

**Cloud Computing Architecture Lab**

**Name:** Pratham Kandari

**Sap Id:** 500097663

**Batch:** 7

**Experiment -8**

Q:1. Differentiate between EBS, EFS and S3 storage?

Ans: Customers of Amazon Web Services (AWS) have access to a variety of storage choices. Elastic Block Store (EBS), Elastic File System (EFS), and Simple Storage Service are three of the most popular storage services (S3).

Here is a quick breakdown of how EBS, EFS, and S3 storage services differ from one another:

1. EBS, or elastic block store:

Persistent storage volumes are offered by EBS, a block-level storage service, for use with Amazon Elastic Compute Cloud (EC2) instances. Operating systems, databases, and applications can all use EBS volumes as their primary storage by attaching them to EC2 instances. To offer high availability and durability, EBS volumes are kept in a single Availability Zone (AZ), and data is replicated inside that AZ.

1. Elastic File System (EFS): For usage with Amazon EC2 instances, EFS is a file-level storage service that offers scalable, elastic, and shared storage. Several EC2 instances can have EFS volumes attached at once, allowing for concurrent access to shared data. Data is duplicated across several Availability Zones (AZs) for high availability and durability, and EFS automatically scales storage capacity up and down as needed.
2. Simple Storage Service(S3):

S3 is an object-level storage service that offers secure, dependable, and scalable storage for any kind of data. Data can be saved, retrieved, and managed by a web-based interface or API in S3 buckets, which are accessible from anywhere. S3 provides a variety of storage classes, including S3 Standard, S3 Intelligent-Tiering, S3 Standard-Infrequent Access, S3 One Zone-Infrequent Access, and Glacier, to maximise prices and performance.

Q:2. List the features of S3 storage?

Ans: When it comes to storing and retrieving data, Amazon S3 (Simple Storage Service) is a cloud storage service offered by Amazon Web Services (AWS). S3 storage has a number of important features, including:

1. Scalability: From little files to petabytes of data, S3 can scale to store and retrieve any quantity of data.
2. Durability: Data is extremely resilient and safeguarded against loss because to S3's 99.999999999% (11 9's) durability design.
3. Accessibility: S3 is built for 99.99% availability, which means that data is always available and retrievable.
4. Security: S3 offers a number of security features, including bucket policies, access control lists (ACLs), and server-side encryption.
5. Cost-effectiveness: S3 offers a variety of storage options at affordable prices, including S3 Standard, S3 Infrequent Access, S3 One Zone-Infrequent Access, S3 Intelligent-Tiering, S3 Glacier, and S3 Glacier Deep Archive. These options offer varying degrees of availability, durability, and retrieval times.
6. Integration: A wide range of AWS services, such as AWS Lambda, AWS CloudTrail, AWS CloudFormation, and many others, are compatible with S3.
7. Data management: S3 offers tools for managing data, including cross-region replication, lifecycle controls, and versioning.
8. Performance: S3 supports a variety of use cases, including big data analytics, backup and restore, and content delivery, thanks to its quick data transfer speeds and low latency.

Q:3. What are the different types of storage classes available in S3?

Ans:

Amazon S3 (Simple Storage Service) provides several storage classes, each designed to meet specific performance, durability, availability, and cost requirements. The different storage classes available in S3 are:

1. S3 Standard: This is the default storage class for S3 objects, providing high durability, availability, and performance. It is suitable for frequently accessed data that requires low-latency and high throughput.
2. S3 Intelligent-Tiering: This storage class automatically moves objects between two access tiers: frequent and infrequent access tiers. It is ideal for data with unknown or changing access patterns.
3. S3 Standard-Infrequent Access (S3 Standard-IA): This storage class is designed for long-lived and infrequently accessed data that still requires fast access when needed. It offers lower storage costs than S3 Standard, but with a retrieval fee.
4. S3 One Zone-Infrequent Access (S3 One Zone-IA): This storage class is similar to S3 Standard-IA, but stores data in a single availability zone, making it less durable but more cost-effective.
5. S3 Glacier: This storage class is designed for long-term storage of archival data. It offers low storage costs but with a retrieval time of minutes to hours.
6. S3 Glacier Deep Archive: This is the lowest-cost storage class for long-term storage of archival data. It provides retrieval times of 12 hours or more, making it suitable for data that is rarely accessed but needs to be retained for compliance or legal reasons.

Q:4. Explain the lifecycle management in S3 and different action associated with it.

Ans: Amazon S3 (Simple Storage Service) provides a Lifecycle Management feature that allows you to automate the process of moving objects between different storage classes or deleting them based on their age or other criteria. This helps you optimize your storage costs and ensure that you only pay for the storage you need.

The Lifecycle Management feature in S3 is configured using rules that define the transition or expiration actions to be taken on objects. The different actions associated with Lifecycle Management in S3 are:

1. Transition actions: These actions move objects from one storage class to another based on their age or other criteria. For example, you can configure a rule to move objects that are older than 30 days from the S3 Standard storage class to the S3 Standard-Infrequent Access (S3 Standard-IA) storage class to reduce storage costs.
2. Expiration actions: These actions delete objects that have exceeded their lifetime or retention period. For example, you can configure a rule to delete objects that are older than 365 days to ensure that you are not retaining data that is no longer needed.
3. Versioning actions: These actions enable you to manage object versions based on their age or other criteria. For example, you can configure a rule to permanently delete previous versions of an object that is updated frequently to save on storage costs.
4. Cross-region replication: This action replicates objects to another S3 bucket in a different region, providing additional data durability and availability. You can configure a rule to replicate objects that are stored in the S3 Standard storage class to an S3 bucket in a different region for disaster recovery purposes.

**AWS S3**

1. Create a bucket, add an object to the bucket and delete the bucket. Make the object publicly accessible
2. Host a static website on S3.

























