S3 (Compute Storage Service)

1) what is S3?

Ans: -Amazon S3 is a storage service that stores data as object in bucket S3 is a global service

- S3 is unlimited storage by AWS
- S3 is used to store files
- S3 can store all flat files
- with S3 you can upload download access your files
- you cannot execute any files in S3
- It is not possible to install OS, DB in S3
- It is not possible to run execute Python in S3
- S3 support static website hosting
- S3 is object-based storage
- s3 has only one resource that is bucket
- AWS handles HA, performance, scalability for S3
  Folder→ bucket→ buckets is continuer.
  Files→ object→ object is file
  Boom.mp4--. Key--. Name of the object

2) what is bucket?

Ans: -bucket is a container of object

- bucket is repository
- bucket is folder
- bucket is original

- **types of AWS storage service:**

- simple storage service (S3)
- elastic block storage (EBS)
- elastic file system(EFS)
- amazon S3 Glacier
- Amazon FSX for windows
- Object based storage

1. S3 : simple storage service used as storage cloud provided by AWS, it changes for that what we use. It is object storage.
2. EBS : Elastic block storage which comes with the instance, only connected instance can use the instance, only connected instance can use this storage just like C or D drive in our system.
3. Glacier : Glacier is also Amazon s3 service which used to archive data for long-term at low cost.
4. Storage Gateway : It is used to store own premises data to s3 and also keep date locally.
5. Elastic file System (EFS) : Elastic file system automatically grows and shrinks as you add and remove files with no need for management.
   EX.: Amazon FSX for window file server provides fully manage shored storage built on window server.
6. Object based storage: Object storage is a technology that stores and manage data in an unstructured format called object.

3) object storage classes in S3:

- s3 standard
- s3 Intelligent tiering
- s3 standard IA
- s3 One Zone IA
- s3 Glacier instant retrieval S
- 3 Glacier flexible retrieval
- S3 Glacier deep archive
- S3 outposts

1) S3 standard:

- This is default storage class and is used frequently
- S3 standard differs high durability, high availability and performance object storage for frequently accessed data because it delivers low latency and cost wise every costly.

➢ **Features:**

- Low latency and high performance
- Design for 99.99% availability.
- Design for 99.99999999% durability of object across multiple availability zone.

2) S3 Intelligent – Tiering :

- This is the first cloud storage that automatically reduces you storage costs on a granular object level by automatically moving data to the most cost- effective tier based on access frequency, without performance impact
- The less- used life will be moved to IA Mode.

- **Features :**

- 99.99% availability
- Low latency and High Performance
- Cost optimized by automatically moving object between two access tiers based on changing access pattern
- Frequently access , infrequently access.

3) S3 Standard IA Infrequent access):

- S3 standard -IA is for data that is access less frequently but requires rapid access when needed.
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- **Features:**

- Low latency and high throughput performance
- 99.99% Availability
- Lower cost as compared to s3 standard.

4) S3 one zone -IA (infrequent Access):

- S3 one zone -IA stores data in a single AZ and costs 20% less that S3 standard -IA
- S3 one zone-IA is idle for customers who want a lower cost option for infrequently accessed data but to not require the availability.

- **Features:**

- Same as IA but data is stored in a single AZ
- 99.5% availability.
- Low latency and high performance.

5) S3 Glacier Instant Retrieval:

- Amazon S3 glacier instant retrieval is an archive storage class that delivers the lowest – cost storage for long used data is rarely access and retrieval in milliseconds.

- Features:

- Data retrieval in milliseconds with the same performance as S3 standard.
- Design for durability of 99.99999999% of object across multiple availability zones.
- 128 kb minimum object size.

6) S3 Glacier Flexible Retrieval:

- S3 glacier flexible retrieval delivers low-cost storage, up to 10% lower cost, for archive data that is accessed 1-2 times per year.
- For archive data that does no require immediate access but needs the flexibility to retrieve large set of data at no cost.

- **Features:**

- Design for durability of 99.9999999% of object across multiple availability zone.
- Configure retrieval times, form minutes to hours with free bulk retrieval.

7) S3 Glacier Deep Achieve:

- This storage is used when some data needs to be frozen for a certain period of time.
- Data is retrieve for the longer term (years)
- It is cheapest storage class.

➢ **Features:**

- Design for durability of 99.999999999 of object across multiple AZ's.
- Lowest cost storage class design for long term.
- Retrieval time withing 12 hours.

8) S3 outputs :

- Amazon s3 outputs delivers object your on-primases AWS output environment.

➢ **Features:**

- Design to durability and redundancy store data on your output.

4) What is default encryptions?

➔ All new object uploads to amazon s3 will be automatically encrypted at no additional cost and with no impact on performance started from 5 January 2023.

5) Bucket Properties :

1) what is bucket versioning?

Ans: - bucket versioning means keeping multiple variants of an object with the same name in same bucket

- bucket versioning call helps to recover object from accidental deletion or overwrite

to enable bucket versioning

- just go to bucket →properties →edit bucket versioning → enable →save changes

2) what is server access logging?

Ans: server access logging is used to store logs of bucket.

- it provides detailed records.
- to enable server access logging
- go inside bucket →properties → server access logging →edit →enable →brows S3 bucket → save changes.

6) what is object lock?

Ans: -permanently allows object in this bucket to be locked additional object lock configuration is required in bucket details after bucket creation to protect object in this bucket from being deleted or overwritten.

- to enable object lock, we have to enable object lock while bucket creation
- after creation if we want to enable object lock then contact to customer support.

7) what is requester pays?

Ans: bucket owner pays for all Amazon S3 storage and data transfer cost that are associated with their buckets. after enabled requester pays bucket the requester pays the cost of request and the data download from the bucket.

8) what is static website hosting?

Ans: static website delivers html JavaScript in images videos and other files to your website visitors

static website is very low cost provides high level of Reliability requires almost no it administrator

9) how to host static website:

- go inside bucket → properties →static website hosting→ edit →enable → host a static website →checked or checked redirect request for an object → give index.htm name to index document →
- give error document name (optional)→ save changes
- now add our code files to that bucket I→ have downloaded CSS template and extract it in file manager →uploaded in bucket
- now go inside bucket →permissions →block public access → edit → disable block all public access → save changes
- now in permissions→ go inside bucket ownership →checked ACL enables →check bucket owner preferred or object writer as our requirements → save changes.
- now in edit access control list → in everyone (public access) tick list and read→ tick → I understand… → save changes
- now go inside bucket →select all objects →actions→ make public using ACL → make public
- now go to properties→ inside bucket → copy URI of static website hosting→and paste it in new tab hitenter now our static website has been started.

10) Difference between static website and Dynamic website

Static Website	Dynamic Website
- In static website, pages will remain same until someone changes it manually.	- In dynamic website, content of pages are different for different visitors.
- Static web pages are simple	- Dynamic web pages are complicate.

- In static webpages, information are change rarely.	- In dynamic website, information are changes frequently
- In static webpages database is not use.	- In dynamic web pages database is used.
- Static web pages written in HTML, CSS, JavaScript	- Dynamic web pages are written in CGI, ASP.Net
- Static web pages takes less time for loading	- Dynamic website takes more time.
- Static website does not contain application program.	- Dynamic website contains application program.

11) What is Durability?

A system that is durable is able to perform it responsibilities over time, even when unexpected event may occur.

12) What is secure socket layer(SSL)?

Ans:- - Provide security to the data that is transferred between web browser and server.

- SSL encrypts the lines link between a web server and a browser which ensure that all data passed between them remain private and free from attack.

13) Secure Socket Layer Protocol:

- SSL record Protocol
- Hand Shake Protocol
- Change cipher spec Protocol
- Alert Protocol

Note: -

- In S3 we cannot move or copy object from one bucket to another bucket.
- We can copy and move inside same bucket in folders.
- To move and copy data from one bucket to another account bucket or one account bucket to another account bucket we use replication rule.

14) What is Lifecycle Rule?

Ans : Lifecycle rules is use to define actions you what Amazon S3 to take during an objects lifetime such as transferring object to another class. Archiving them, or deleting them after specific period of time.

15) What is Replication Rule?

Ans: - Replication enables automatic, copying of objects across Amazon S3 buckets.

- Buckets that are configured for object replication can be own by the same AWS account or by different accounts.
- You can replicate objects to a single destination bucket or to multiple destination buckets.
- The destination buckets can be in different AWS region or within same region as the source bucket.

16) Amazon S3 Inventory?

Ans : - Amazon S3 inventory is one of the tools provides to help manage your storage.

- You can use it to report on the replication stacks of your objects for business.
- S3 inventory is use to make reports in CSV formats.