💡 PLACEMENT GROUPS

🪄 Placement groups are the way of logically grouping interdependent instances together in a selected region.

🪄 In other words, instances that are existing within a common availability zone can be grouped under placement group in order to suit workload requirements.

🪄 By using the placement group, we will increase the performance or improve the availability.

📌 Types

- 🔹 Cluster placement group
- 🔹 Spread placement group
- 🔹 Partition placement group

📌 Benefits

- 🔹 Can be able to launch multiple instances within the same AZ.
- 🔹 Low network latency.
- 🔹 High network throughput.

📌 Limitations

- 🔹 Cannot merge placement groups.
- 🔹 Cannot launch dedicated hosts in placement groups.
- 🔹 Instances cannot span into multiple placement groups.

📌 Cluster Placement Group

🪄 All the instances are placed in a same hardware rack inside an availability zone.

🪄 But if the rack fails, all instances fail at the same time.

🪄 This type of group will enable to achieve low latency network.

🪄 Good for High Performance applications.

🔑 **Use Case -** Application with low latency and high throughput.

📌 Spread Placement Group

🪄 All EC2 instances are placed in different hardware racks in a single availability zone.

🪄 A rack failure will not affect more than one instance.

🪄 We can create up to 7 EC2 instances per availability zone in spread placement group.

🪄 Good for high availability applications and not suitable for high performance applications.

🪄 It can span multiple availability zones in the same region.

🔑 **Use Case-** Critical applications that needs to be isolated from failure from each other.

📌 Partition Placement Group

🪄 Group of instances spread across racks, and the instances in one partition do not share the underlying hardware with instances in different partition.

🪄 If a rack fails, it will affect on the instances within that particular partition only.

🪄 Partitions can be in different availability zones in the same region.

🪄 It strikes a balance between high performance and high availability.

🔑 **Use Case -** Big data applications like HDFS, HBase, Cassandra, Kafka.