**Placement group**

Sometimes you want control over the EC2 instance placement

That idea can be defined using placement group

There are three types of placement group

1. Cluster :- Cluster instances into a low-latency group in a single AZ ( availability zone)
2. Spread :- Spread instance across underlying hardware (max 7 instances per group per AZ-critical application.
3. Partition :- Spread instances across many different Partitions ( Which rely on different sets of racks) within an AZ. Scales to 100s of EC2 instances per group ( Hadoop, Cassandra)

# Cluster placement Group :-

Same Rack

Same AZ

Placement group cluster low latency 10 Gbps network

**EC2**

**EC2**

**EC2**

**EC2**

**EC2**

**EC2**

* Great network ( 10 Gbps bandwidth between instances)
* **Not supported dedicated host**
* AWS not recommend multiple instance types in this placement group
* **If the rack fails, all instances fails at the same time**

**Use Case:-**

1. Big data job that need to complete fast
2. Application that need extremely low latency and high network through.

# Spread placement Gorup :-

Us-east-1a

Us-east-1b

Us-east-1a

EC2

EC2

EC2

Hardware5

Hardware3

Hardware1

Hardware2

Hardware4

Hardware6

EC2

EC2

EC2

* Can span across availability zones (AZ)
* **Not supported dedicated host & dedicated instances**
* You can mix instances type in this cluster
* **Reduces risk is simultaneous failure --- agr koi Rack or AZ damage hota hai to koi problem nhi hongi application to bhi run krengi**
* EC2 instances are on different physical hardware
* **Limited to 7 instances per AZ**

Use cases:-

1. Application that needs to maximize high availability
2. Critical application where each instances must be isolated from failure from each other

# Partition placement Group:-

Us-east-1a

EC2

|  |
| --- |
| EC2  EC2  EC2 |
|  |
|  |
|  |

EC2

EC2

EC2

Partition 3

Partition 2

Partition 1

EC2

EC2

EC2

EC2

EC2

* Up to 7 partitions per AZ no limit on number of instances per partitions
* Not supported dedicated host instance With dedicated instance max. 2 partitions supported
* You can mix instances types in this placement group
* The instances in a partition do not share racks with the instances in the other partitions
* A partition failure can affect many EC2 but won’t affect other partitions
* EC2 instances get access to the partition informations as metadata

Note:-

You cannot merge placement group

You cannot move an existing instances into placement group before you move the instance the instance must be in the stopped state. You can move or remove an instance using AWS

CLI/SDK but cannot do it via console yet