AMAZON S3 AND GLACIER

AMAZON S3

- Amazon Simple Storage Service (S3)
- The very first offering of Amazon Cloud
- Internet Scale Storage
- Object Based Storage
- Access via Console and Programmatically via API
- Pay as much as you store

STORAGE

BLOCK STORAGE

FILE STORAGE

OBJECT STORAGE

OBJECTS

- You can think of objects as files except that they don't have any hierarchy
- Files in a filesystem have an hierarchy (/root/usr/cloudsiksha/trainingmaterial.ppt)
- Objects on the other hand exist in a flat name space
- Metadata about the object stored in the object
- Object ID used to access the Object

ACCESSING OBJECTS

- Objects accessed by REST API
- GET / PUT / DELETE
- No in-place editing possible
- Cannot be directly attached to a system

OBJECT, BLOCK & FILE DIFFERENCES

Object	Block	File
No hierarchy	Hierarchy	Hierarchy
Cannot be mounted	Mounted as Block Device	Mounted as Filesystem
Accessed via REST API	FC or iSCSI	NFS/CIFS
Metadata stored within object	Metadata stored in a designated place in filesystem	Metadata stored in a designated place in filesystem
Immutable	In place editing possible	In place editing possible
High level of scaling possible	Difficult to scale beyond a certain limit	Difficult to scale beyond a certain limit

S3 TERMS

Bucket

- General Purpose and Directory Buckets

Object

- Basic entity which is stored

Key

- Object Identifier


AMAZON STORAGE
CLASSES

S3 STANDARD STORAGE CLASS

Low latency and high throughput performance

Designed for durability of 99.999999999% of objects

Designed for 99.99% availability over a given year

S3 : STANDARD STORAGE INFREQUENT ACCESS CLASS

Same low latency and high throughput performance of Standard

Designed for durability of 99.999999999% of objects

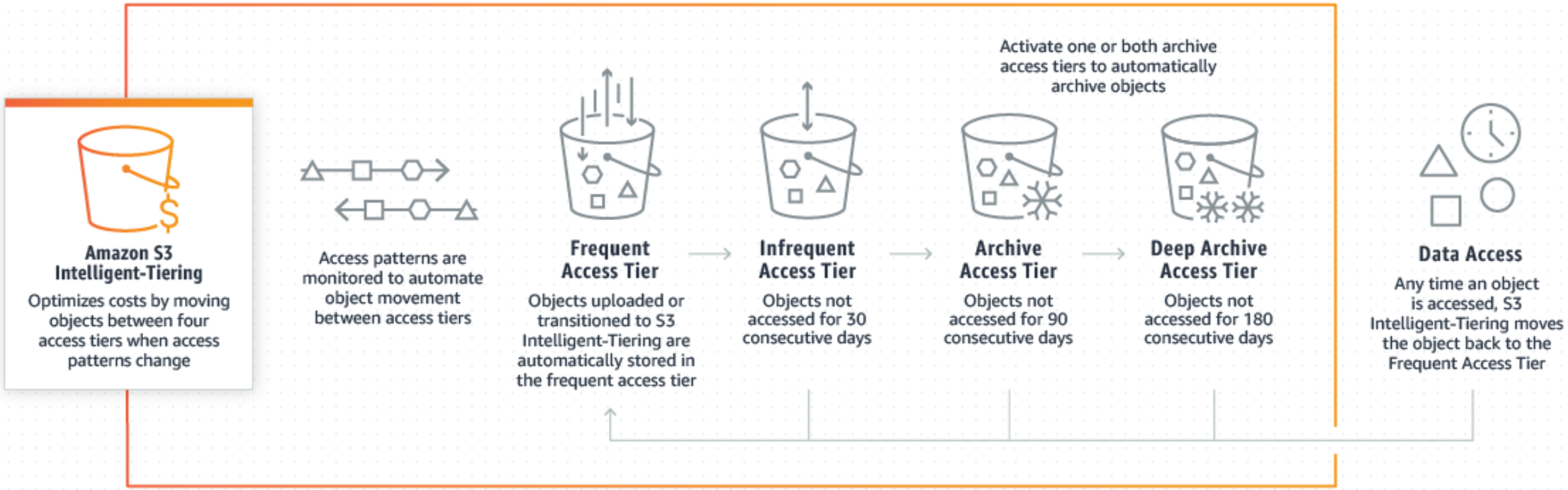
Designed for 99.9% availability over a given year

S3 : ONE ZONE INFREQUENT ACCESS CLASS

- Replication in only one AZ
- Designed for durability of 99.999999999% of objects
- Designed for 99.5% availability over a given year
- Lower cost than Infrequent Access

S3: INTELLIGENT TIERING

- Not exactly a tier of its own
- Objects stored in standard tier initially
- Access to objects is constantly monitored
- If no access for 30 days move to IA, 90 days move to Archive Access and 180 days move to Deep Archive
- Enables cost optimization
- If objects are accessed, object moved back to standard tier



INTELLIGENT ACCESS TIER

S3 EXPRESS ONE ZONE

- Single-digit millisecond request latency
- Improves data access speeds by 10x 99.99% durability compared to S3 Standard
- Locate storage and compute in same zone
- S3 directory buckets
- 11 9s durability
- 99.95% availability

S3 EXPRESS ONE-ZONE

AMAZON GLACIER - INSTANT RETRIEVAL

- Designed for durability of 99.999999999% of objects
- Supports SSL encryption of data in transit and at rest
- Vault Lock feature enforces compliance via a lockable policy
- 99.9% Availability with milliseconds access
- Lifecycle management for automatic migration of objects

AMAZON GLACIER - FLEXIBLE RETRIEVAL

- Designed for durability of 99.999999999% of objects
- Supports SSL encryption of data in transit and at rest
- Vault Lock feature enforces compliance via a lockable policy
- 99.99% Availability
- Lifecycle management for automatic migration of objects

AMAZON GLACIER FLEXIBLE RETRIEVAL TIMES

Standard

3 to 5hrs

Bulk

5 to 12hrs

Expedited

1 to 5mins

GLACIER DEEP ARCHIVE

Lowest cost storage

For very long duration storage (7 yrs plus)

11 9s durability

Retrieval time: 12+ hrs

CloudSiksha

S3 FEATURES

- Detecting Data Corruption
- Versioning
- Lifecycle rules
- Object Expiration
- Event Notifications
- Static Website Hosting
- Secure

S3 LIMITS

100 buckets per account

- No limit to number of objects in a bucket

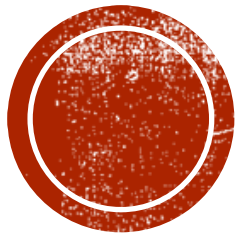
0 byte to 5TB size objects

- Maximum object size is 5TB

Maximum 5GB in one PUT operation

- Multipart upload option available

No limit to number of objects that can be stored per account



THANK YOU