**Replication in S3**

Replication in nothing but maintaining extra copies of our data like backup. Replication helps in the situations like data lose or the server where we have the data goes down.

Replication enables automatic, asynchronous copying of objects across Amazon S3 buckets.

1. Buckets that are configured for object replication can be owned by the same AWS account or by different accounts.
2. You can copy objects between different AWS Regions or within the same Region.

To enable replication, you simply add a replication configuration to your source bucket. The configuration tells Amazon S3 to replicate objects as specified.

In the replication configuration, you must provide the following:

1. **The destination bucket.**

The bucket where you want Amazon S3 to replicate the objects.

1. **The objects that you want to replicate.**

You can replicate all of the objects in the source bucket or a subset.

You identify a subset by providing a key name prefix, one or more object tags, or both.

A replica has the same key names and metadata (for example, creation time, user-defined metadata, and version ID) as the original object.

Amazon S3 encrypts all data in transit using Secure Sockets Layer (SSL).

1. **Storage class.**

By default, Amazon S3 stores object replicas using the same storage class as the source object. You can specify a different storage class for the replicas.

1. **Owner of replica.**

Amazon S3 assumes that an object replica continues to be owned by the owner of the source object. So, when it replicates objects, it also replicates the corresponding object access control list (ACL).

If the source and destination buckets are owned by different AWS accounts, you can configure replication to change the owner of a replica to the AWS account that owns the destination bucket.

Some more settings are there like S3RTC (Replication Time Control) etc. we will those configurations later.

**Types of Object Replication**

You can replicate objects between different AWS Regions or within the same AWS Region.

1. **Cross-Region replication** (CRR) is used to copy objects across Amazon S3 buckets in different AWS Regions.
2. **Same-Region replication** (SRR) is used to copy objects across Amazon S3 buckets in the same AWS Region.

**Requirements for Replication**

1. The source bucket owner must have the source and destination AWS Regions enabled for their account. The destination bucket owner must have the destination Region-enabled for their account
2. Both source and destination buckets must have versioning enabled.
3. Amazon S3 must have permissions to replicate objects from the source bucket to the destination bucket on your behalf. (i.e. IAM Role).
4. If the owner of the source bucket doesn't own the object in the bucket, the object owner must grant the bucket owner READ and READ\_ACP permissions with the object access control list (ACL).
5. If the source bucket has S3 Object Lock enabled, the destination bucket must also have S3 Object Lock enabled.

To enable replication on a bucket that has Object Lock enabled, contact AWS Support.

**Additional requirement for CRR**

1. The owner of the destination bucket must grant the owner of the source bucket permissions to replicate objects with a bucket policy.
2. The destination bucket cannot be configured as a Requester Pays bucket.

In general, bucket owners pay for all Amazon S3 storage and data transfer costs associated with their bucket. A bucket owner, however, can configure a bucket to be a Requester Pays bucket. With Requester Pays buckets, the requester instead of the bucket owner pays the cost of the request and the data download from the bucket. The bucket owner always pays the cost of storing data.

Add this policy on cross account’s replication Destination bucket.

{

"Version": "2008-10-17",

"Id": "S3-Console-Replication-Policy",

"Statement": [

{

"Sid": "S3ReplicationPolicyStmt1",

"Effect": "Allow",

"Principal": {

"AWS": "arn:aws:iam::849227262234:root" # source bucket root user ARN

},

"Action": [

"s3:GetBucketVersioning",

"s3:PutBucketVersioning",

"s3:ReplicateObject",

"s3:ReplicateDelete"

],

"Resource": [

"arn:aws:s3:::replication-bucket-vinod", # Destination bucket ARN.

"arn:aws:s3:::replication-bucket-vinod/\*"

]

}

]

}