

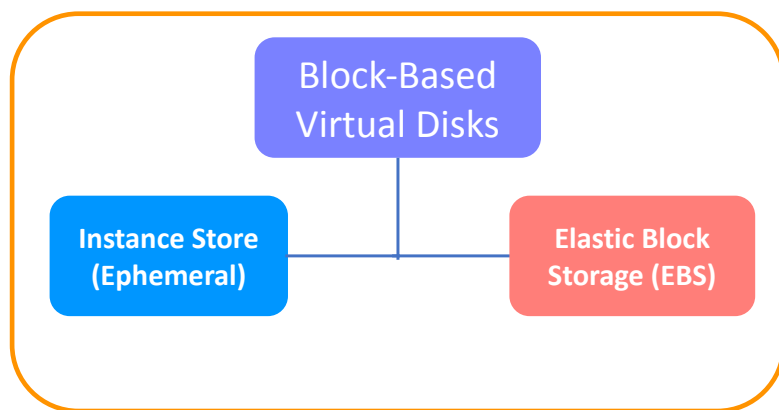


EC2 Volumes

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WAY TO REINVENT YOURSELF

EC2 Volumes

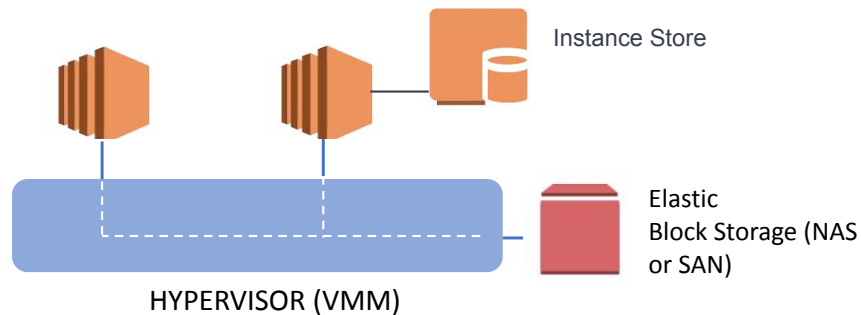
What is Volumes?



- Volumes are durable **storage devices (virtual)** that can be attached to EC2 instances.
- They are location in which the associated machine **stores its data or loads its applications**.
- There are two volume types in the block storage category. These are **Instance Stores (Ephemeral)** and **Elastic Block Storage (EBS)**.

EC2 Volumes

Instance Store and Elastic Block Storage



- The storage connected directly to the hypervisor and accessible to each machine associated with the hypervisor is called the Instance Store.
- Instance Storage can be connected to only one instance. And is the closest storage device to your instance.

EC2 Volumes

Instance Store (Ephemeral) vs. Elastic Block Storage (EBS).



EC2 INSTANCE STORE

- Hardware attach
- Non-persistent data storage/ Terminated if you stop the instance
- Snapshots are not available
- Used for Buffers, Cache, Temporary data
- No separate cost for storage

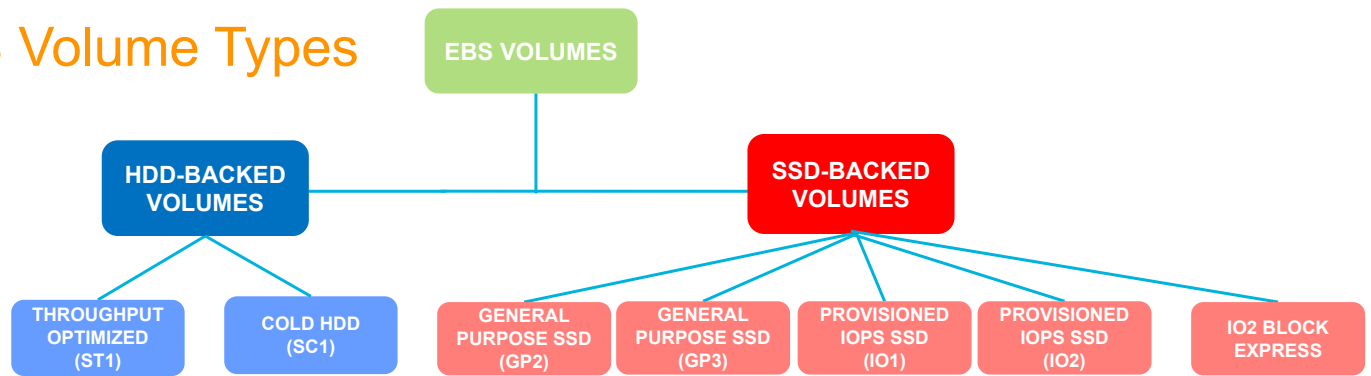


ELASTIC BLOCK STORAGE

- Network attached storage
- Persistent data storage
- Snapshots are available
- Separate cost for EBS even EC2 is stopped

EC2 Volumes

EBS Volume Types



- There are 6 [types of volumes](#) in 2 categories for the different use cases.
- HDD-backed volumes are used for large streaming workloads where [throughput is a better performance measure than IOPS](#).
- SSD-backed volumes are used for frequent read/write operations where the [dominant performance attribute is IOPS](#).

AMI & Snapshot





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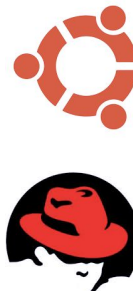
Amazon Machine Image (AMI)

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Amazon Machine Image (AMI)

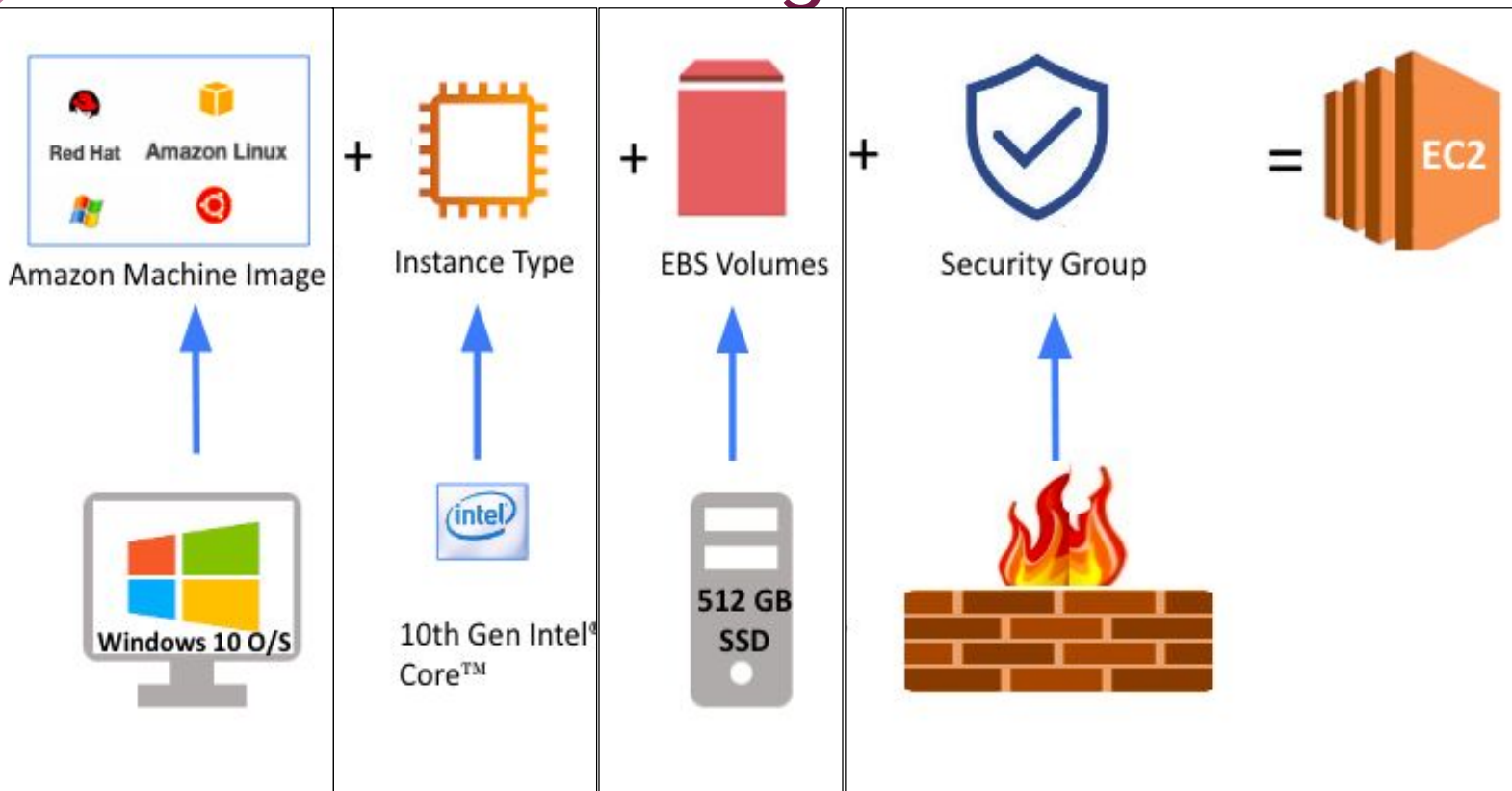


What is AMI?



- An Amazon Machine Image (AMI) is used for the launching an virtual instances in the AWS environment.
- AMI are **like templates** that are configured with an **operating system and other software**, which determine the user's operating environment.
- You can copy an AMI . So you can launch **multiple instances** from a single AMI **with the same configuration**.

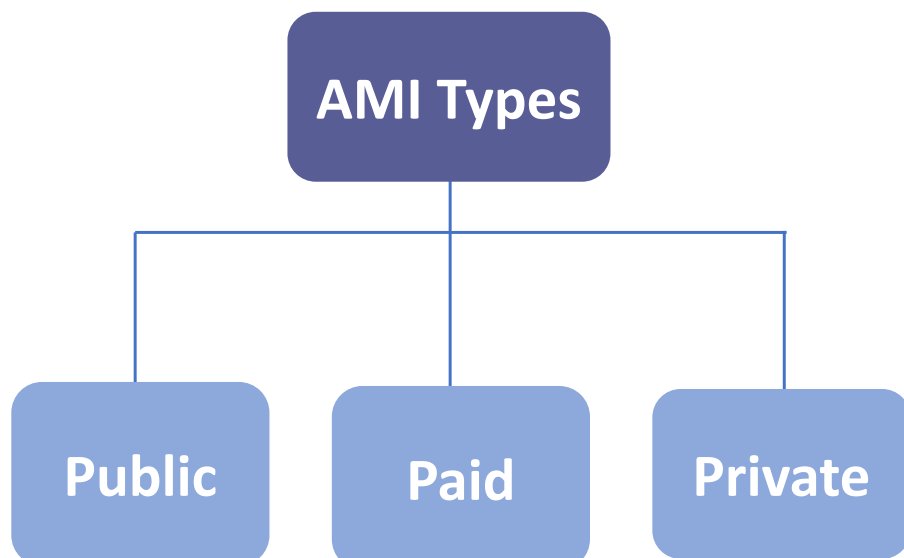
Amazon Machine Image



Amazon Machine Image (AMI)



Types of AMIs



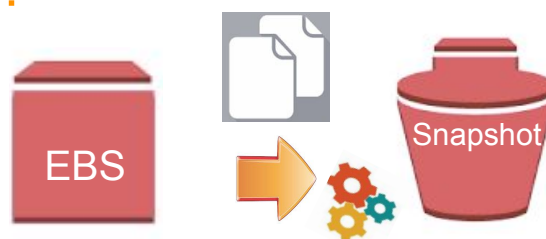


2 Snapshot

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Snapshot

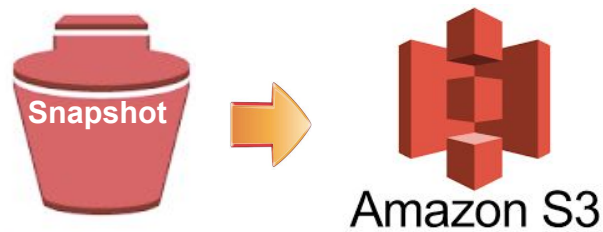
What is Snapshot?



- It is a **point-in-time copy** of your Amazon EBS Volume/Instance
- Snapshots are used for the **purpose of**
 - Backup
 - Copying AMI for creating multiple instances with the same features.
 - Creating a new Volume

Snapshot

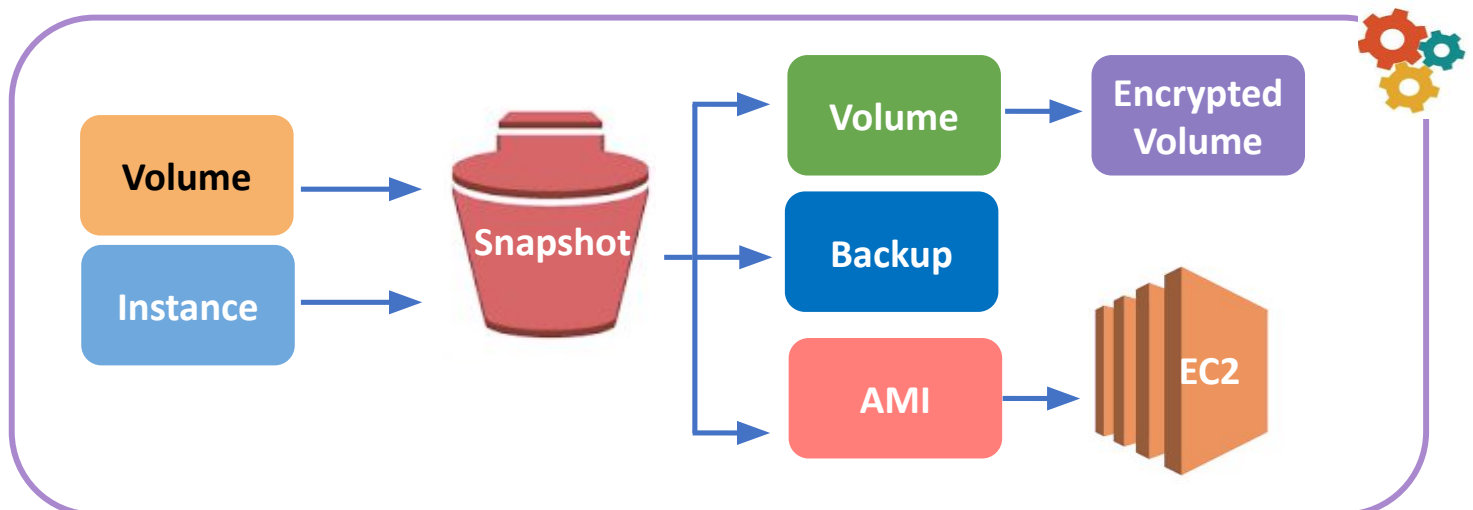
Features of the Snapshot



- Source from **Volume** or **Instance**
- Stored in **Amazon S3**
- **Incremental** storage
- **Data Lifecycle Manager (DLM)**

Snapshot

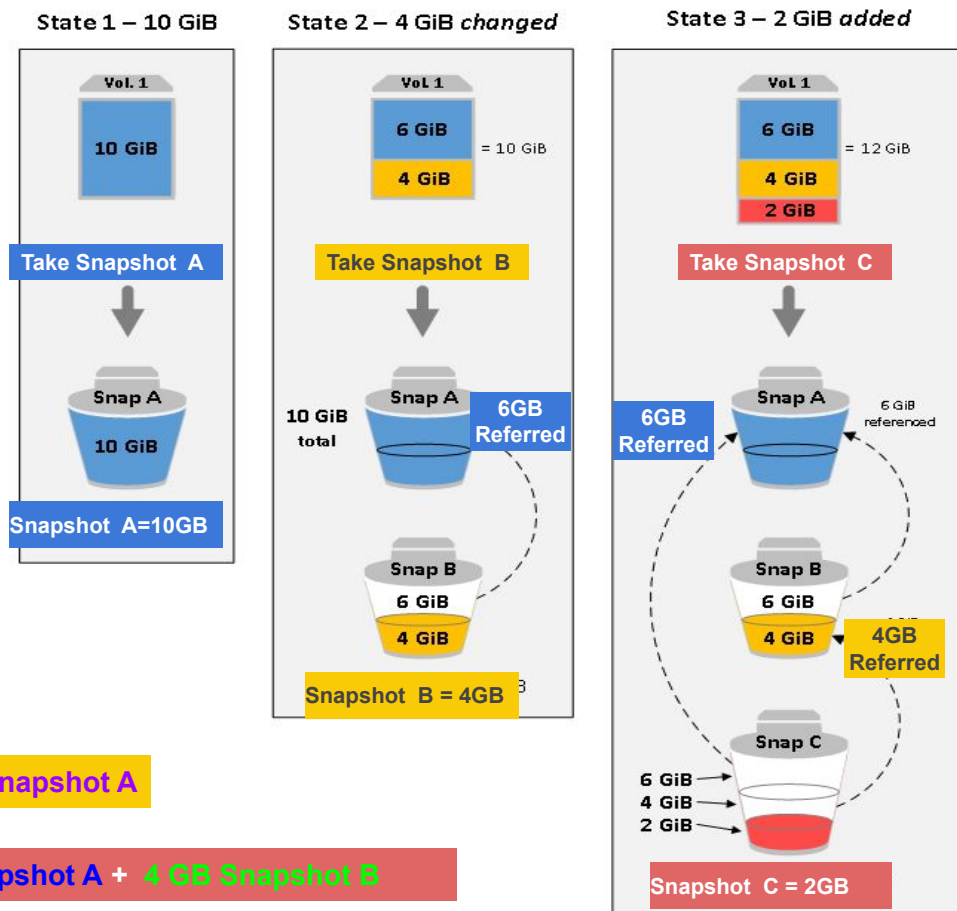
Lifecycle of Snapshot



Snapshot

Incremental Backups

32 GiB vs. 16 GiB



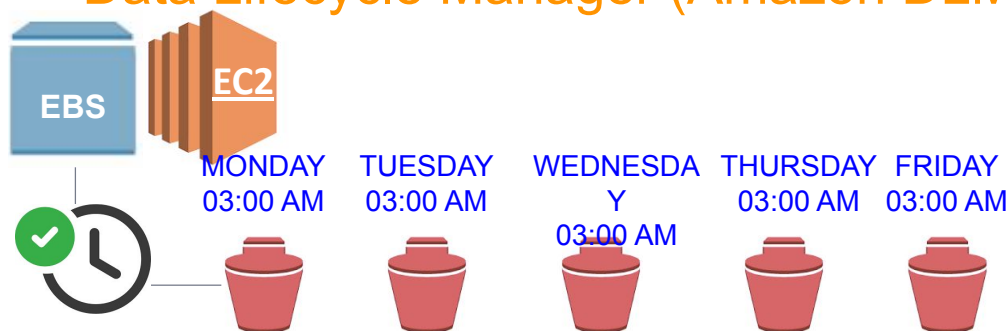
Snapshot A = 10 GB

Snapshot B = 4 GB Changed + Referred 6 GB Snapshot A

Snapshot C = 2 GB Added + Referred 6 GB Snapshot A + 4 GB Snapshot B

Snapshot

Data Lifecycle Manager (Amazon DLM)



RETENTION=5

Snapshot

Data Lifecycle Manager (Amazon DLM)



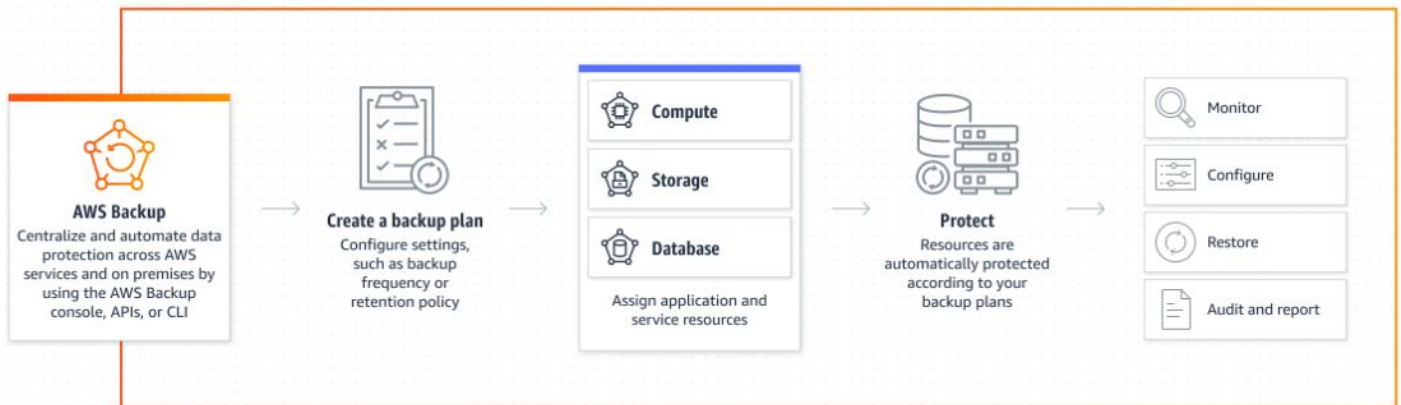
Snapshot

Data Lifecycle Manager (Amazon DLM)- Backup and Restore



Snapshot

AWS Backup



AWS Backup is fully managed service that centralizes the all backup process in your project including.

Snapshot

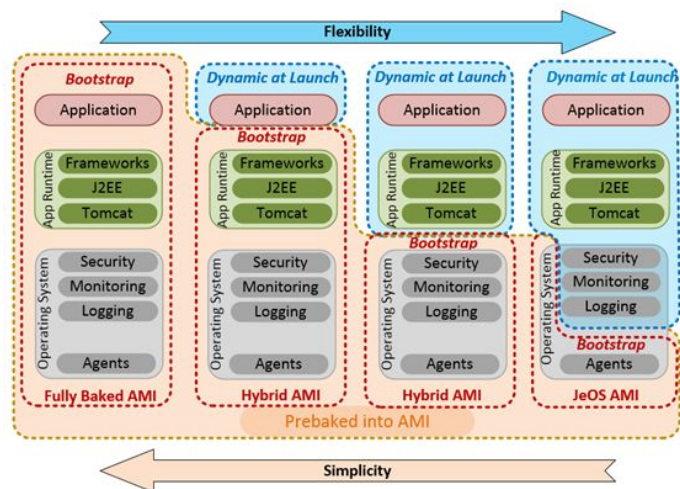
Encryption of Root Device via Snapshot



- Root device (volume) cannot be encrypted after creation. “How to encrypt unencrypted volume after after creation” is a common question that can be asked in certification exams!
 - Take snapshot of unencrypted volume.
 - Copying the unencrypted Snapshot,
 - You are able to encrypt this Snapshot while coping
 - Create an encrypted volume from this copied Snapshot.

Golden AMI

- A **golden AMI** is an AMI that contains **security patches**, **configuration**, and **agents** required to by an organization. A “just enough OS” (jeOS) is the most basic golden AMI.
- It may also contain specific **software components** that make it **easier and faster** to start-up an instance .



Snapshot

Let's get our hands dirty!

- Create Snapshots and Image
- Data Life Cycle Manager
- Creating, Mounting and Extending Volumes



THANKS!

Any questions?

