AWS-DEVOPS

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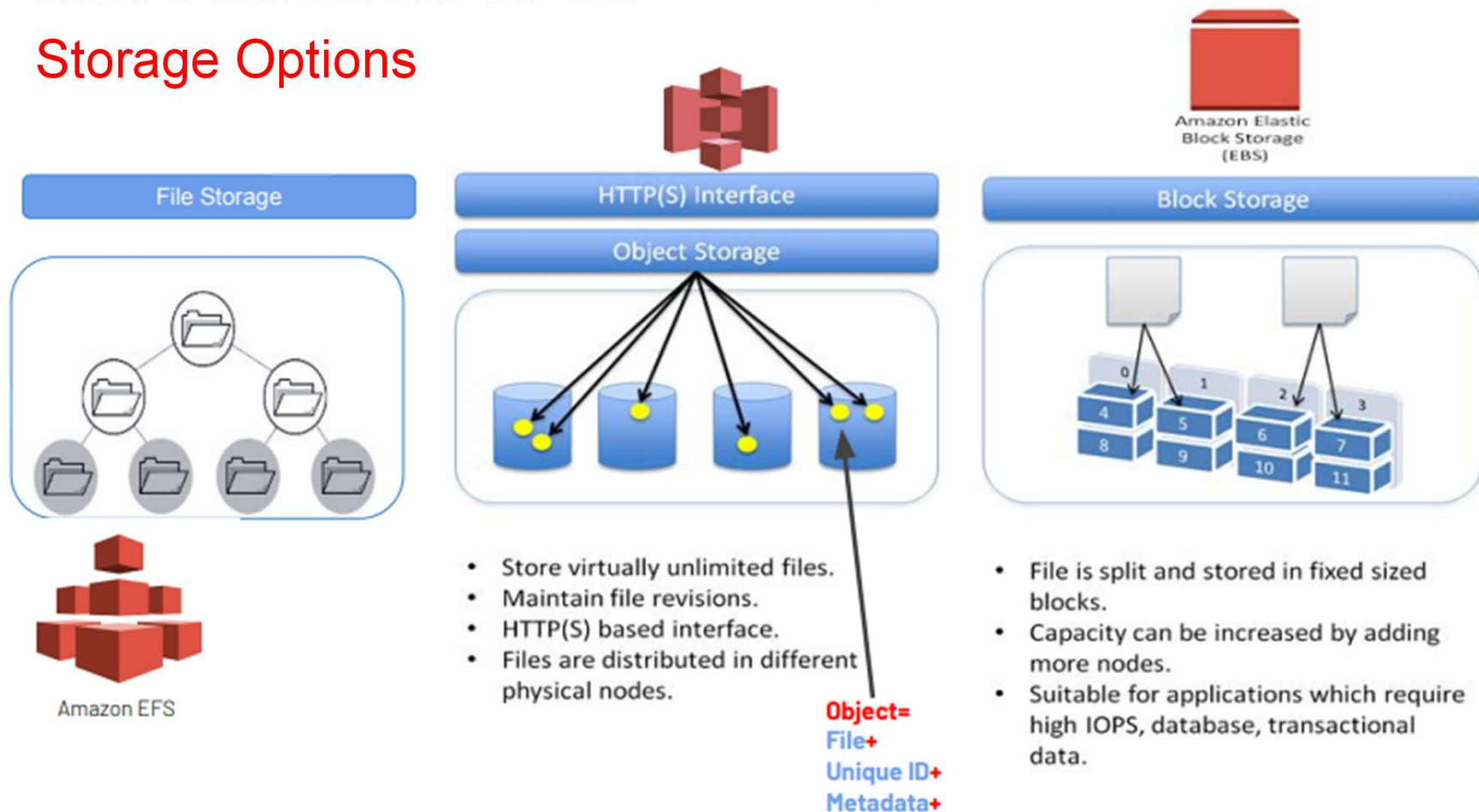- ▶ S3 Static Website Hosting

Introduction to S3

Introduction to S3

What is S3?

- S3 stands for Simple Storage Service.
- One of AWS's oldest services, Amazon S3 could be defined as AWS object-based file storage service.

Introduction to S3

Storage Options

File Storage

Amazon EFS

HTTP(S) Interface

Object Storage

- Store virtually unlimited files.
- Maintain file revisions.
- HTTP(S) based interface.
- Files are distributed in different physical nodes.

Object=
File+
Unique ID+
Metadata+

Amazon Elastic Block Storage (EBS)

Block Storage

- File is split and stored in fixed sized blocks.
- Capacity can be increased by adding more nodes.
- Suitable for applications which require high IOPS, database, transactional data.

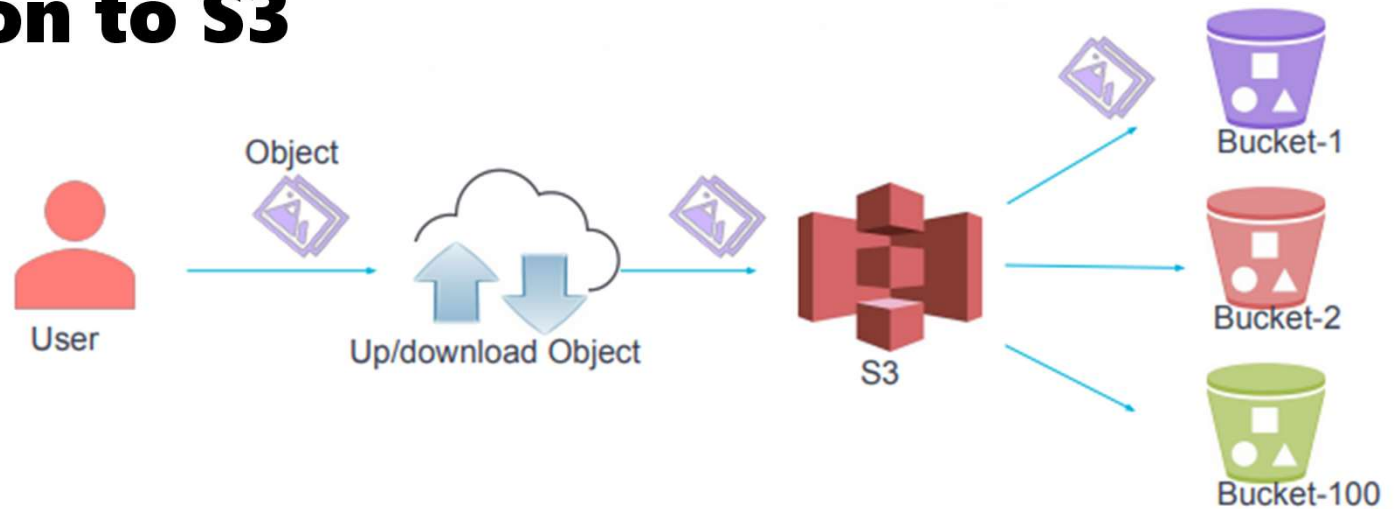TECHPRO EDUCATION

Introduction to S3

What is S3 Bucket?

S3 Bucket

- A bucket is a logical storage unit used to store objects in AWS.

- A bucket can also be considered as a container.

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Introduction to S3

S3 Bucket



- Amazon S3 stores data in buckets as objects.
- The number of objects that can be stored in a bucket is not limited, but each AWS account can only have 100 buckets at once.

Introduction to S3

S3 Bucket

- S3 is a global service, but a region must be selected
- Bucket's name must be unique.
- Objects is stored in a minimum of 3 Availability Zones (AZs) in an Amazon S3 Region.

Region-A

Availability Zones-1

Availability Zone-3
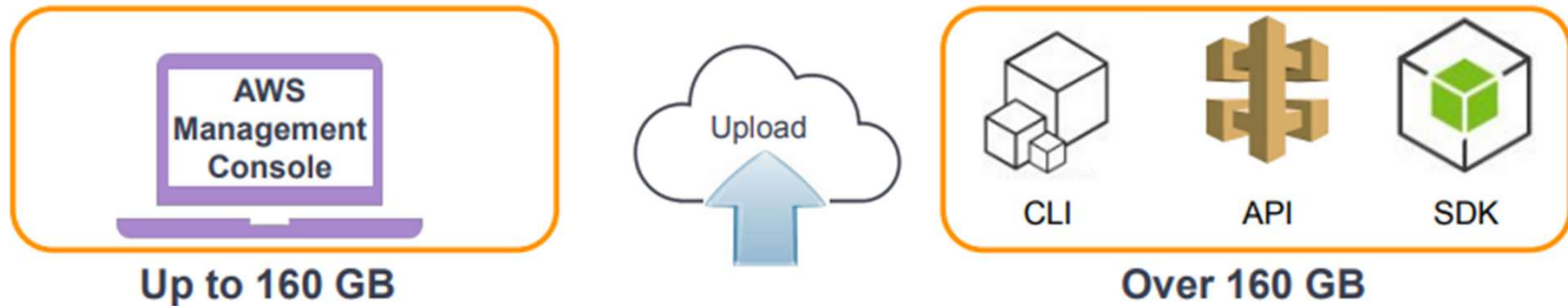
Availability Zone-2
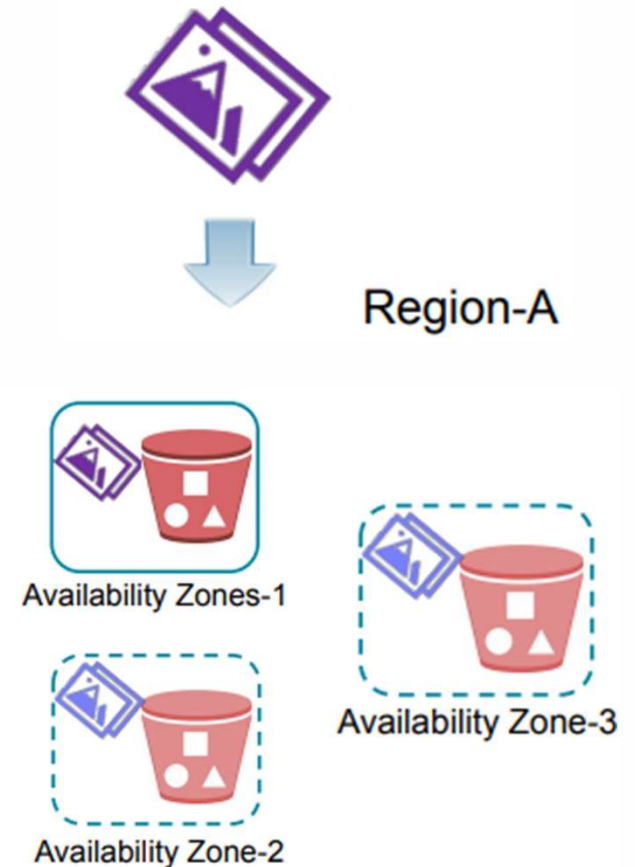
Introduction to S3

What is an Object in S3?

5 TB

Introduction to S3

Object in S3-Upload

- The max. size of an object you can upload via AWS Management Console is 160 GB.

- For uploading a file greater than 160 GB, the AWS CLI, AWS SDK, or API is needed to be used

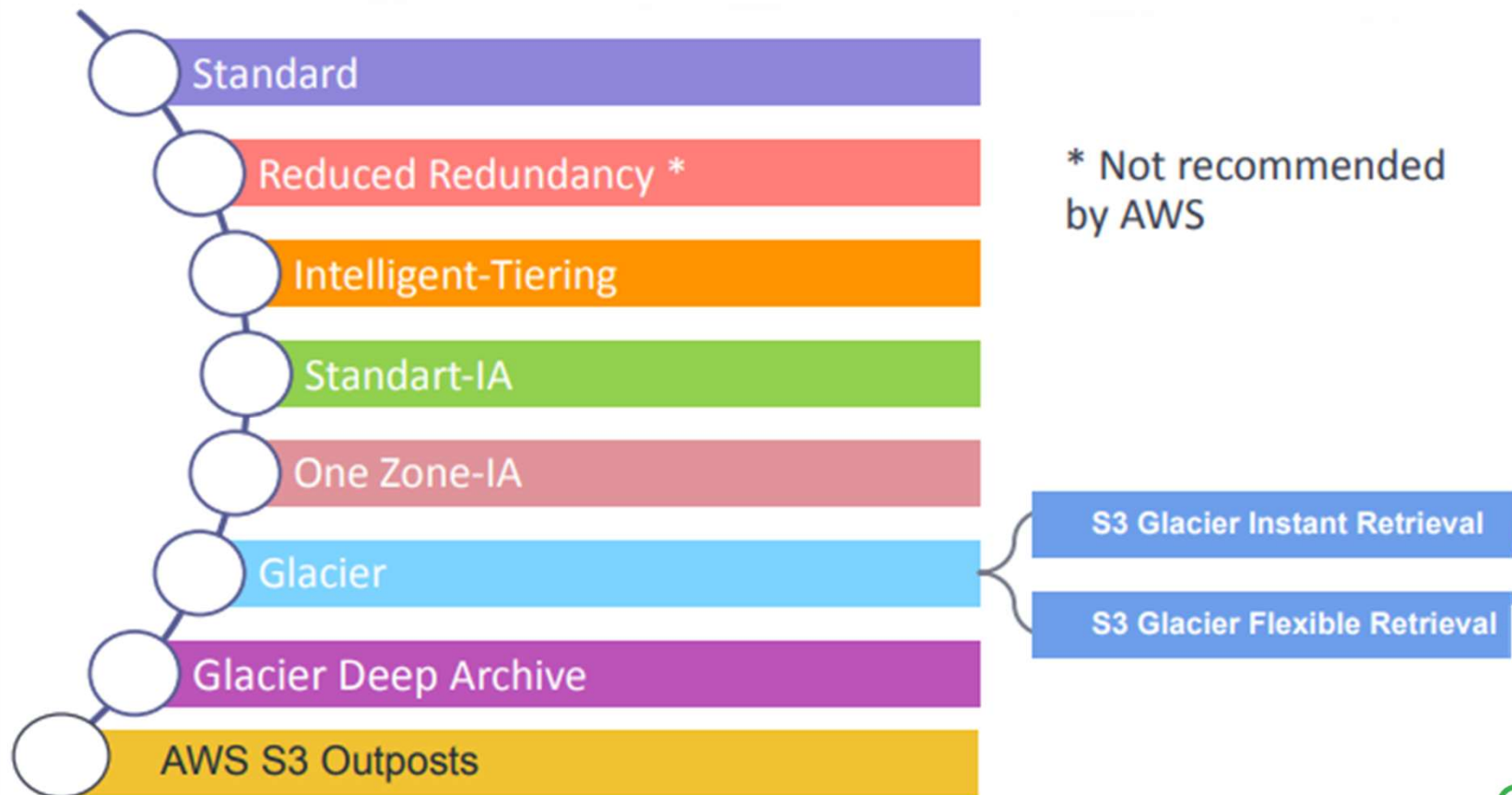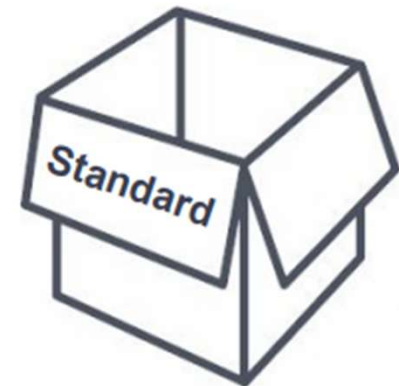# Introduction to S3

S3 Object Pricing

| Upload | Download | Storage | Request | Transfering in the same Region |

Storage Classes

Storage Classes

Types of Storage Classes

Storage Classes

Standard Class

Cloud Applications   Mobile Games   Website Hosting

- Standard is the default storage class unless you change
- This is the basic storage solution for frequently accessed data
- Reliability at 99,999999999%
- Availability at 99,99%
- Cloud applications and web-services, mobile games and website hosting are some example of use case

Storage Classes

Reduced Redundancy (RRS)

Non critical Data

RRS

- RRS class offering less redundancy is a modified version of Standard storage class
- It is designed for non critical and reproducible data
- The main difference between RRS and Standard class is reliability
- While reliability of Standard storage class is 99,999999999%, reliability of RRS class is 99,99 %
- It provides cost saving compare to Standard class for the non critical data.

Storage Classes

Standard IA (Infrequent Access)

Infrequently Accessed Data

Standard IA

- Standard IA (Infrequent Access) is a convenient for infrequently accessed files• But in case of access, it provides you to reach the file quickly.
- In fact, it designed for the data which requires less frequent access, but withlonger storage time than the Standard class
- It is cheaper than Standard class as long as you access infrequently.

Storage Classes

One Zone IA (Infrequent Access)

Infrequently Accessed & Non Critical Data

One Zone IA

- One Zone IA class is a modified version of Standard IA.
- It is 20 percent cheaper than Standard IA due to less availability.
- Unlike others, One Zone IA stores data only in one availability zone, instead of three availability zones
- One-Zone IA can be prefered when you have infrequently accessed and noncritical files

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Storage Classes

Intelligent Tier

Unpredictable
Access Patterns

Frequent
Access Tier

30 consecutive days after last access

Infrequent
Access Tier

90 consecutive days after the last access

Archive
Access tier

180 consecutive days after the last access

Deep Archive
Access tier

- It is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier.
- There are 4 access tiers.
- It is ideal, if your access patterns are unknown or unpredictable.

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Storage Classes

Amazon Glacier

Archives & Backup
Copies of Databases

S3 Glacier Instant Retrieval

S3 Glacier Flexible Retrieval

- It is used for archiving data that is rarely accessed and requires milliseconds retrieval.

- It offers a cost savings compared to the S3 Standard-IA storage class, with the same latency and throughput performance

- S3 Glacier Instant Retrieval has higher data access costs than S3 Standard-IA.

• It is a perfect solution for long-term storage and data archiving that doesn't require instant access.

• Minimum storage duration period is 90 days and can be accessed at least in 1-5 minutes

• If you have deleted, overwritten, or transitioned to a different storage class an object before the 90-day minimum, you are charged for 90 days.

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Storage Classes

Amazon Glacier Deep Archive

Infrequently Accessed & Non Critical Data

• It is used for archiving data that rarely need to be accessed / 7-10 years

• It is the lowest cost storage option in AWS.

• Minimum storage duration period is 180 days and a default retrieval time of 12 hours. If you interact with the object in 180 days you'll be charged for 180 days.

Storage Classes

Summary of Storage Classes
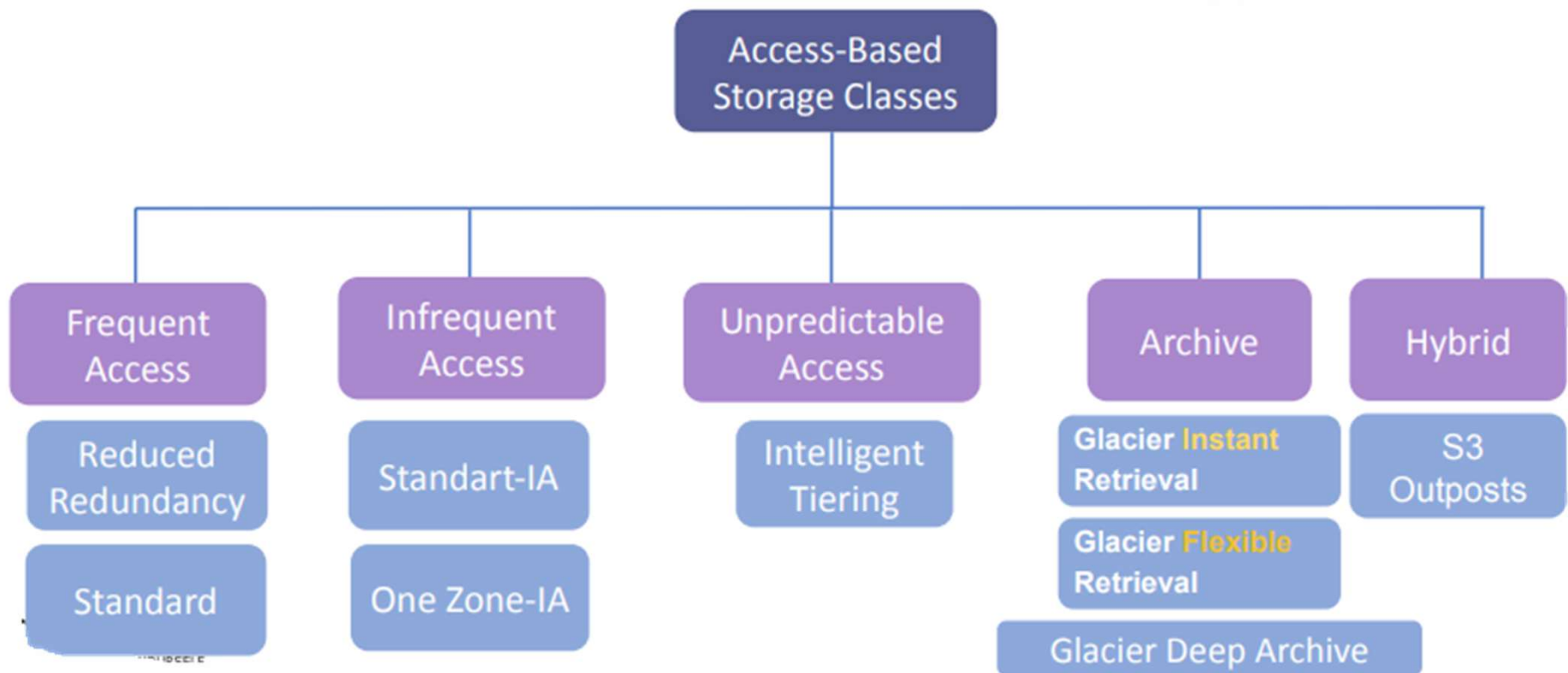
Storage Classes

Summary of Storage Classes

	S3 Standard	S3 Intelligent-Tiering	S3 Standard-IA	S3 One Zone-IA	S3 Glacier Instant Retrieval	S3 Glacier Flexible Retrieval	S3 Glacier Deep Archive
Durability	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)
Availability	99.99% (4 9's)	99.99% (4 9's)	99.99% (4 9's)	99.99% (4 9's)	99.99% (4 9's)	99.99% (4 9's)	99.99% (4 9's)
AZ's	>=3	>=3	>=3	1	>=3	>=3	>=3
Min capacity charge per object	NA	NA	128 KB	128 KB	128 KB	40 KB	40 KB
Min storage duration charge	NA	NA	30 days	30 days	90 days	90 days	180 days
Retrieval charge	NA	NA	per GB	per GB	per GB	per GB	per GB
First byte latency	milliseconds	milliseconds	milliseconds	milliseconds	milliseconds	minutes or hours	hours

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Versioning

Versioning

What is Versioning?

• Versioning is a way to keep multiple versions (deleted and changed versions) of an object in a bucket.

• By using versioning, all unwanted user behavior and program errors can be quickly recovered.
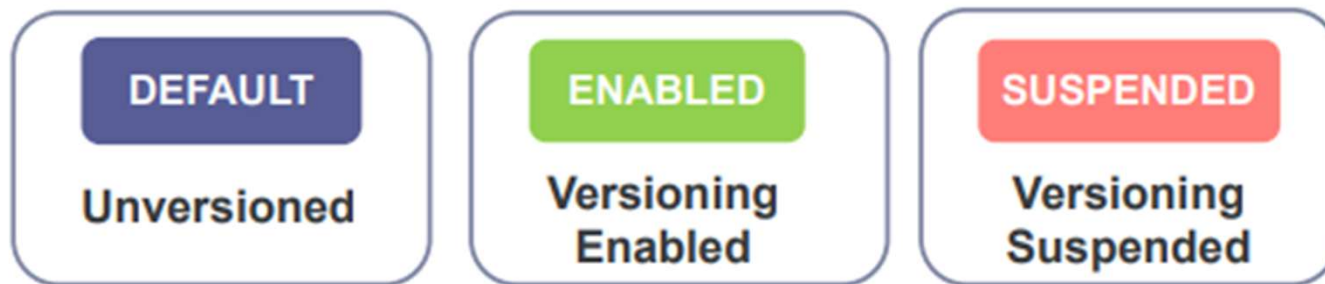
Versioning

What is Versioning?

- Versioning is bucket-based feature

Versioning

States of Versioning

It is not possible return to an unversioned state, however, you can make suspend versioning on that bucket

S3 Static Website Hosting

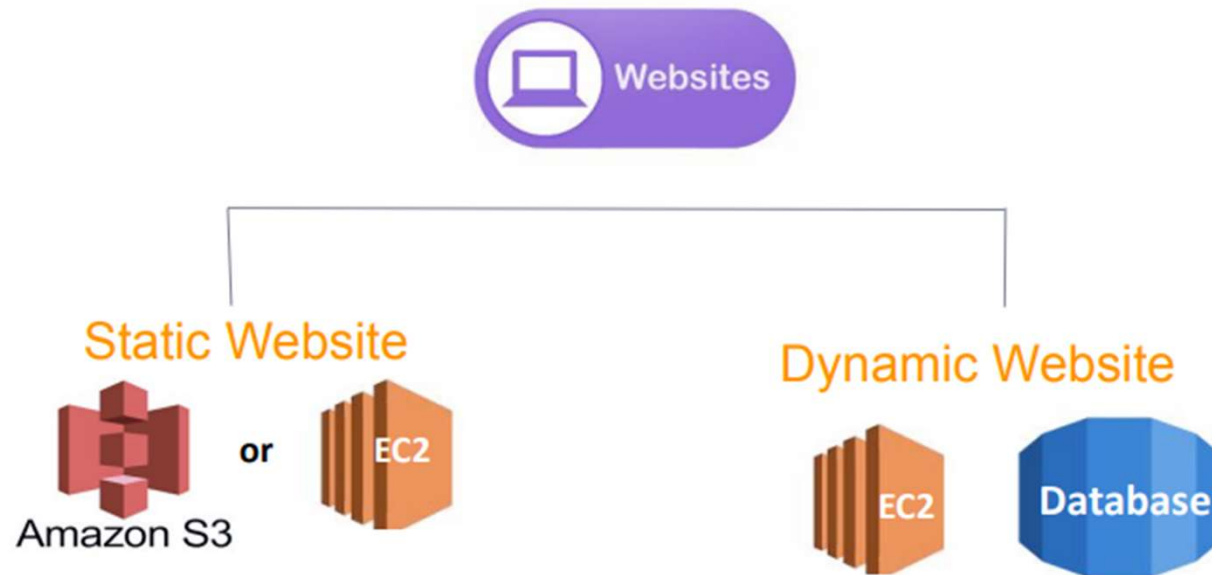# S3 Static Website Hosting

What is Static Website Hosting?

• Static Website Hosting is a website that contains simple web components.

• Uses HTML, CSS, images, etc.

• No server, database or any application code.

S3 Static Website Hosting

Static Website Permission Options

S3 Static Website Hosting

Static Website Permission Options

S3 Static Website Hosting

Static Website Permission Options

✅ Pre Signed URL

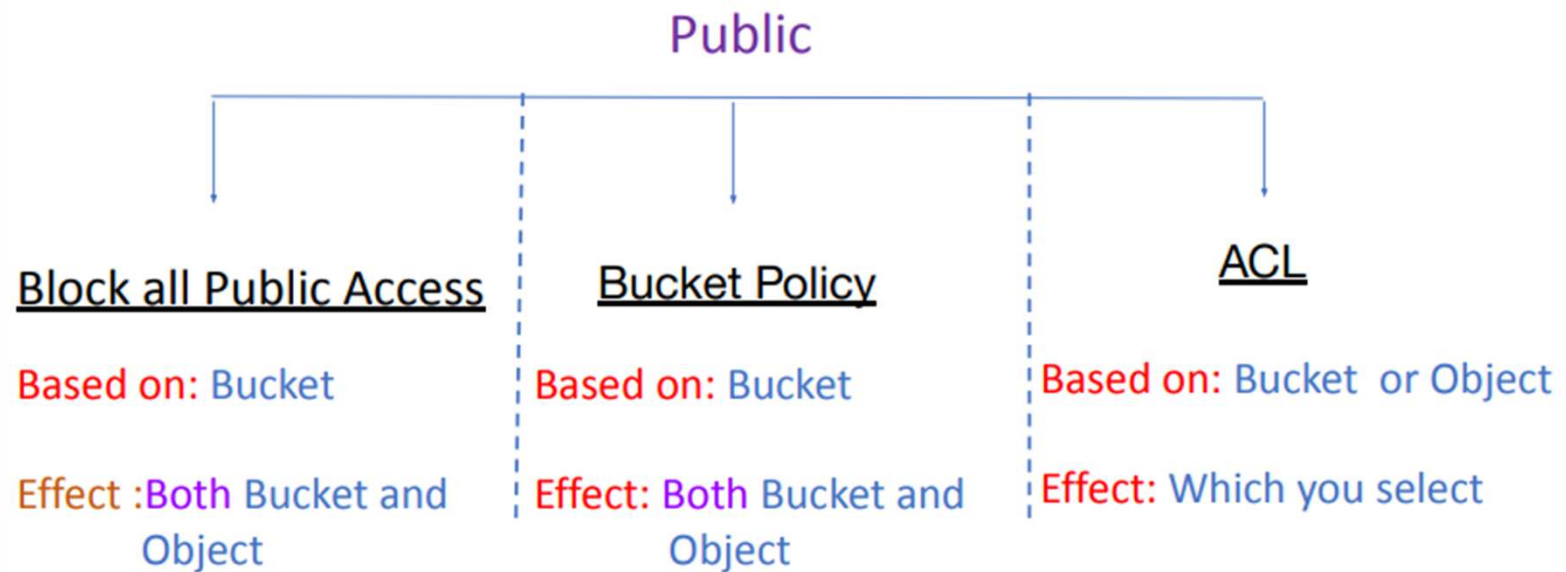✅ Block All Public Access

✅ Bucket Policy

✅ ACL of Bucket

✅ ACL of Object

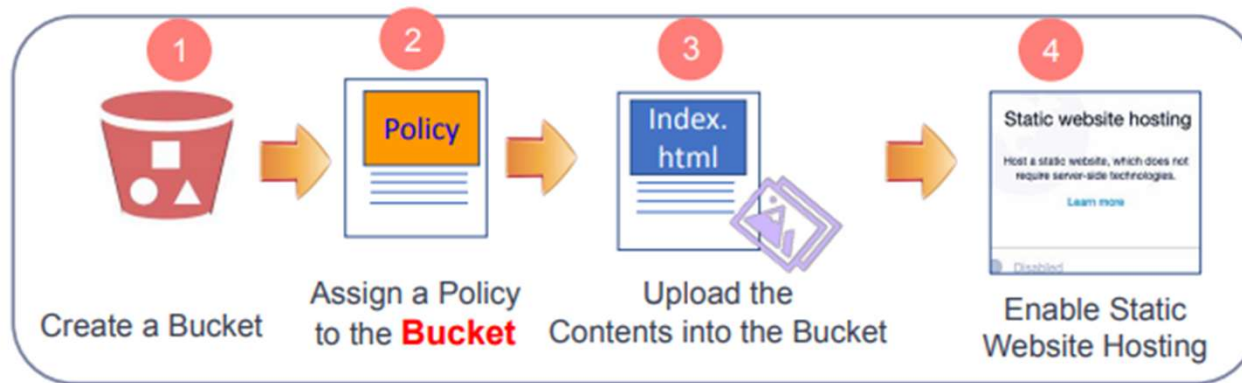"Make Public" (Shortcut of ACL)

S3 Static Website Hosting

Static Website Permission Options

Public

Block all Public Access

Based on: Bucket

Effect :Both Bucket and Object

Bucket Policy

Based on: Bucket

Effect: Both Bucket and Object

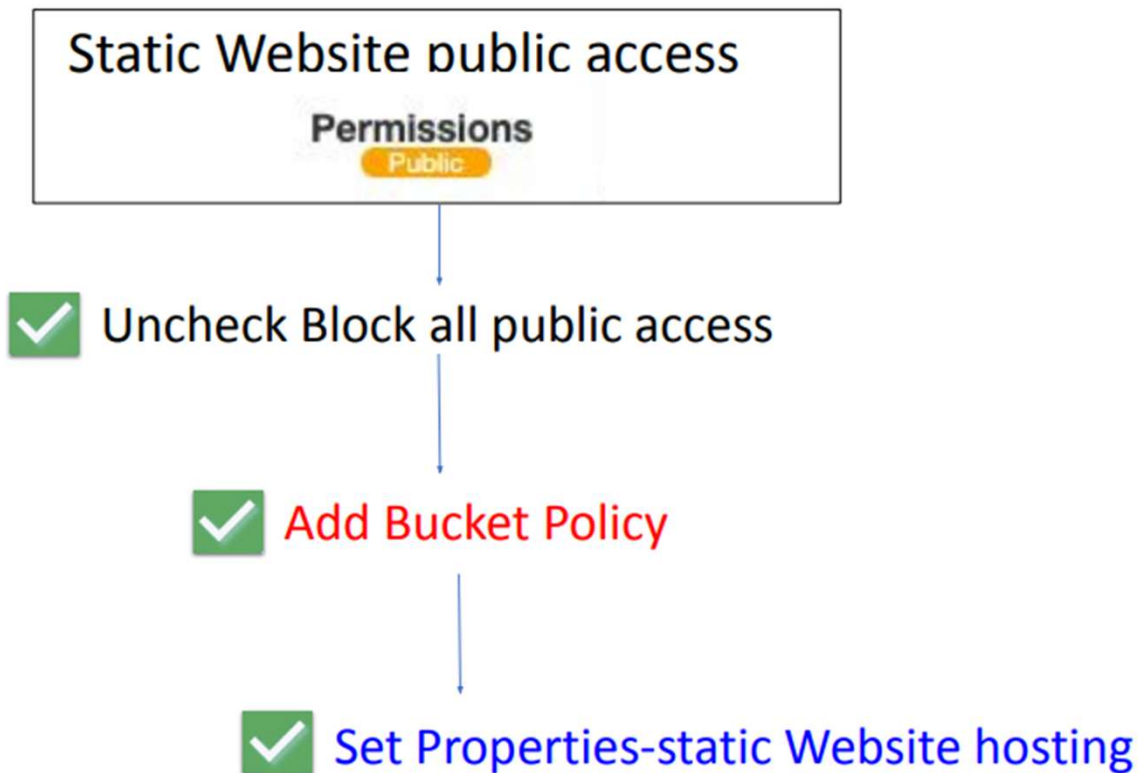**ACL**

Based on: Bucket or Object
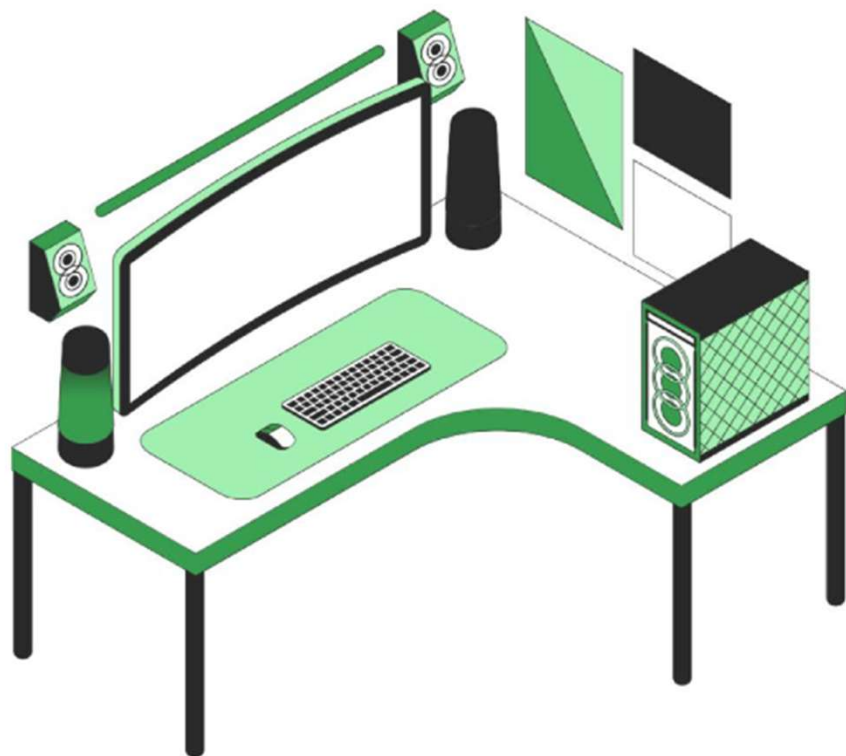
Effect: Which you select

S3 Static Website Hosting

Static Website Hosting - With Policy

S3 Static Website Hosting

Static Website Hosting - With Policy

Do you have any
questions?

Send it to us! We hope you learned something new.