**Object lifecycle management in S3**

Amazon S3 Lifecycle rules are used to store objects cost effectively.

We mainly have 3 storage classes in S3

Standard ========🡺 Most frequently accessed data

Standard-IA ======🡺 Less frequently accessed data

S3 Glacier========🡺 Archive data (occasionally accessed data)

Let’s say we have a data that we want to access more frequently in the first 60 days of uploading it to s3. After 60 days we don’t access the data that much frequently. So, after 60 days of uploading data to S3 we want to move/transition it to the Standard-IA class.

Then after 90 days of uploading we want to archive data by transition/moving it to the S3 Glacier.

So, to do this we will define Lifecycle rules on the objects in the S3 Bucket.

An *S3 Lifecycle configuration* is a set of rules that define actions that Amazon S3 applies to a group of objects in the bucket.

There are 2 types of actions:

1. Transition actions
2. Expiration actions

**Transition actions**

Transition actions define when should the objects transition to another storage class. For example, you might choose to transition objects to the S3 Standard-IA storage class 30 days after you created them, or archive objects to the S3 Glacier storage class one year after creating them.

**Expiration actions**

Define when objects expire. Amazon S3 deletes expired objects on your behalf.

**Note:** There are costs associated with the lifecycle transition requests. The lifecycle expiration costs depend on when you choose to expire objects.

**Lifecycle configuration elements**

We specify an S3 Lifecycle configuration as XML, consisting of one or more Lifecycle rules.

An S3 Lifecycle configuration can have up to 1,000 rules.

Ex:

<LifecycleConfiguration>

<Rule>

...

</Rule>

<Rule>

...

</Rule>

</LifecycleConfiguration>

**Each rule consists of the following:**

* Rule metadata that include a rule ID
* status indicating whether the rule is enabled or disabled.

If a rule is disabled, Amazon S3 doesn't perform any actions specified in the rule.

* Filter identifying objects to which the rule applies.

You can specify a filter by using an object key prefix, one or more object tags, or both.

You can specify an empty filter; in which case the rule applies to all objects in the bucket.

* One or more transition or expiration actions with a date or a time period in the object's lifetime when you want Amazon S3 to perform the specified action.

**For Non-versioned bucket** – The Expiration action results in Amazon S3 permanently removing the object.

**For a versioned bucket** - The Expiration action applies only to the current version (it has no impact on noncurrent object versions).

Amazon S3 doesn't take any action if there are one or more object versions and the delete marker is the current version.

If the current object version is the only object version and it is also a delete marker (also referred as an *expired object delete marker*). You can also use the expiration action to direct Amazon S3 to remove any expired object delete markers.

**Note:** Object expiration Lifecycle policies do not remove incomplete multipart uploads.

To remove incomplete multipart uploads, you must use the **AbortIncompleteMultipartUpload** Lifecycle configuration action.

**When should I use lifecycle configuration?**

1. If you upload periodic logs to a bucket, your application might need them for a week or a month. After that, you might want to delete them.

2. Some documents are frequently accessed for a limited period of time. After that, they are infrequently accessed. At some point, you might not need real-time access to them, but your organization or regulations might require you to archive them for a specific period. After that, you can delete them.

3. You might upload some types of data to Amazon S3 primarily for archival purposes. For example, you might archive digital media, financial and healthcare records, raw genomics sequence data, long-term database backups, and data that must be retained for regulatory compliance.

So finally, with S3 Lifecycle configuration rules, you can tell Amazon S3 to transition objects to less expensive storage classes, or archive or delete them.

**Note:** Lifecycle configuration on multi-factor authentication (MFA)-enabled buckets is not supported.