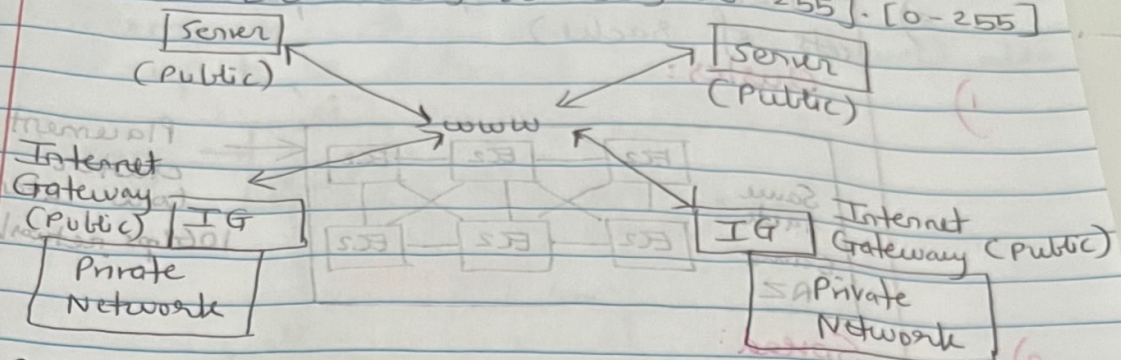


- EC2 instance = AMI (OS) + Instance size (CPU + RAM) + Storage + Security Groups + EC2 User data.
- EC2 instance Role - link to IAM roles

* EC2 Associate *

IPv4: [0-255].[0-255].[0-255].[0-255]



- Private IP: Machines connect to www using a NAT + Internet gateway (a proxy)
- Elastic IP: Fixed public IP (attach to one instance at a time)
- 5 Elastic IP in your account.
- Avoid using Elastic IP.
- They often reflect poor architectural decisions
- Instead, use a random public IP and register a DNS name to it
- Or use a load Balancer and don't use a public IP.

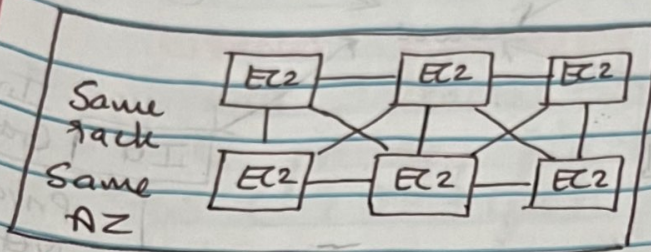
Placement Groups

Control over the EC2 Instance Placement Strategy - we placement groups

Types:

- 1) Cluster - Single AZ
- 2) Spread - spread instances across underlying hardware (max 7 instances per group per AZ)
- 3) Partition - different partitions (diff-sets of racks)

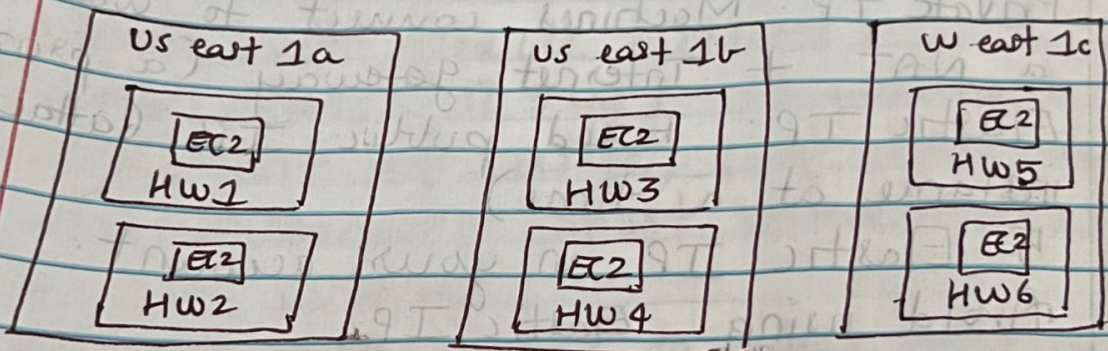
Cluster:



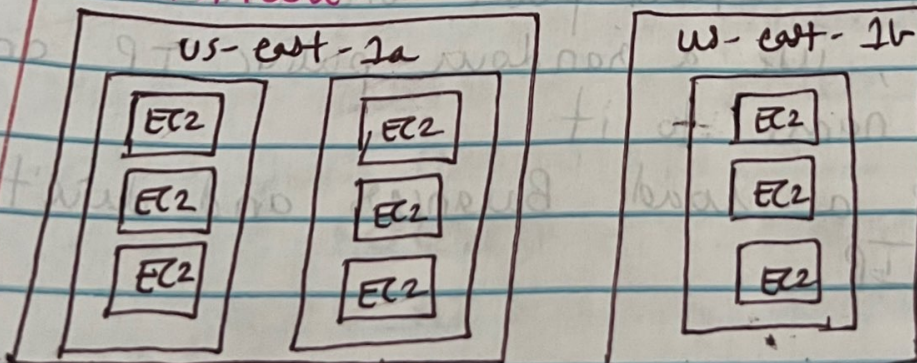
Placement group cluster
low latency
10Gbps network

Spread:

2) 7 instances per AZ



Partition:



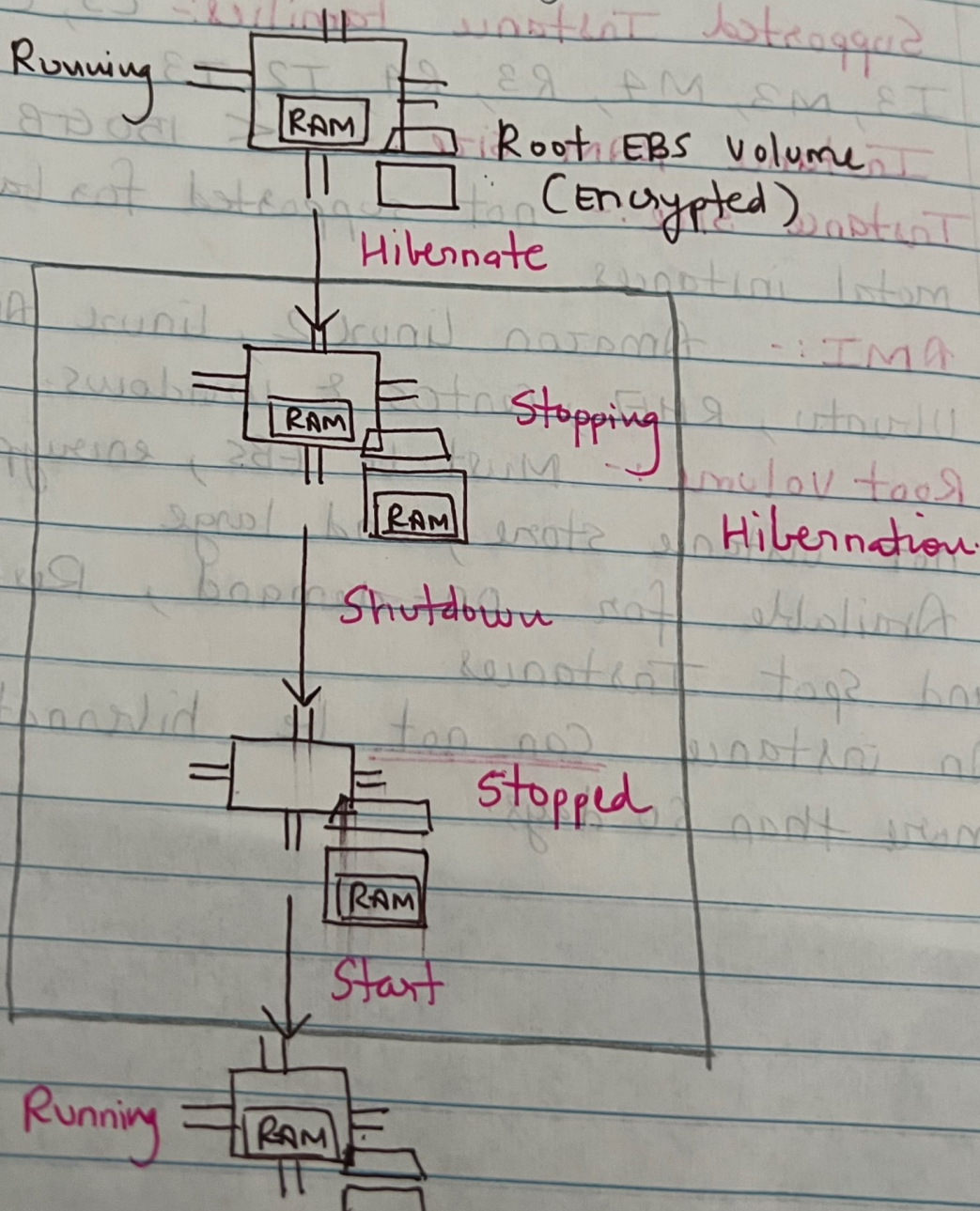
Elastic Network Interfaces (ENI)
logical component in a VPC that represents a virtual ~~network~~ network card.
Bound to a specific AZ.

Can create ENI independently and attach them on fly on EC2 instances for failover.

EC2 Hibernation:

Stop Instance - The data on disk (EBS) is kept intact in the next start.

Terminate - Any EBS volumes (root) also set-up to be destroyed is lost.



- 1) The in-memory state (RAM) is preserved.
- 2) The instance boot is much faster.
(The OS is not stopped / restarted)

3) Under the hood: the RAM state is written to a file in the root EBS volume.

4) The root EBS volume must be encrypted.

- Use cases:
- 1) Long running processes
 - 2) Saving the RAM state
 - 3) Services that take time to initialize.

Supported Instance Families: C3, C4, C5, I3, M3, M4, R3, R4, T2, T3

Instance RAM size: $\leq 150 \text{ GB}$

Instance size: not supported for bare metal instances.

AMI: Amazon Linux 2, Linux AMI, Ubuntu, RHEL, CentOS & Windows.

Root Volume: Must be EBS, encrypted, not instance store, and large
Available for on-demand, Reserved and Spot Instances.

An instance can not be hibernated more than 60 days.

