EC2

→ Resizable Compute Capacity in the cloud. It allows to Scale Capacity, both up and down as requirements change.

→ It's like an VM in the cloud

On Demand - fixed rate by hours, no Commitment

Reserved - Commitment, reservation for 1-3 years

Spot - bid whatever Price and have savings if Start and end time is flexible

Dedicated - Physical EC2 server dedicated for your own use.

On-Demand
- Low cost, flexible
- first time applications with no commitments.

Reserved
- Standard RI (75% off Demand)
- Convertible RI (54% of on demand)
  - Change attributes of the RI
- Scheduled RI
  - used only when time is mentioned for ex heavy season time

Spot

↙

→ flexible start and end times

→ additional Compute Capacity

→ Low Cost

Dedicated Host

↙ ↘

Can be on Demand Can be Reservation Instance.

T2 – Lowest Cost, General Purpose.

F – FPGA

I – IOPS

G – Graphics

H – High Disk Throughput

T – Cheap General Purpose

D – Density

R – Ram

M – Main Choice for General Purpose

C – Compute

P – Graphics

X – Extreme Memory.

EBS : Virtual Disk in the cloud. It is a block based Storage. These are automatically replicated to Protect you from the failure of a single Component.

→ General Purpose SSD (GP2)
  → both Price and Performance
  → 3 IOPS Per GB up to 10,000 IOPS and ability to burst up 3000 IOPS

→ Provisined IOPS SSD
  → Large relational or Nosql Database
  → > 10,000 IOPS
  → upto 20,000 IOPS for volume.

→ Throughput optimized HDD (ST1)
  → Big Data
  → Data Warehouse
  → Log Processing
  → Cannot be a boot volume.

→ Cold HDD (sc1)

→ Lowest cost Storage for infrequent workloads

→ File Server

→ Cannot be boot Volume

→ Magnetic (Standard)

→ Lowest EBS type that is bootable.

→ Cheap & Infrequent data.

→ AMI is Shapshot of virtual Machines

→ Normal Monitoring - 5minutes

Cloud watch Detailed - 1 minute.

→ By Default the root EBS is terminated if Ec2 is terminated. we need to uncheck if we want to change it.

→ Security Group is like a firewall for Ec2 Server.

→ Key Pair Consists of

Public Key - AWS Stores

Private Key - User Stores.

→ CHMOD 4000 KeyPair.Pem

→ To Terminate an EC2 we need to disenable the termination Protection first and then terminate the EC2 Server.

→ Status checks

1) System Status Checks
   - network, instance is reachable, infrastructure failure

2) Instance Status check
   - if traffic is coming to instance.

→ Root can't be directly Encrypted directly where as other EBS can be done.

→ Create a copy of AMI of EBS and then encrypt them. we cant encrypt default root devices by AWS.

→ Termination Protection is turned off by default.

Security Groups

→ It is a virtual firewall

→ Any rule when applied on a security group it happens immediately.

→ Inbound, outbound traffic.

anything which has inbound also has an outbound rule in the group.

→ We can only allow traffic but cant deny

→ Each EC2 can have more than one security group assigned to it.

→ All inbound traffic is blocked by default

→ Security groups are Stateful.

For blocking we need NACL's.

→ Both EC2 and EBS needs to be in the same available Zone to be mounted.

→ If we Create a Snapshot of EBS and then we can Change the availability Zone and then attach to the EC2 Server.

→ Snapshots are used for Backup's.

→ To change the EC2
1) Create Snapshot
2) Convert into AMI
3) Then Change into new location or AZ

→ Only root is terminated, other EBS Volumes are not terminated when EC2 is deleted.

→ To Create a Snapshot for amazon EBS volumes that are root devices, you should stop the instance before taking the Snapshot.

→ To take it can be running.

RAID 0 — Striped, No Redundancy, Performance
RAID 1 — Mirrored, Redundancy
RAID 5 — Good for reads, bad for writes
Aws X
RAID 10 — Striped & Mirrored

→ 1) Freeze the file System
2) Unmount the RAID Array
3) Shutdown the Ec2 instance
} → Snapshot without any inconsistencies

→ we can only share encrypted Snapshots.

→ AMI → EBS → Amazon EBS Snapshot
→ Instance Store (Ephemeral Storage)
↓
↳ Cant Stop/Start
↳ only terminate
↳ Created by template stored in the amazon S3

Elastic Load Balancers

1) Application Load Balancers
→ Load Balancing of HTTP & HTTPS traffic
→ intelligent, create advance request routing.

2) Network Load Balancer
→ Load Balancing of TCP
→ Millions of requests Per second
→ extreme Performance

For IPV4 address of your end users, look for the X-Forwar for header.

3) Classic - Elastic Load Balancer
→ Legacy elastic load Balancer
→ 504 errors (Application failed)