Encryption:

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--> Encryption is the process of converting the data into unreadable format using a unique algorithm

--> Encryption requires an encryption key. Is the combination of Public + Private Keys

--> Public Key Is used to encrypt the data, whereas the private key is used to decrypt the data

--> On AWS Encryption uses AES-256 algorithm

--> KMS (Key Management Service) Can be used to maintain the encryption keys

Types of Encryptions

a. In-Transit: --> Data will be encrypted before initiating the transmission and will be decrypted once it reaches the destination.

--> In-Transit Encryption requires SSL Certificate

b. Data At Rest: If we enable encryption on the data once it got stored on to the storage device, that process is called as Data at Rest Encryption.

--> It requires Encryption Key.

1. Create an EBS volume and enable Encryption at the time of Creation.

2. Enable Encryption on any Existing EBS Volume -- (NOT POSSIBLE)

3. Can we disable encryption on EBS Volume? -- (NOT POSSIBLE)

4. Create a snapshot of any encrypted EBS volume and observe that the snapshot is encrypted or not

--> By Default the snapshot of any encrypted volume will be automatically encrypted.

5. Create an EBS volume from the encrypted snapshot

a) Disable the encryption on new Volume -- Can't be disabled.

b) ENable the Encryption on new Volume -- Mandatory

6. Create a snaphot from Non-Encrypted EBS Volume, and observe the encryption status of the snaphot.

7. Create a new EBS Volume using Un-Encrypted Snapshot and observe the following

a) Enable Encryption while creating the Volume -- POSSIBLE

b) Disable Encryption while creating the Volume -- POSSIBLE

--> Always the Snapshot from the encrypted volume, will be encrypted automatically

--> From Encrypted snapshot, we can create encrypted volumes Only

--> Snapshots from the Un-Encrypted volumes will be created without encryption

--> Volumes from the Un-Encrypted snapshots can be either Encrypted Volumes or UnEncrypted Volumes.

--> We cannot Disable Encryption, once we enabled.