**FEATURES OF AMAZON EC2 :-**

* Virtual computing environment, **known as instances**.
* Preconfigured templates for your instances**, known as amazon machine images (AMI’s),** that package the bits you need for your server (including the operating system and additional software)
* Various configurations of CPU, memory, storage, and networking capacity for your instances, **known as instances types.**

**Instance categories :-** 1) general purpose, 2) storage optimize 3) compute optimized 4) accelerated 5)hiGPU 6) memory optimize

* Secure login information for your instances using key pair (AWS stores the public key, and you store the private key in a secure place)
* Storage volume for temporary data that’s deleted when you stop, hibernate or terminate your instances**, known instance store volumes.**
* Persistent storage volumes for your data using amazon elastic block storage (EBS) **known as Elastic Block Storage Volume**.
* Multiple physical locations for your resources, such as instances and amazon EBS volumes, **known as regions and availability zone**.
* A firewall that enables you to specify the protocols, ports and source IP ranges that can reach your instances using security groups.
* Static IPV4 address for dynamic cloud computing, **known as Elastic IP Addresses**.
* Metadata, known as tags that you can create and assign to your amazon EC2 resources.
* Virtual network you can create that are logically isolated from the rest of the AWS cloud, and that you can optionally connect to your own network, **known as virtual private cloud** (VPC’s)

**LOAD BALENCER :-**

There are 4 types of load balancer

1. **Application load balancer :- 7th** layer of OSI model , , HTTP(80) and HTTPS(443)
2. **Network load balancer :-**  less latency, work on 4th layer, TCP and UDP (transmission control protocol and user datagram protocol)
3. **Gateway load balancer :-**  it works on only port no 6081, it work on third layer of OSI model (network layer)
4. **Classical load balancer :-** work o 7th and 4th layer on OSI model **,** round robin (sequentially), high cost, HTTP and HTTPS

**What is placement group :-**

It is a group of multiple instances within a single availability zone, benefit is low network latency, high network throughput

**What is throughput :-**

Number of processes completed per unit time

**What is security group :-**

A security group is a virtual firewall for your EC2 instances to control your incoming traffic.

When you launch the instances you can specify one or more security group.

If you don’t specify the security group then AWS instance will default one.

**Types of web services :-**

1. Monolithic :- same page everywhere shows it may be on laptop or mobile
2. Microlithic :- it defines with server
3. Extended :- we can access multiple modules by one server

**Scaling types :-**

1. **Static autoscalling :-**  min-2, desire-2, max-2
2. **Dynamic autoscalling :-**  min-2, desire-4, max-6
3. **Schedule autoscalling :-**  it on time I want it on Sunday at 10AM -5PM then I will pay for that time it may be used or not

Tabs in AWS :-

1. EC2 Global view :- it is use to check the where is running subnet(55 in 17 region) is enable, running VPC(17 in 17 region), running instances(0 in 0 regions), enable region(17), volumes(0 in 0 region)
2. Events :- the EC2 instances support multiple types of scheduled events such as reboot (instance-reboot or system reboot), instance stop etc.
3. Limits :- here we can check the limit of hardware i.e. How many CPU(instances), VPC’s etc. we can use.
4. Instances :-

* Number of instance :- we can select the quantity of instances
* Purchasing option :- if we tik there then it will create request spot instances
* Network :- you can select the VPC
* Subnet :- you can select the subnets
* Auto assign public ip :- if this option is enable then public IP will assign to instance and if disable then public ip will not assign to instance.
* Hostname type :- here you want the guest OS hostname of the EC2 instance to be the resource name or IP name.
* DNS hostname :- there is by default resource-based IPV4 (A record )is enable
* Placement group :- the placement group means group of instances. here you can add instances in group.
* Capacity reservation :- capacity reservations allow you to reserve capacity for your immediate use in a specific instance type and availability zone and can be cancelled by you at any time

**Instance types :-**

1. **General purpose :-** it is use because it balance of compute, memory, and networking resources. And diverse the workload.
2. **Memory optimize** :- it is use for fast performance for workloads that process large data sets in memory ex. instagram, FB
3. **Compute:-** :- it is use for high performance ex. Games
4. **Storage optimize :-** it is use for read and write access to a very large data sets on local storage.
5. **Accelerated optimize :-** :-
6. **Instance features**
7. **Measuring instance performance**