AWS → Cloud Computing :

Infrastructure ---> Resources required to run our project/ company
  example: Machines, Network, Storage, Database, Monitoring ....

We can maintain our infrastructure in 2 ways
1) On Prem Infra
2) Cloud Infrastructure

On Prem Infrastructure --> We need to purchase and maintain all our resources

challenges --> Lot of cost --> High Cost Maintainance
         --> Scalability issue
       --> Security issue
       --> network issues

To over all the problems associated with on prem infrastructure we have Cloud Infrastructure

Cloud Computing --> Process of delivering IT resources over the internet on-demand basis of "Pay As You Go"" Model

Advantages --> Less Cost compare to On prem infra (Pay as You Go Model)
       --> We can scale up as its internet based service --> Scalability is high
      --> High security
      --> Backup options are available

Cloud Providers -->

AWS --> Amazon
Azure --> Microsoft
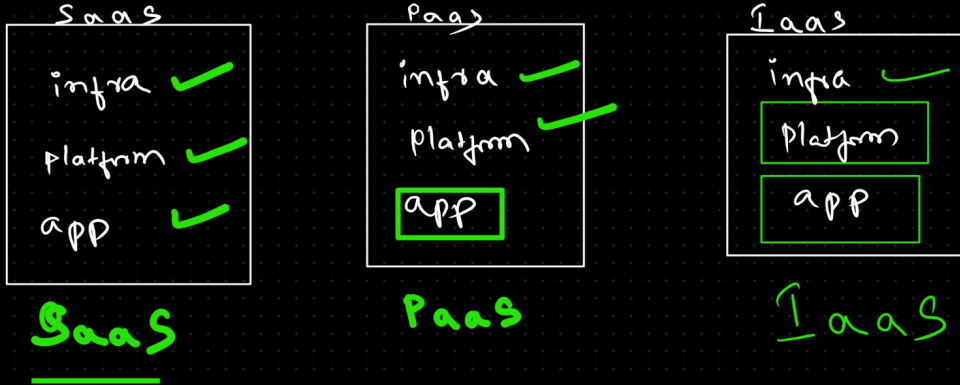GCP --> Google
Oracle
Ali baba
Salesforce

Cloud Service Models
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1) IAAS -> Infrastructure as a service
2) PAAS --> Platform as a service
3) SAAS --> Software as a service

1) SaaS --> Software as a Service --> Cloud Provider will give their application to run our business.

example : Zoom , Google drive, Dropbox, Teams, ...

SaaS — Saas: infra ✓, platform ✓, app ✓

PaaS — Paas: infra ✓, platform ✓, [app]

IaaS — Iaas: infra ✓, [Platform], [app]

PaaS -> Platform as a Service --> Provider will help us with ready made platform to run our application
We need to take care of our app, and provider will take care of infra and platform
ex: AWS Elastic Beanstack

IaaS --> Infrastructure as a Service --> Provider will help us with only Infrastructure

example : Machines, network, storage

AWS --> Amazon Webservices --> 2006 -->
The AWS Cloud spans 114 Availability Zones within 36 geographic regions, with announced plans for 12 more
Availability Zones

AWS works based on Pay as you go model
In Our Regions(India) Mumbai and Hyd

---> Ut is recommended to selected nearest Region to create infrastructure.

-->AWS also provides free tie account n(Some services are free) for learning and exploring purpose.

Note : If we use any of the paid services then the bill will be generated however AWS will not auto deduct bill amount
from our card (Subjected to policy change in future)
But AWS will anyway send the reminders for the bill payment and if we fail to pay the bill then account will be
suspended.

AWS Services --> 200+ services -----

1) EC2: (Elastic Compute Cloud) --> To create Virtual Machines (Hourly Basis)

2)EBS : Storage (Hard disc , SSD ---> 16 TB)

3) Load Balancer --> To distribute load

4) Autoscaling : Adjust capacity based on demand

5) S3 : unlimited storage(files)
6) RDS: Relational Database service

7) EFS : Shared file system (Elastic file system)

8) IAM: Identity and Access mgmn

9) VPC : Virtual Private Cloud (Networking) --> IP, subnets Route Tables, IGw, NATGw, VPC peering, NACLS ....)

10) Cloud Formation : Infrastructure as a code --(Infra will be created with code) --> Alternative (Terraform)

11) AWS CLI --> Command Line INterface

12) Elastic Kubernetes Service --> EKS (The Trusted K8S cluster)

13) Elastic Beanstack : Platform as a service

14) Serverless computing : AWS Lambdas

15) Route 53 : Domain mapping (www.telusko, www.gmail)

16) Cloud watch : monitoring service

17) Simple Notification service SNS (to send the alerts)

18) Billing Overview

EC2 Service
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--> Elastic Compute Cloud --> Most demanded service in AWS --> To Create Virtual Machines in AWS Cloud

EC2 VM == EC2 Instance ==> EC2 Server/VM/V Box ......

To encourage learners AWS provided t2.micro/t3.micro for 1 year free (monthly 750 hours)

EC2 is a paid service (Hourly billing)

11:15 AM —> 11:30am => 15 mins =) billed for 1 hour

11:15am -) 11:20am=) 5 min =) billed for that.

EC2 vm minimum billing Piriod is 1hour

EC2 VM will have storage with EBS service : EC2 Windows VM : 30GB(default), Linux (8 gb) and max capacity of EBS is 16 TB

For EC2 VM, VPC service will provide network

--> AMI(Amazon Machine Image) is used for the creation of EC2 VM

--> We use key-pair(oem) to secure EC2
--> Security Groups --> To allow incoming and outgoing traffic for EC2

Note : One Key pair can be used for multiple EC2 instances
         : One Security Group can be used for Mutiplr Ec2 instances

AMI $\longrightarrow$ EC2 $\subset$ ← VPC

VM

instance type $\longrightarrow$

security
groups

keypair $\longrightarrow$ ← EBS