Elastic Compute Cloud (EC2)

AWS EC2

- **What is AWS EC2?**
  - EC2 stands for Elastic Compute Cloud.
  - Amazon EC2 is the virtual machine in the Cloud Environment.
  - Amazon EC2 provides scalable capacity. Instances can scale up and down automatically based on the traffic.
  - You do not have to invest in the hardware.
  - You can launch as many servers as you want and you will have complete
  - control over the servers and can manage security, networking, and storage.

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- **Instance Type:**
  - Instance type is providing a range of instance types for various use cases.
  - The instance is the processor and memory of your EC2 instance.
  - Instance type is basically a combination of **CPU** (Central Processing Unit) and **RAM** (Random Access Memory) and more.
- **EBS Volume: (**Elastic Block Storage)
  - EBS Stands for It is the block-level storage that is assigned to your single EC2 Instance.
  - It persists independently from running EC2.
  - **Types of EBS Storage**
    - General Purpose (SSD)
    - Provisioned IOPS (SSD)
    - Throughput Optimized Hard Disk Drive
    - Cold Hard Disk Drive
    - Magnetic

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- **Instance Store**
  - Instance store is the ephemeral block-level storage for the EC2 instance.
  - Instance stores can be used for faster processing and temporary storage of the application.

- **AMI: (Amazon Machine Image)**
  - AMI decides the OS, installs dependencies, libraries, data of your EC2 instances.
  - Multiple instances with the same configuration can be launched using a single AMI.

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- **Security Group:**
  - A Security group acts as a virtual firewall for your EC2 Instances.
  - It decides the type of port and kind of traffic to allow.
  - Security groups are active at the instance level whereas Network ACLs are active at the subnet level.
  - Security Groups can only allow but can't deny the rules.
  - The Security group is considered stateful.
  - By default, in the outbound rule all traffic is allowed and needs to define the inbound rules.
- **Key Pair:**
  - A key pair, consisting of a private key and a public key, is a set of
  - security credentials that you can use to prove your identity while connecting to an instance.

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- Amazon EC2 instances use two keys, one is the public key which is attached to your EC2 instance.

- Another is the private key which is with you. You can get access to the EC2 instance only if these keys get matched.

- Keep the private key in a secure place.

- **Tags:**
  - Tag is a key-value name you assign to your AWS Resources.
  - Tags are the identifier of the resource.
  - Resources can be organized well using the tags.

- **Pricing:**
  - You will get different pricing options such as
    - Reserved Instances
    - Spot Instances.
    - On-Demand
    - Savings plan