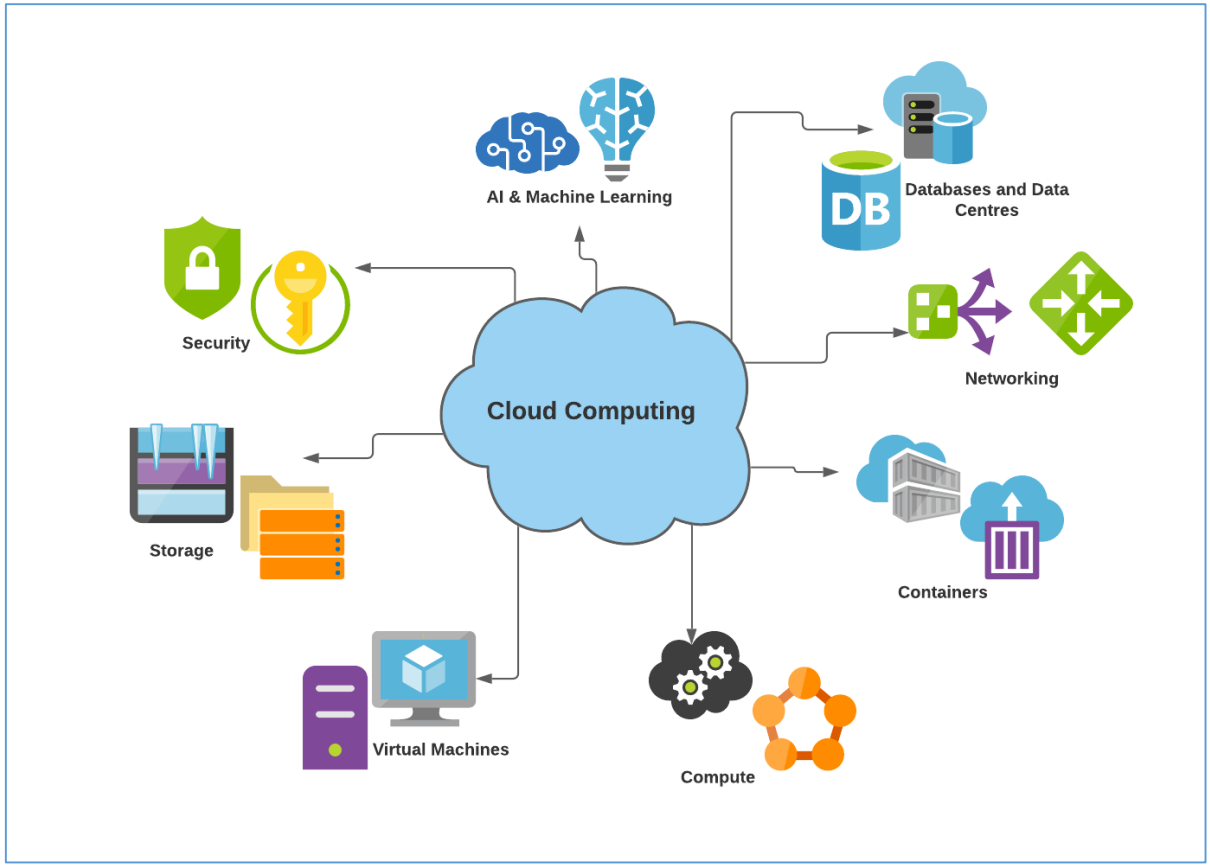
Why Cloud?

1. Buy a stack of servers & servers are very costly
2. High traffic? more servers.. traffic on website a never constant
3. Monitor & maintain servers
4. Amount of data generated is huge now a days (music, videos, eBooks etc).. hence server stack is not useful

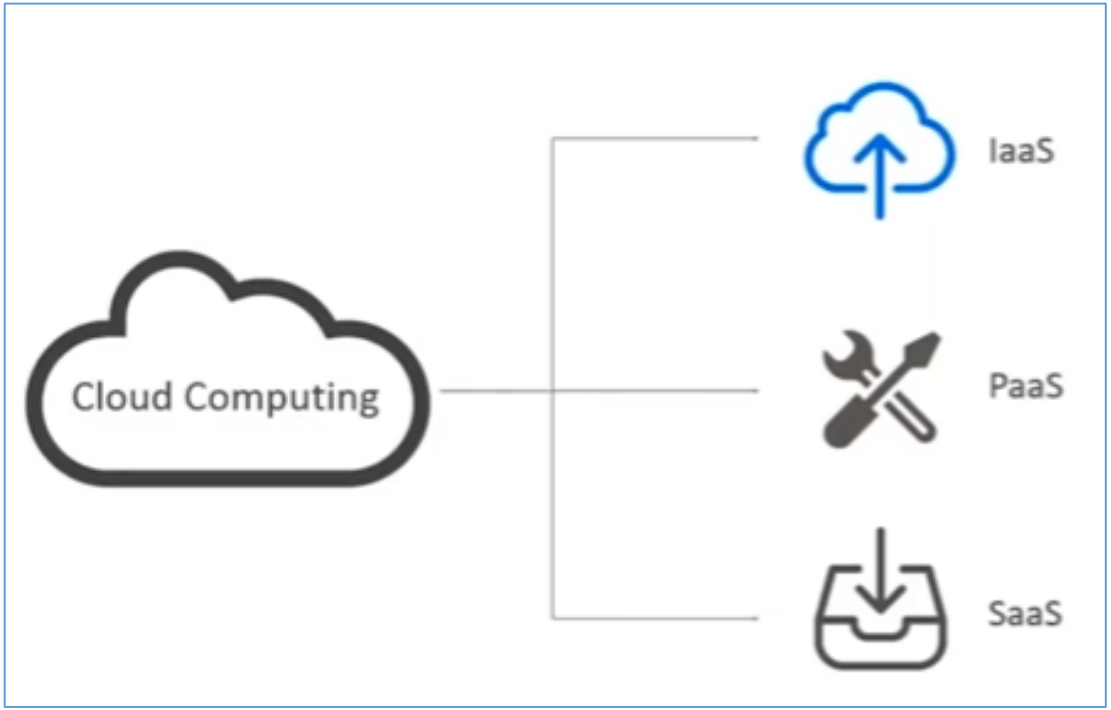
What is cloud computing?



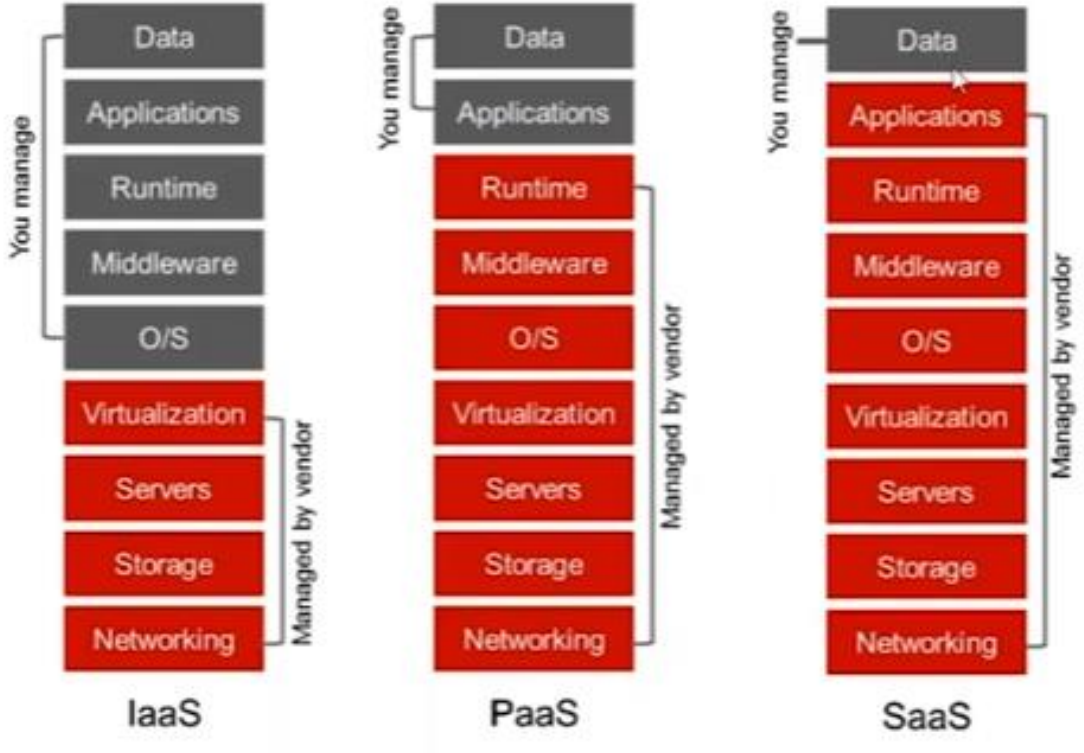
What is Cloud?

1) Cloud is a huge space available to you
2) Cloud offers data centers those can be bought to host enterprise applications.
3) Cloud offers us several services like network service, compute service etc.
4) Cloud services can be availed on rental basis with specified time duration. It saves your lots of money.
5) Cloud service providers take care of all issues like your security, infrastructures etc. Thus, you can freely focus on your business & ignore all other issues.

Service Models



Service Models



Service Models

Depending upon business requirements, cloud model is going to be different. We have 3 service models:

1. SaaS (Software as a service)

   Cloud offers you a service that you can take on rent. Cloud will take care of services level issues. for example "Gmail“.

2. PaaS (Platform as a service)

   PaaS provides us a platform where we develop our own applications. for example "google app engine".

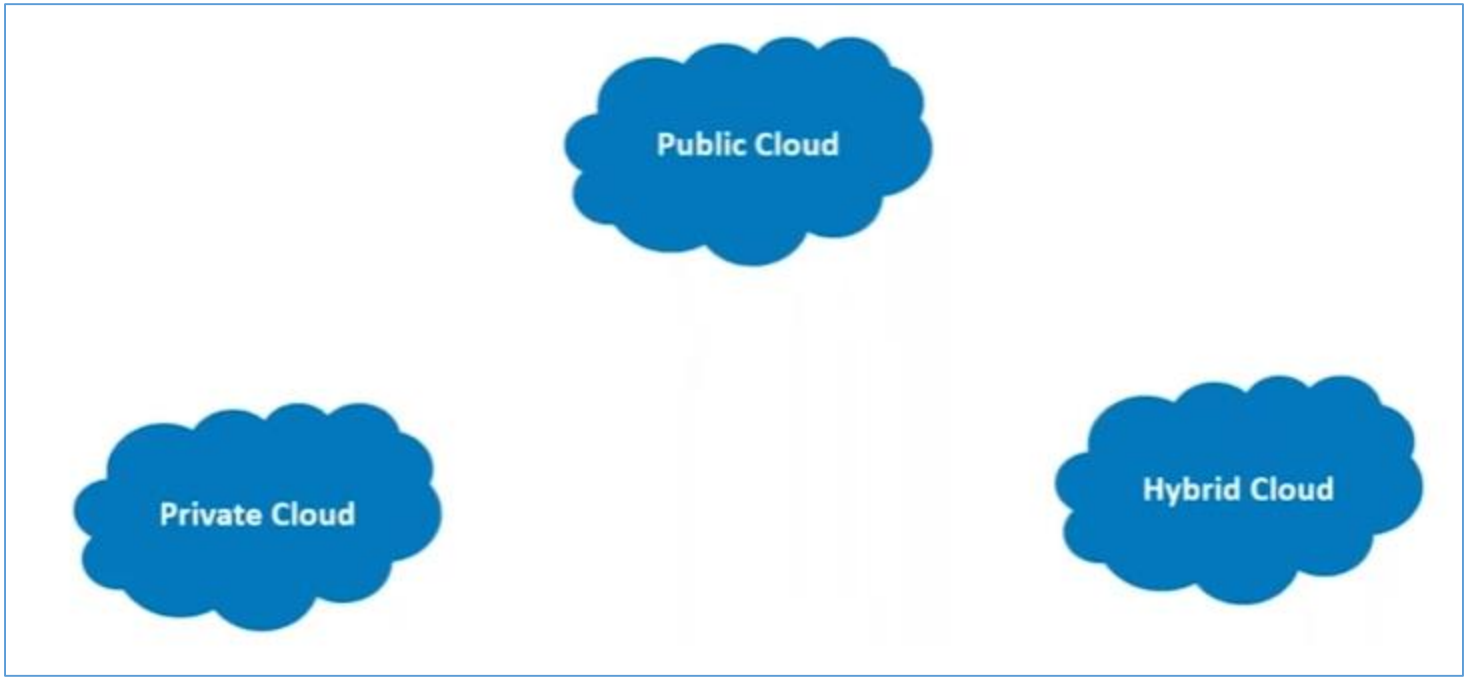
Service Models

Depending upon business requirements, cloud model is going to be different. We have 3 service models:

3. IaaS (Infrastructure as a service)

   Whole infrastructure is a provided to you so that you can create your own applications. It provides underlying structure so that you can choose your OS, technology, applications etc.

Deployment models



Deployment models

- Public cloud
    1. A service provider makes resources, such as applications and storage, available to the general public over the internet.
    2. Easy & inexpensive setup because hardware, application & bandwidth costs are covered by the provider.
    3. No wasted resources because you pay for what you use.
- Private cloud
    1. Private cloud offers hosted services to a limited number of people behind firewall, so it minimizes the security concerns
    2. Private cloud gives companies direct control over their data.

Deployment models

- Hybrid cloud

    1. Hybrid cloud is a combination of Public & Private clouds.
    2. You can deploy your application on private cloud.. if client request increases, you can shift it to public cloud.

Cloud providers in the market

Cloud providers in the market

- AWS (Amazon Web Services) - ** 1st most popular, AWS compute capacity is 6 times more than all other cloud providers combined together.
- GCP (Google Cloud Platform) - cheapest cloud services
- IBM Cloud
- Microsoft Azure - ** 2nd most popular
- Digital Ocean
- Terremark

Advantages of AWS

AWS is a secure cloud services platform, offering compute power, database storage, content delivery and other functionalities to help businesses scale and grow.

Flexibility: Large organizations have huge amount of data, different services to be taken care of. Here AWS is suitable.

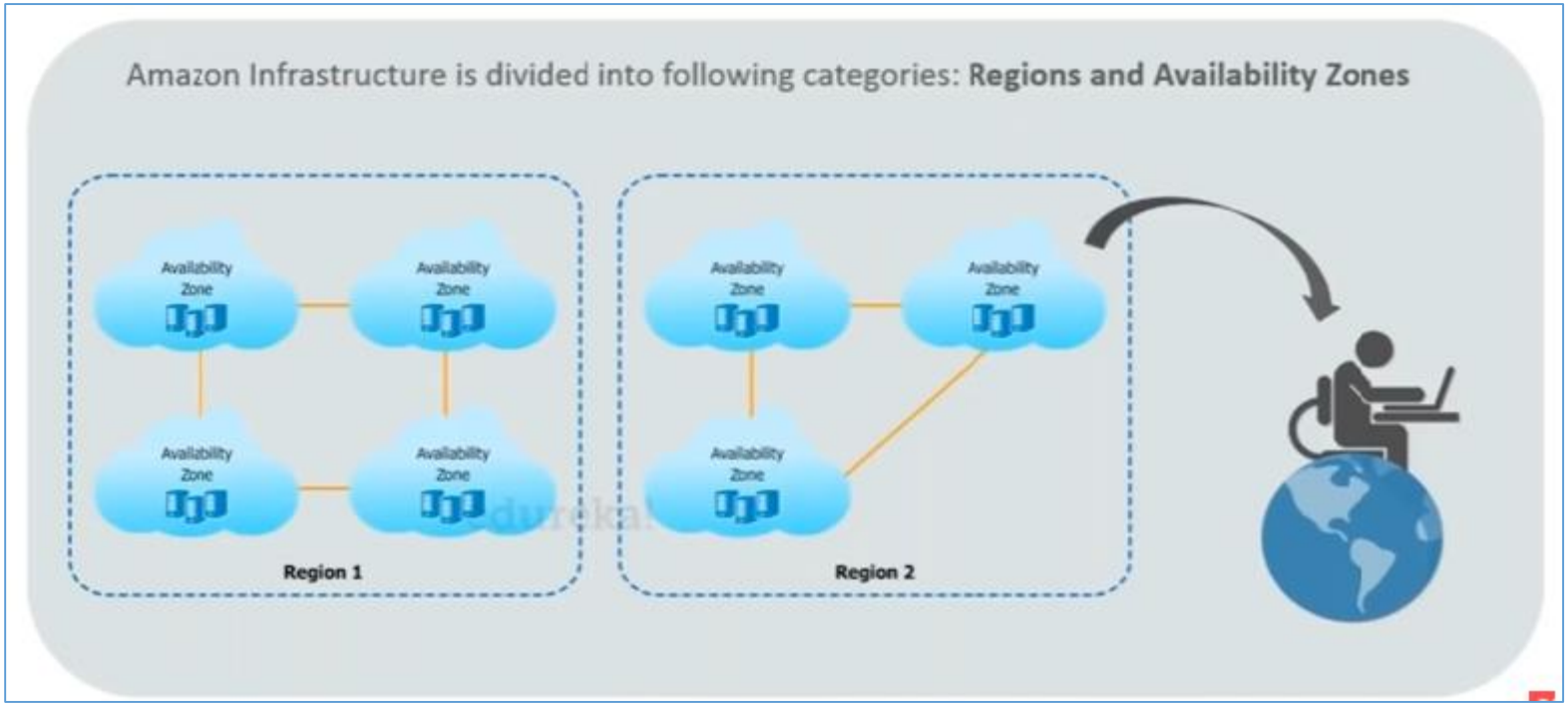
Cost effective: For begineers AWS provides Free tier for 1 year, AWS also has pay-as-you-go model which charges only for services you are using

Scalability: You can use the services as per your need. During high usage hours, these services will be used & during down time, these services are closed. Thus, it maintains scalability of the application irrespective of usage amount.

Advantages of AWS

Security: AWS offers high level of security to your app. AWS can track all suspicious activities so that you can focus on mainly business activities.

AWS Architecture



AWS Architecture

AWS Architecture

- AWS architecture is divided into 2 parts: Regions & Availability zones.
- Regions means different locations in the world with various data centers. One region may have multiple data centers.
- Data centers are known as Availability Zones.

AWS Domains


Compute
Migration
Security & Compliance
Storage
Networking
Messaging
Database
Management Tools

AWS Domains

- Compute

    1. *EC2 (Elastic Cloud Compute)*

    It is more of raw server where you can host your website. Thus, EC2 is a clean slate. For example, when you buy a laptop, you can install any OS, any software on it.. similarly, EC2 is a clean slate, where you can host anything, you want.

    2. *Elastic Beanstalk*

    Suppose you wish to install Java based app on cloud environment then in EC2 you will have to install JDK. However, Elastic Beanstalk provides pre-defined libraries & hence you will only install your application without JDK.

AWS Domains

- Migration

AWS provides 'snowball' that actually helps you to move your data physically from one to other data center.

- Security & Compliance

AWS offers IAM(Identification & Authentication Management tool), KMS (Key Management Service that allows to create your own public & private keys that helps you in keeping your system secure)

AWS Domains

- Storage

AWS offers S3, a bucket object kind of thing. Your storage space is called as Bucket & your object are nothing but your files.

- CloudFront is a content delivery network

- Glacier is a place where you save your archives

- Networking

AWS Networking provides us service like VPC, Direct Connect, Route 53 DNS. VPC is a virtual network that helps you to move or launch your resources. Direct Connect is a internet connection used in AWS.

AWS Domains

- Messaging

- AWS offers messaging services like Cloud trial, opsworks. these help us in establishing communication.

- Databases

- Databases is similar to Storage. However, Storage takes care of storing files where Databases will take care of data. For example, AWS provides Aurora database which is similar to SQL database & it lets you perform varous SQL operations with very fast rate.

- AWS also offers non-relational database named 'Dynamo DB'.

AWS Domains

- Management tools

- AWS offers Cloudwatch which is a monitoring tool which lets you to set an alarm.

Computing Services

- EC2

1. EC2 is an AWS compute service stands for 'Elastic Compute Cloud'.
2. EC2 is a service that allows you to do ahead & carry out computation practice. Elastic means fairly resizable & reusable.
3. EC2 launches a virtual machine also called as 'Instance'.
4. EC2 is cost efficient because it scales up & down depending upon client load.

Computing Services

- **Elastic beanstalk**

1. AWS Elastic beanstalk is a PaaS service used for deploying & scaling web applications & services deployed with Java, .NET, PHP, Node.js etc on familiar servers like Tomcat, Apache, Nginx, IIS etc.
2. If you choose EC2 to deploy your application then you have to take care of several issues like security groups, storage, load balancing, auto-scaling etc. Hence, Elastic beanstalk is used where developer only bother about his code & not on deployment configuration.
3. Thus, Elastic beanstalk is like an electronic retail store where you simply specify laptop configuration you are willing to buy & then retail store will present several laptop models in front of you.

Computing Services

- AWS Lambda

1. AWS Lambda is used to deploy a background task. It means our applications are not deployed using AWS lambda.
2. You don't choose configuration & server details in AWS Lambda.
3. You can choose AWS Lambda to run Email server as background task.

Thank you!!