Amazon Web Services

Placement Groups

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Placement Groups

- When we launch a new EC2 instance, the EC2 service attempts to place the instance in such a way that all of your instances are spread out across underlying hardware to minimize failures. No Charges to Create Placement Groups.

- **Types of Placement Groups**

- Cluster
- Partition
- Spread

Placement Groups - Cluster

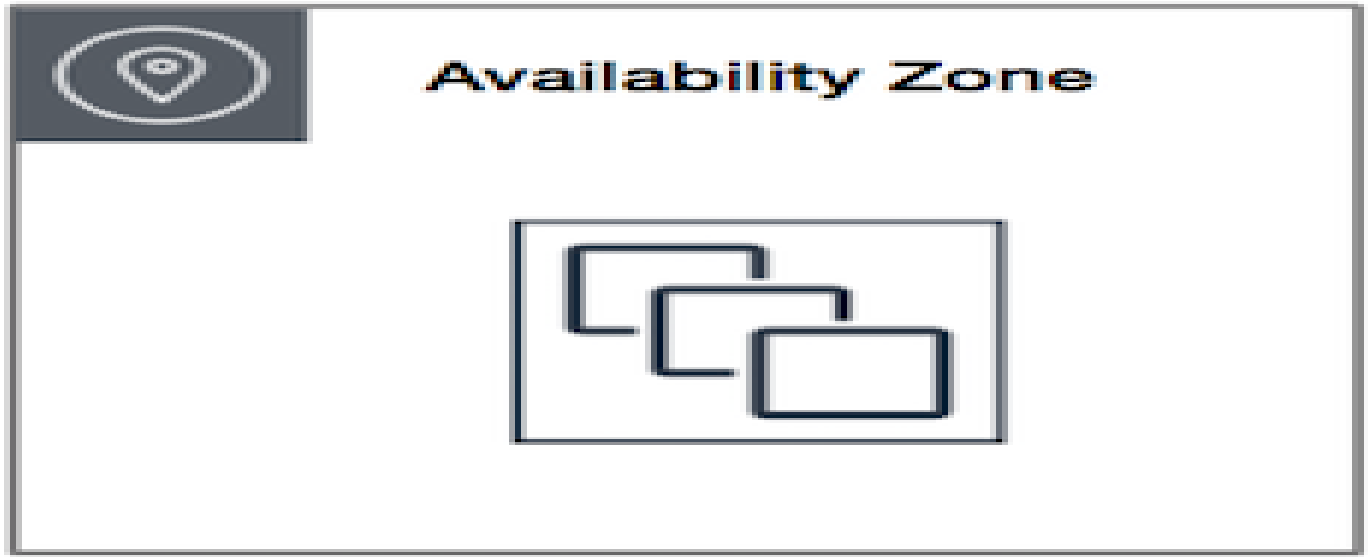
- Cluster Placement Group is basically a directive to launch EC2 instances within the same Rack. Visualize thousands of servers placed in Amazon Data Centers and they are placed in different racks, so when you give 'Cluster' as placement group, all the instances will be launched within the same RAC (in same AZ).

- Same rack and same availability zone

- Great network, low latency (10Gbps bandwidth between instances)

Placement Groups - Cluster

- Cons: if rack fails then all the EC2 instances will fail at the same time
- Usage: Big data job that needs to complete fast, Application with low latency and high throughput



Placement Groups - Spread

- Now visualize within all the data centers and you want to distribute your highly available application within multiple data centers, so spread helps you with that - with instances spanning multiple AZs and different physical RAC if in the same AZ.

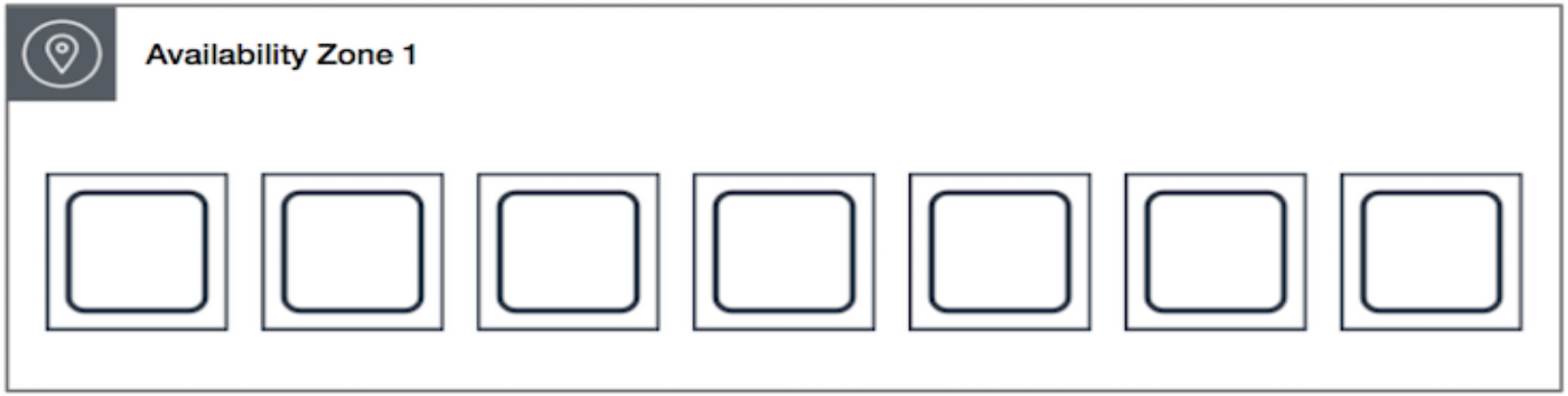
- All EC2 instance will be located on different hardware

- Span across multiple AZ

- Reduced risk of simultaneous failure

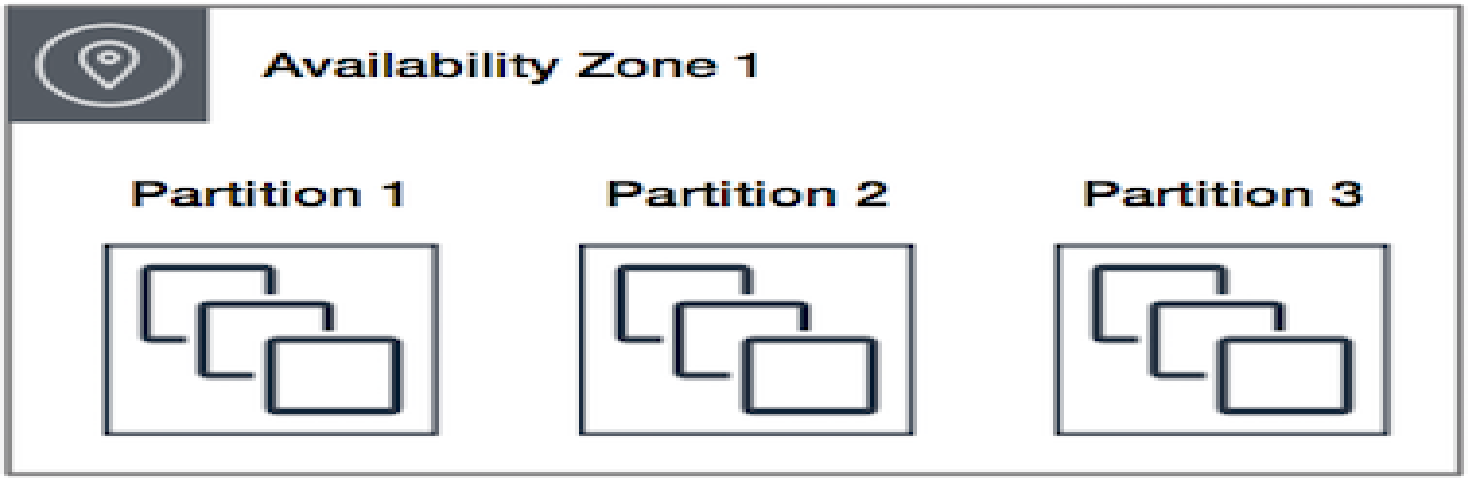
Placement Groups - Spread

- Use Cases: Application that needs maximize High Availability, Critical Applications that needs to be isolated from failure from each other



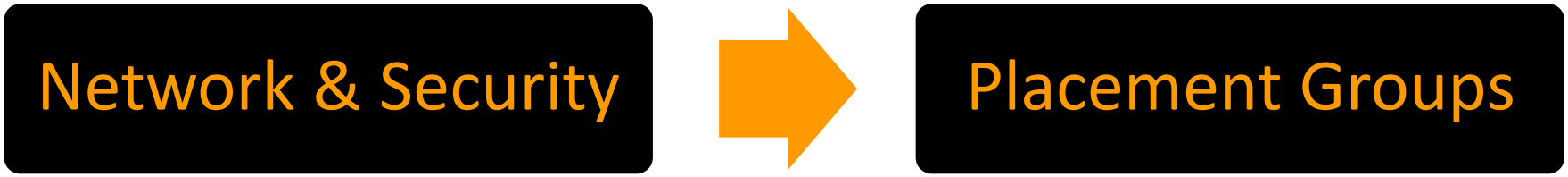
Placement Groups - Partition

- Each partition represents a rack in AW. Can have up-to 7 partitions per availability zone, but can have as many instances as you like in each partition. Each partition is isolated, so a failure in a different partition won't affect the others. Can scale to 100s of instances per group, great for applications that need to process massive amounts of data such as Apache Hadoop.



Placement Groups - Cluster

- Go to EC2 Service



- Click on Create Placement Group
- Enter the name of the placement group
- Select Placement Strategy as cluster
- Click on create group

Placement Groups - Spread

- Click on create placement group
- Enter the name
- Select placement Strategy as spread
- Select spread level as Rack
- Click on create group

Placement Groups - Partition

- Click on create placement group
- Enter the name
- Select placement Strategy as partition
- Select the number of partitions as per client
- Click on create group

Placement Groups

- Create EC2 Machine
- Go to Advanced Details
- Select the placement group as per the client requirement
- Click on launch instance

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