



AWS S3





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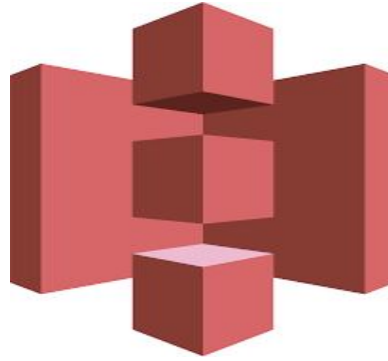
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Introduction to S3



Introduction to S3

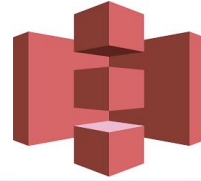
What is S3?



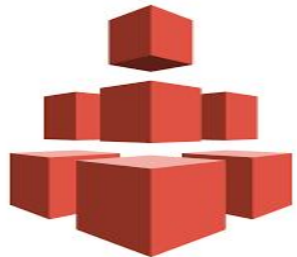
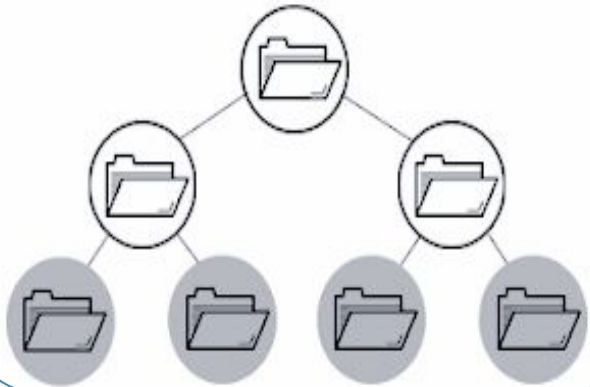
- S3 stands for **Simple Storage Service**.
- One of AWS's oldest services, Amazon S3 could be defined as **AWS object-based file storage** service.

Introduction to S3

Storage Options



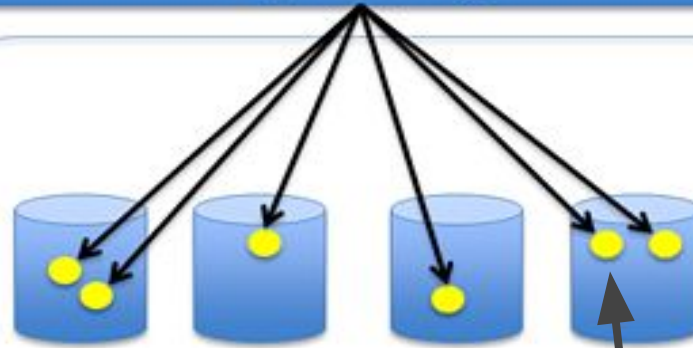
File Storage



Amazon EFS

HTTP(S) Interface

Object Storage

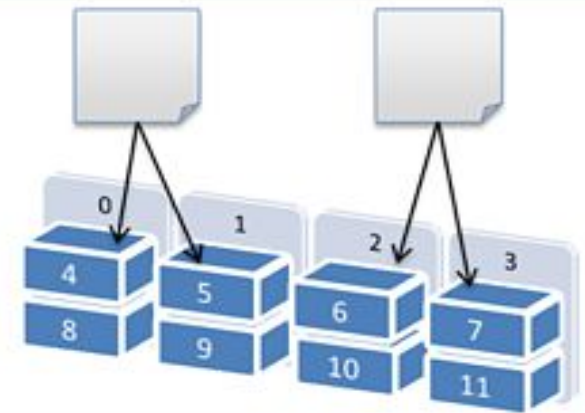


- Store virtually unlimited files.
- Maintain file revisions.
- HTTP(S) based interface.
- Files are distributed in different physical nodes.

Object=
File+
Unique ID+
Metadata+



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.

Introduction to S3

What is S3 Bucket?

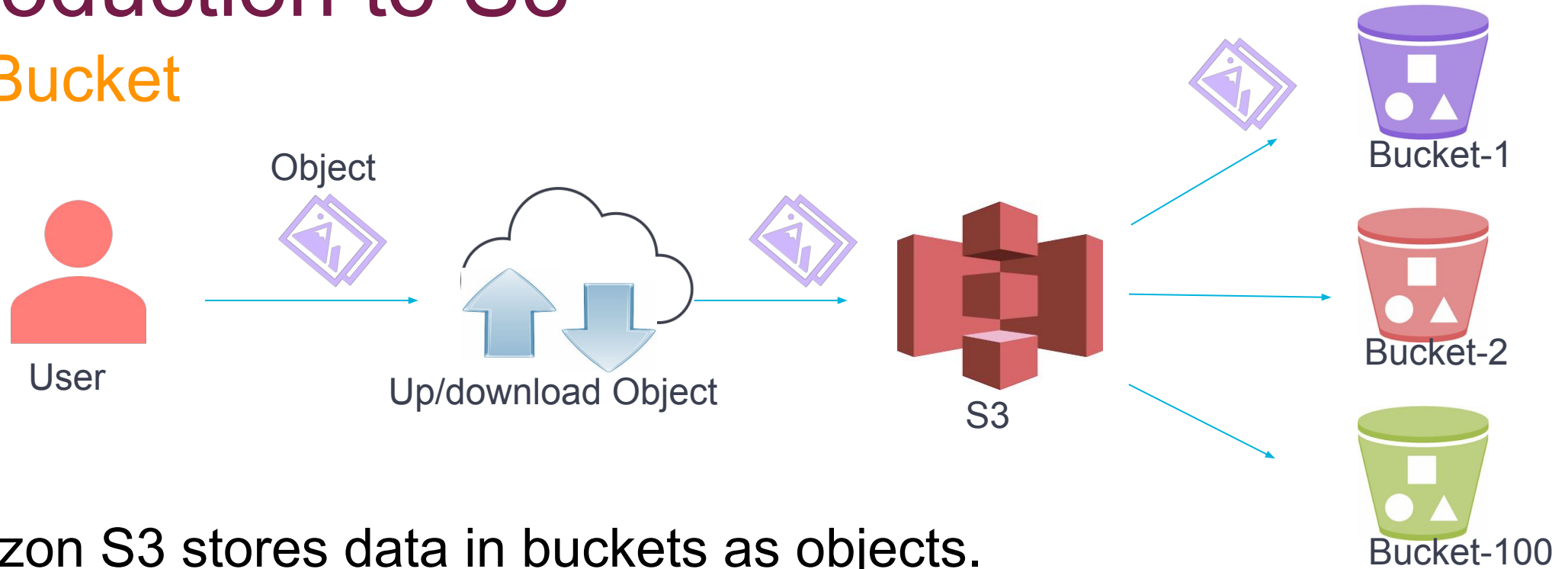


S3 Bucket

- A bucket is a logical storage unit used to store objects in AWS.
- A bucket can also be considered as a container.

Introduction to S3

S3 Bucket

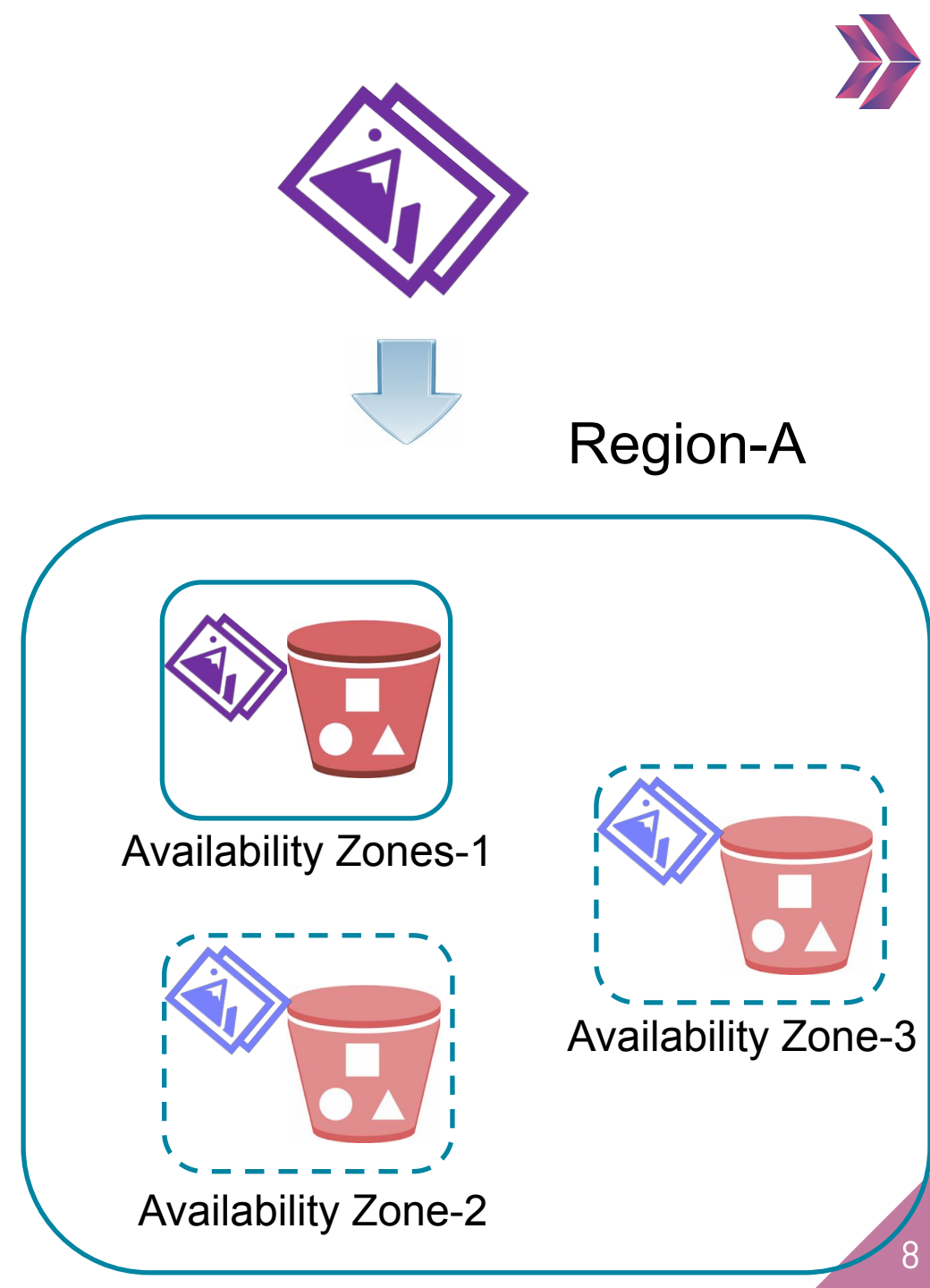


- Amazon S3 stores data in buckets as objects.
- The number of **objects** that can be stored in a bucket is **not limited**, but each AWS account can only have **100 buckets** at once.

Introduction to S3

S3 Bucket

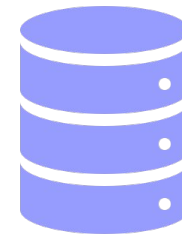
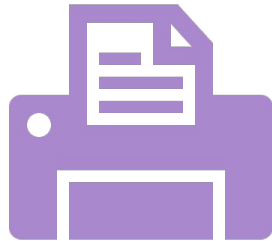
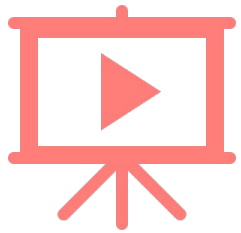
- S3 is a global service, but a **region** must be selected
- Bucket's name must be **unique**.
- Objects is stored in a minimum of **3 Availability Zones** (AZs) in an Amazon S3 Region.





Introduction to S3

What is an Object in S3?



5 TB

Introduction to S3

Object in S3-Upload



Up to 160 GB



CLI



API



SDK

Over 160 GB

- 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



Management



Request



Transferring in
the same Region





2 Storage Classes



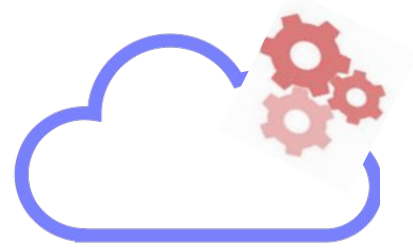
Storage Classes

- Standard
- Reduced Redundancy *
- Express One Zone
- Intelligent-Tiering
- Standart-IA
- One Zone-IA
- S3 Glacier Instant Retrieval
- S3 Glacier Flexible Retrieval
- Glacier Deep Archive
- AWS S3 Outposts

* Not recommended
by AWS

Storage Classes

Standard Class



Cloud Applications



Mobile Games



Website Hosting

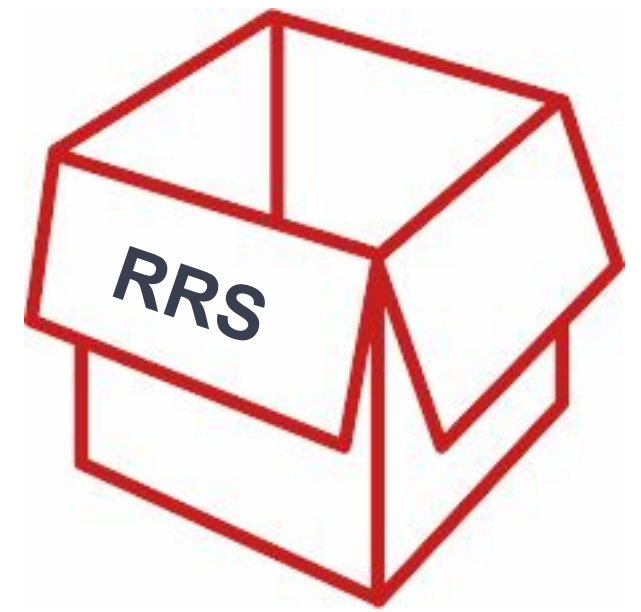


- Standard is the **default** storage class unless you change
- This is the basic storage solution for **frequently accessed** data
- Reliability at **99,999999999%**
- Availability at **99,99%**
- Cloud applications and web-services, mobile games and website hosting are some example of use case

Storage Classes

Reduced Redundancy (RRS)

Non critical Data



- RRS 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 %**

Storage Classes

Express One Zone



- Express One Zone is a high-performance, **single-zone** S3 storage class
- Express One Zone has the lowest latency among others.
- Reliability at **99,999999999%**
- Availability at **99,95%**
- Up to 10x faster and request costs 50% lower than S3 Standard.

Storage Classes

Standard IA (Infrequent Access)

Infrequently
Accessed Data



- 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 with **longer 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 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 preferred when you have infrequently accessed and noncritical files

Storage Classes

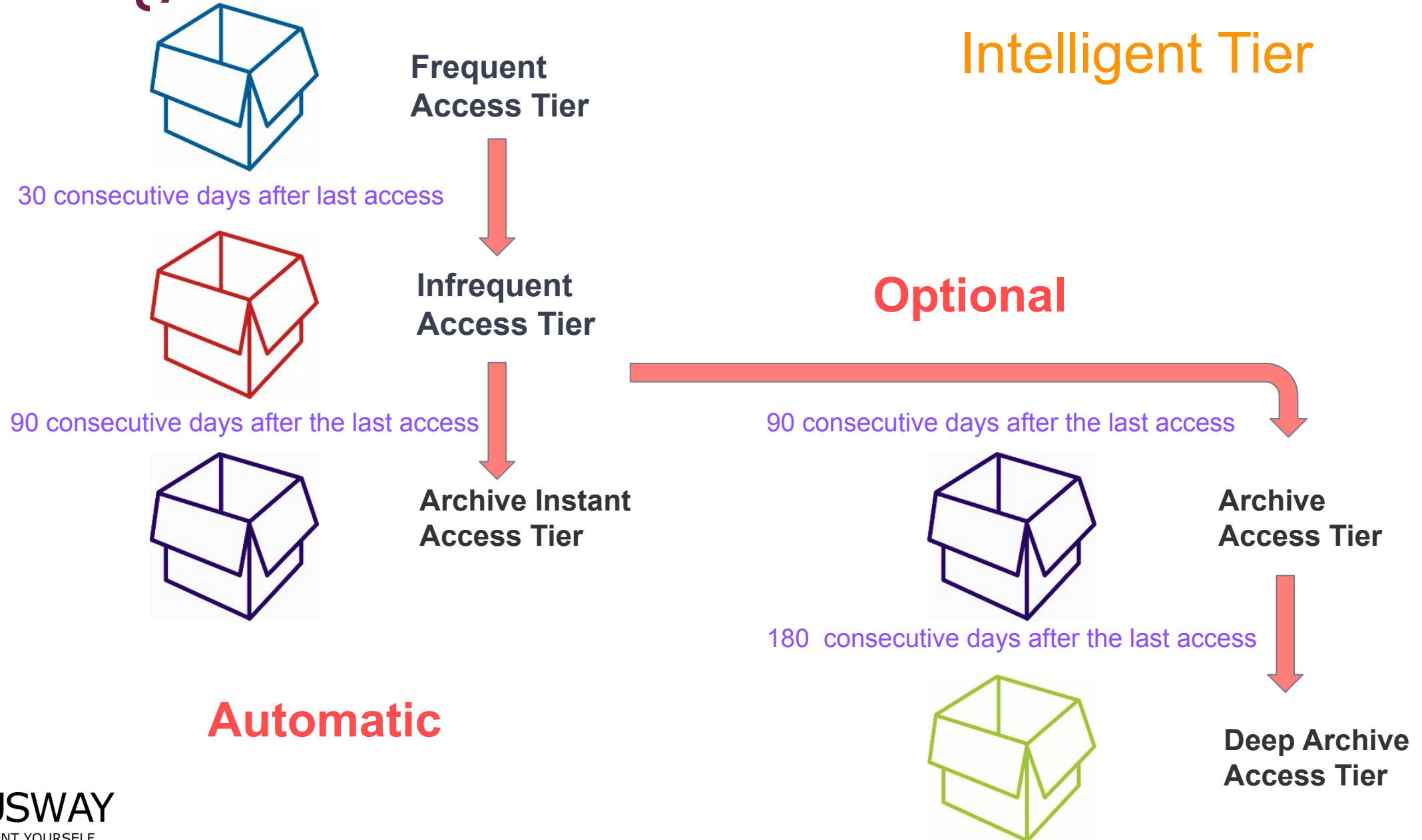
Intelligent Tier

Unpredictable
Access Patterns



- It is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier.
- There are 3 automatic access tiers and 2 optional access tiers.
- It is ideal, if your access patterns are unknown or unpredictable.

Storage Classes



Storage Classes

Amazon Glacier



S3 Glacier **Instant** 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.

Archives & Backup Copies of Databases

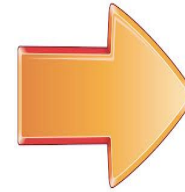
S3 Glacier **Flexible** Retrieval

- 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.

Storage Classes

Amazon Glacier Deep Archive

Infrequently Accessed
& Non Critical Data

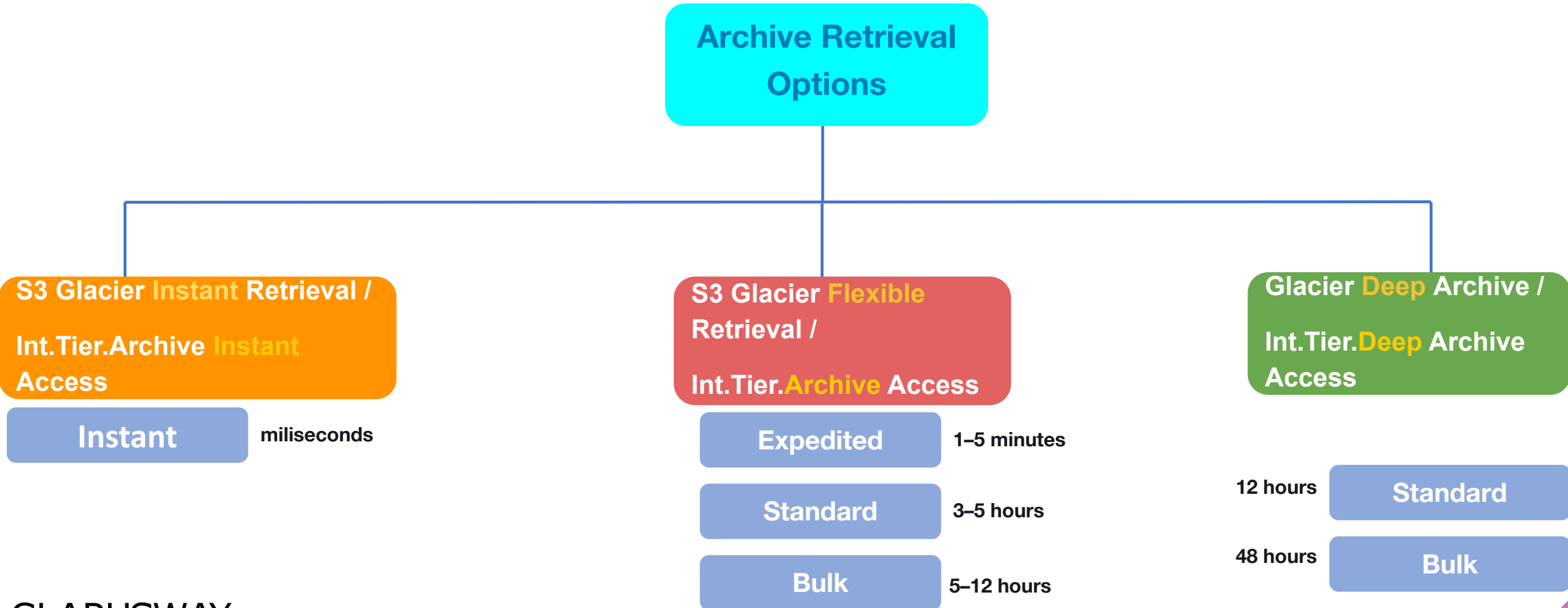


- It is used for archiving data that **rarely need to be accessed**
- It is the **lowest cost storage option** in AWS.
- Minimum storage **duration period is 180 days** and a default **retrieval time of 12 hours**. If you interact with the object in 180 days you'll be charged for 180 days.



Storage Classes

Archive Retrieval Options





Storage Classes

Summary of Storage Classes

Access-Based Storage Classes

Frequent
Access

Reduced
Redundancy

Standard

Express One
Zone

Infrequent
Access

Standard-IA

One Zone-IA

Unpredictable
Access

Intelligent
Tiering

Archive

Glacier **Instant**
Retrieval

Glacier **Flexible**
Retrieval

Glacier **Deep**
Archive

Hybrid

S3
Outposts



3 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

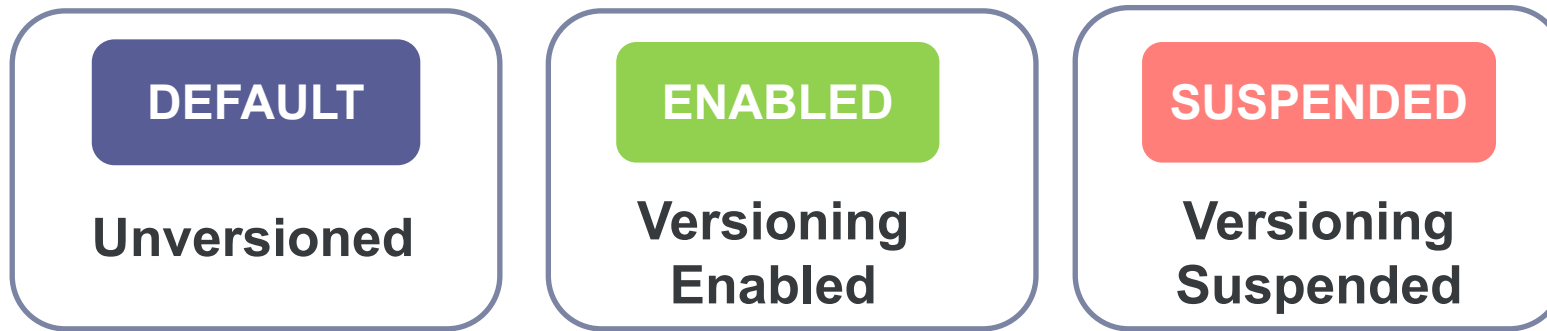
What is Versioning?



- Versioning is **bucket-based** feature

Versioning

States of Versioning



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



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S3 Static Website Hosting

S3 Static Website Hosting



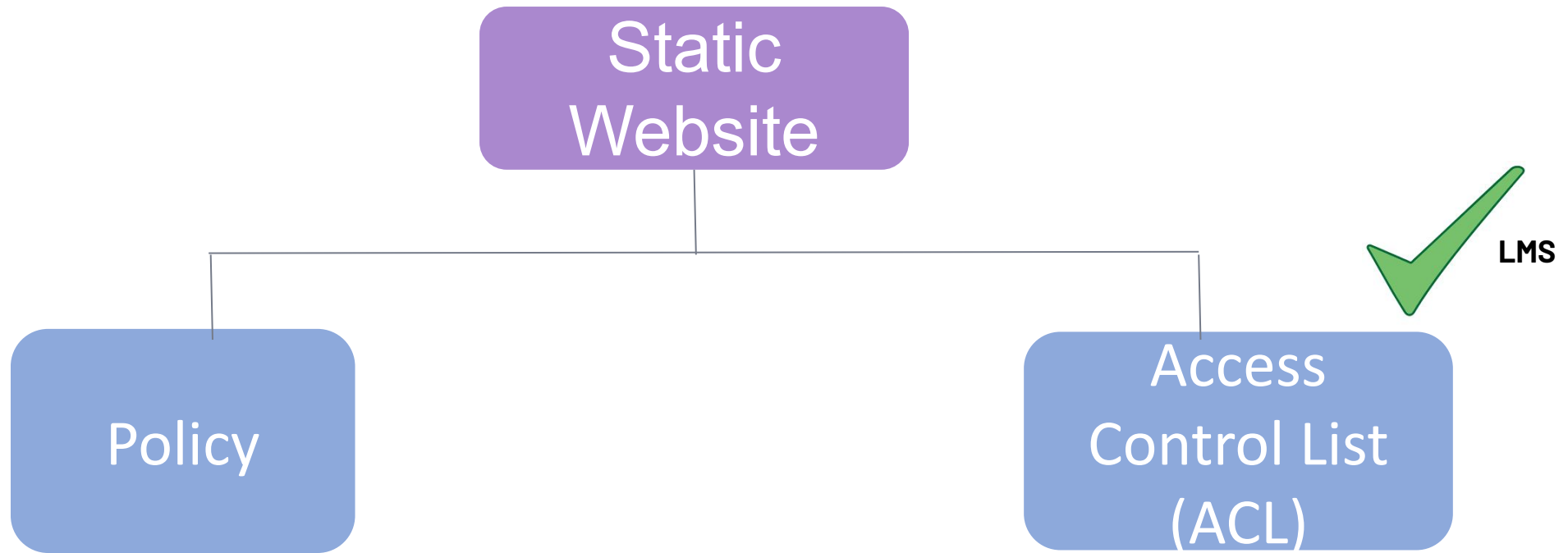
What is Static Website Hosting?



- Static Website Hosting is a website that contains **simple web components**.
- Uses HTML, CSS, images, etc.
- No **server, database** or any **application code**.

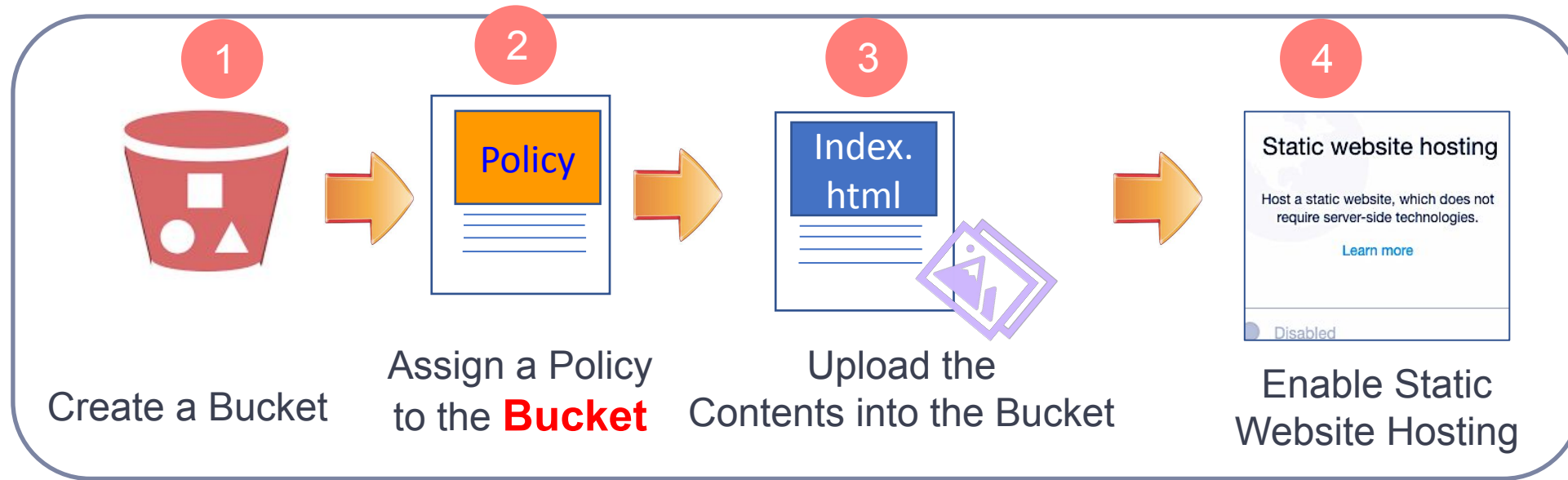
S3 Static Website Hosting

Static Website Permission Options



S3 Static Website Hosting

Static Website Hosting - With Policy





THANKS!

Any questions?

You can find me at:

- ▶ @Guile - Instructor
- ▶ guile@clarusway.com

