Amazon Ec2 instance types. (Requirements for compute, memory or storage capabilities.

1. General purpose instances.

provide a balance of compute, memory and networking resources.

uses them for a variety of workloads

* application servers.
* gaming server
* Backend servers for enterprises
* small and medium data bases.

2. compute optimized instance.

* are ideal for compute-bond applications that benefit from high performance processors.
* use for work lods as web, application and gaming servers.

3. Memory optimized instance.

are designed to deliver fast performance for workloads that process large datasets in memory.

4. Accelerated computing instance:

* use hardware accelerators, or coprocessors, to perform some funtions more efficiently than is possible in software running on CPUs.
* Accelerated computing instances are ideal for workloads such as graphicsapplication, game streaming and application streaming.

5. storage optimized instances.

designed for workloads that require high, sequential read and write access to large datasets on local storage.

workloads include distributed file systems, data ware housing applications, and high-frequency online transaction processing syst (OLTP)

(IOPS) input/output operations per second is a metric that measure performance of a storage device.

1. on-Demand.

* ideal for Short-term, irregular workloads that cannot be interrupted.

* No-upfront costs or mini. contracts applys.

* The instances run continuously until you Stop them and you pay for only the compute time you use.

2. Saving plans.

* enables you to reduce your compute costs by committing to a consistent amoat of compute usage for a 1-year or 3-year ter.

* saving of upto 66% or 72% over on-Demand costs.

3. Reserved Instances.

* are billing discount applied to use of on-Demand Instance in your accont.

* you can purchase standard Reserved and convertible Reserved. Insterce for a 1-year or 3-year terms and Scheduled reserved instances for a 1-year term.

* you realise greater Cost saving with the 3-year option.

4. Spot Instances:

* ideal for workloads with flexible start and end time, or that can withstand interruption!.

* spot Instances use unused Amazn EC2 computing capacity and offer you cost savings at up to 90% Off of on-Demand prices.

* If Amazon EC2 capacity is available, spot Instances lanches. or not.

5. Dedicated Hosts:

* are physical servers with Amazon EC2 instance capacity that is fully dedicated to your use.

* Dedicated Hosts are more expensiver.

* use your existing per-sockd, per-core, per-VM sofware licets.

Scalability :-

- involves beginning with only the resources you need and designing your architecture to automatically respond to changing demand by scaling out or in.
- As a result, you pay for only the resources you use.
- The AWS services that provides this functionality for Amazon EC 2 instances is Amazon EC2 Auto Scaling.

Amazon EC2 Auto scaling.

- try to access a website that wouldn't load and frequently timedout.
- Amazon EC2 Auto scaling enables you to automatically add or remove Amazon EC2 instance in responce to changing application demand

→ Dynmaic scaling responds to changing demand

→ predictive scaling automtically schedule the right number of amazon EC2 instance based on predicted demand

To scale faster, you can dynamic Scaling and predictive scaling together.

- Mini. No. of Amazon EC2 instance atone.
- If you do not specify the desired number Amazon EC2 instances in an Auto Scaling group, the desired capacity defaults to your mini. capacity.
- Max. capacity.

Elastic Load Balancing

- is the AWS services that automatically distributes incoming application traffic across multiple rescources such as Amazon EC2 instance
- A load Balancer acts as a single point of contact for all incoming web traffic to your Auto scaling group.
- these request route to the load balancer frist, distribues the workload across the multiple instance so that no single instance has to carry bulk of it.
- Although Elastic Load Balancing and Amazon EC2 Auto Scaling are separate Services, they work together