

**PROFESSIONAL TRAINING REPORT**  
**at**  
**Sathyabama Institute of Science and Technology**  
**(Deemed to be University)**

Submitted in partial fulfillment of the requirements for the award of  
Bachelor of Engineering Degree in Computer Science and Engineering

By

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**SCHOOL OF COMPUTING**  
**SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY**  
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**OCT 2023**



**SATHYABAMA**  
INSTITUTE OF SCIENCE AND TECHNOLOGY  
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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### BONAFIDE CERTIFICATE

This is to certify that this Project Report is the Bonafide work of **KUMMETHA CHAKRADHAR REDDY (41110236)** who carried out the project entitled "**CROSS REGION REPLICATION DATA IN S3**" under my supervision from AUG 2023 to OCT 2023.

**Internal Guide**  
**Dr.SREE KRISHNA M.E.,Ph.D**

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**Submitted for Viva voce Examination held on \_\_\_\_\_**

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **KUMMETHA CHAKRADHAR REDDY (41110236)** hereby declare that the Project Report entitled "**CROSS REGION REPLICATION DATA IN S3**" done by me under the guidance of **Dr.SREE KRISHNA M.E.,Ph.D.**, and \_\_\_\_\_(External) at \_\_\_\_\_(Company name and address) is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in **Computer Science and Engineering**.

**DATE:**

**PLACE: CHENNAI**

**SIGNATURE OF THE CANDIDATE**

## **ACKNOWLEDGEMENT**

I am pleased to acknowledge my sincere thanks to **Board of Management** of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T. Sasikala M.E., Ph.D., Dean, School of Computing, Dr.S.Vigneshwari M.E., Ph.D., and Dr.L.Lakshmanan M.E., Ph.D.**, Heads of the Department of Computer Science and Engineering for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr.SREE KRISHNA M.E., Ph.D** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Computer Science and Engineering** who were helpful in many ways for the completion of the project.

## TRAINING CERTIFICATE



# Award of Completion

KUMMETHA CHAKRADHAR REDDY

Has Successfully Completed

**Star Cloud Computing**

Star Authorized Delivery Partner

**ADVANTAGE PRO**

3rd Oct 2023

Date

2023/ADV/12948

Certificate  
Number

Authorised  
Signatory

A handwritten signature in blue ink, appearing to read 'Rajya' or a similar name.



## **ABSTRACT**

Cross-region replication (CRR) in amazon simple storage service (amazon s3) is a crucial feature that enhance data durability, availability, and compliance for organization and businesses with global operations. This abstract provides an overview of CRR in amazon s3, highlighting its key benefits, implementation considerations, and use cases. Cross-region replications enables the automatic and asynchronous replications of objects between source and destinations buckets in different AWS regions. This redundancy ensures data remains accessible and intact even in the event of region-specific failures or outages. Furthermore, CRR support compliance requirements by facilitating data residency and retention policies across regions. Implementing CRR involves configuring sources and destination buckets, specifying replication rules, and managing permissions to control access to replicated data. AWS identify and access management (IAM) roles and policies play a vital role in securing this process. Use cases for CRR span various industries, including disaster recovery, high availability architectures, data migrations, and compliance with regulatory frameworks. Organizations can tailor CRR to their specific needs by adjusting replication rules and monitoring replication metrics. CRR in S3 is a feature that replicates data from one S3 bucket to another in a different AWS regions. It ensures data availability, reduces late provides disaster recovery capabilities. CRR enables compliance with data governance regulations, enhances high availability and facilitates global content distribution. Overall, it offers resilience, performance, and accessibility for S3 objects across regions.

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## 1. INTRODUCTION

### 1.1. WHAT IS AMAZON S3?

Cloud computing is a technology paradigm that involves delivering a wide range of computing services and resources over the internet. Instead of owning and managing the physical hardware and software, users and organizations access and use the resources remotely on pay-as-you-go basis through service providers. S3 is a service and buckets is a components of service

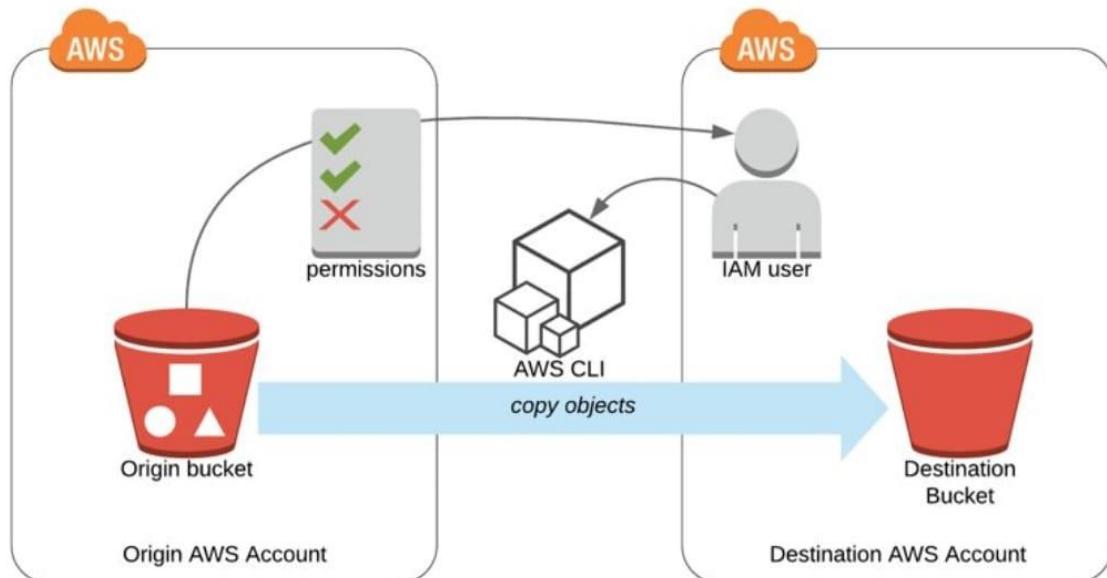
Amazon S3 (Simple Storage Service) is a scalable cloud storage service provided by Amazon Web Services (AWS). An S3 bucket is a container used to store and organize data within Amazon S3. It's like a folder or directory in traditional file systems but within the context of cloud storage S3 buckets can store various types of data, such as files, documents, images, videos, backups, and more. Each bucket has a unique name and is accessible over the internet via a URL. You can control access to the data stored in an S3 bucket through AWS Identity and Access Management (IAM) policies and bucket policies, allowing you to manage who can read, write, or delete objects within the bucket. S3 is highly reliable, scalable, and widely used for various purposes, including data backup, hosting static websites, storing and serving media files, and as a component in various AWS services and applications. And this S3 is only free upto 5gb of data if it is exceeded beyond that u will have charges.



*Fig 1.1: AMAZON S3 BUCKET*



**Fig 1.2 Benefits of AWS S3**



**Fig 1.3: Data coping from one bucket source to other source**

## 1.2. OTHER SERVICES USED

### AWS

Amazon web services it is a cloud computing platform provides by amazon that offers a wide range of cloud services, including computing power, storage, database, machine learning, analytics, and more. Aws allows businesses and individuals to access and use these services on a pay-as-you-go basis, making it easier to scale resources up or down as needed without the need for significant upfront investments in physical hardware. AWS is one of the largest and most widely used cloud service providers in the world

### S3 BUCKETS

In the context of AWS S3 (Amazon simple storage service) a **Bucket** is essentially a container for storing objects, which can be files, data, or any other form of digital content. Here are some key points about S3

- Naming
- Access control
- Objects
- Storage classes
- Versioning
- Data management
- Data replication

### Objects

In AWS (Amazon web services), Objects typically refer to data stored in an object storage service called Amazon S3 (simple storage services). Amazon S3 allows you to store and retrieve data, such as files, images, videos, and backup, in a scalable and highly available manner. Where objects in S3 are the basic entities that you store in buckets. Each object consists of data, a key (a unique identifier within a bucket), and metadata. Objects can range in size from a few bytes to several terabytes. Each object in S3 can have associated metadata, which provides additional information about the object, such as content type, creation date.

## AWS IAM

AWS IAM stands for amazon web services identify and access management. It is a service provided by AWS that allows you to manage and control access to AWS resources and services securely. IAM enables you to create and manage user identities (such as employees or applications) and define their permissions to access specific AWS resources. With IAM, you can set up policies and permissions to grant or restrict access to various AWS services and resources for different users or groups. This helps you maintain security and compliance within your AWS environment by ensuring that users and applications only have the access they need to perform their tasks, reducing the risk of unauthorized access or accidental changes to resources.

## AWS CRR

In AWS, CRR stands for cross-region replication. It is a feature that allows you to replicate data from one Amazon S3 bucket to another in a different AWS region. Cross-region replication is often used for data redundancy, disaster recovery, and compliance requirements, as it helps ensure that your data remains available and durable even in the event of regional failures or disasters you can configure cross-region replication using Amazon S3 management console or programmatically using AWS SDKs and APIs

## AWS REGION

In AWS a region refers to a geographical area where AWS data centers (known as availability zones) are located. Each region is a separate and isolated infrastructure with its own set of resources and services. AWS provides multiple regions is identified by a unique name, such as “us-east-1” or “eu-west-2”. The purpose of having multiple regions is to enables customers to deploy their ends-users for reduced latency, improved performance, and enhanced fault tolerance. Additionally, each region consists of multiple availability zones, which are isolated data centers within the region, designed to provide redundancy and high availability. When you create AWS resources like EC2 instance, S3 buckets, or RDS databases, you typically choose a specific region in which to deploy them

## **2. AIM AND SCOPE OF THE PRESENT INVESTIGATION**

### **2.1. AIM:**

CROSS REGION REPLICATION DATA IN S3

### **2.2. SCOPE OF THE INVESTIGATION:**

- The scope of an investigation into cross-region replication data in Amazon S3 (Simple Storage Service) typically involves ensuring data integrity, compliance, and performance. Here are some key aspects to consider:
- Data replication configuration: Review the configuration setting for cross-region replication, ensuring they match the intended requirements. Verify the source and destination buckets, replication rules, and any filtering options.
- Data consistency: ensure that data consistency is maintained between the source and discrepancies or missing files
- Data encryption: verify that data is encrypted in transit and at rest during replication to meet security and compliance requirements.
- Permissions and access control: Review IAM (identity and access management) policies to ensure that only authorized users have access to the replication configuration and data
- Versioning: if versioning are in use, ensure that they align with data retention and compliance requirements
- The scope of the investigation may vary depending on the specific requirements and complexity of your S3 data replication setup. It's essential to maintain a proactive approach to monitoring and maintaining data integrity across regions to ensure the reliability of your data replication solution

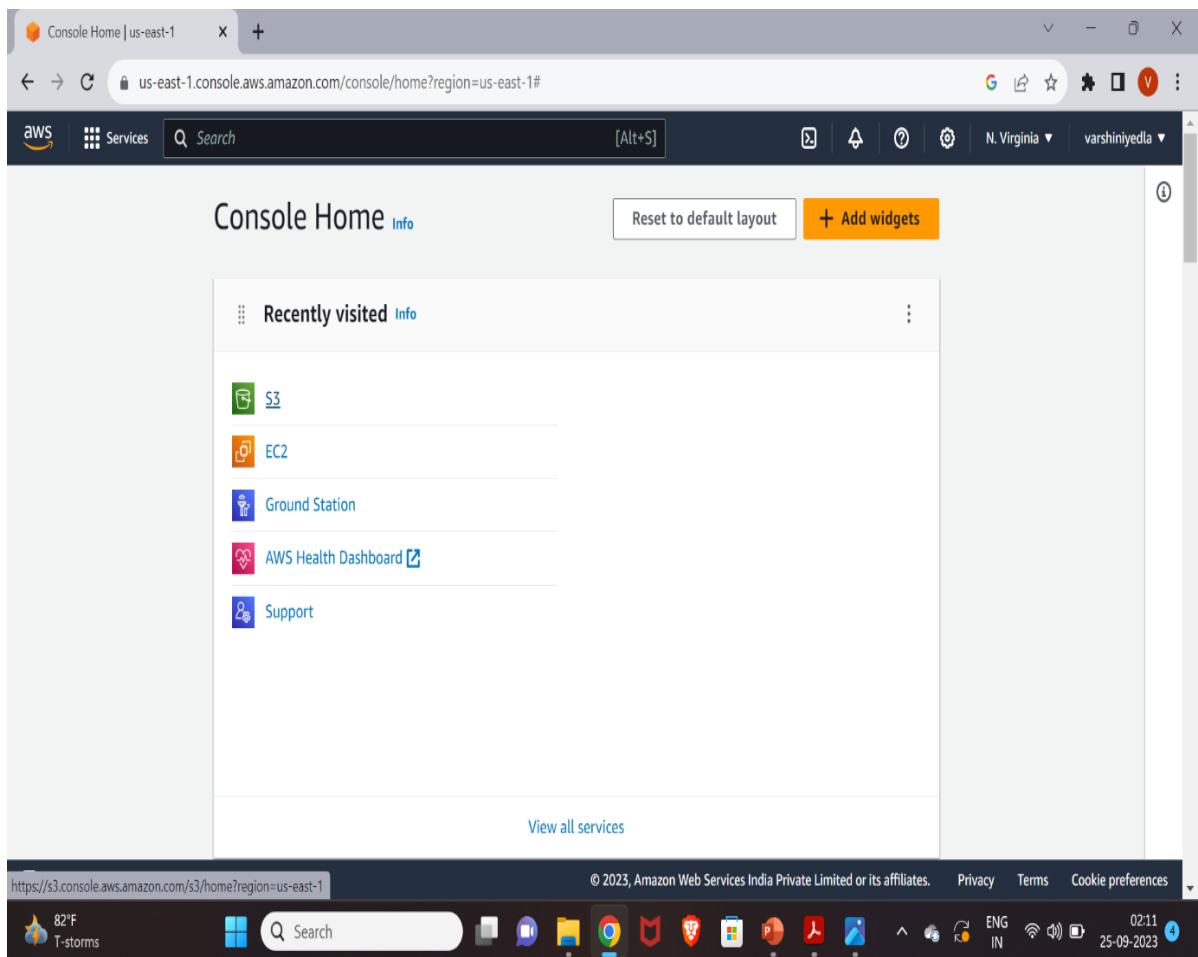
### **3. EXPERIMENTAL OR SERVICES/MATERIAL USED AND METHOD:**

#### **3.1. CREATION AND IMPLEMENTATION OF BUCKETS**

##### **1. CREATION OF BUCKETS**

###### **1.1. TO CREATE BUCKETS.**

- Go to AWS console and login into your account
  - Search S3 region .
  - Open S3 region.

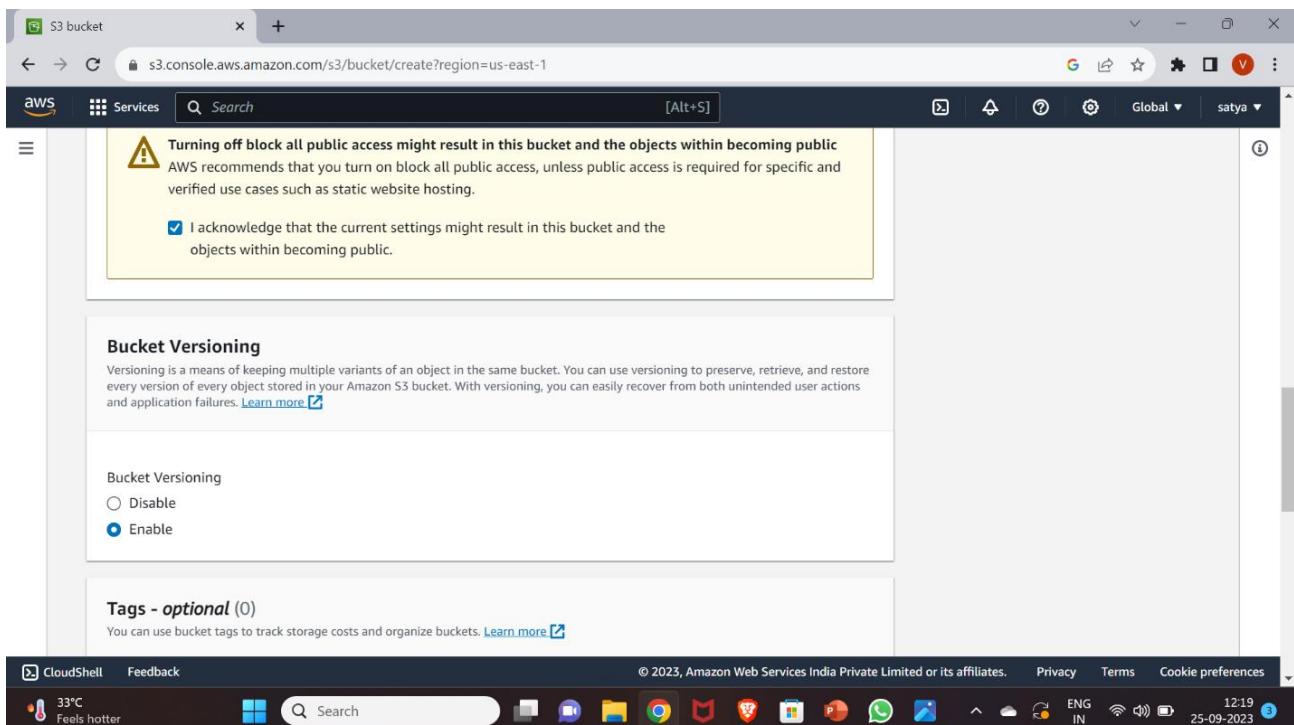


## CREATE BUCKET

The screenshot shows the AWS S3 console interface. On the left, there is a sidebar with various navigation options like Buckets, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3, Block Public Access settings, Storage Lens, Dashboards, and AWS Organizations settings. The main content area is titled "Amazon S3" and "Amazon S3". It features an "Account snapshot" section with a link to "View Storage Lens dashboard". Below it is a table titled "Buckets (5) Info" which lists five buckets: "dattu01" and "hlo456". Both buckets are located in "Asia Pacific (Mumbai) ap-south-1" and have "Objects can be public" access. The creation date for both is September 23, 2023. At the bottom of the table, there is a note: "© 2023, Amazon Web Services India Private Limited or its affiliates." and links for Privacy, Terms, and Cookie preferences.

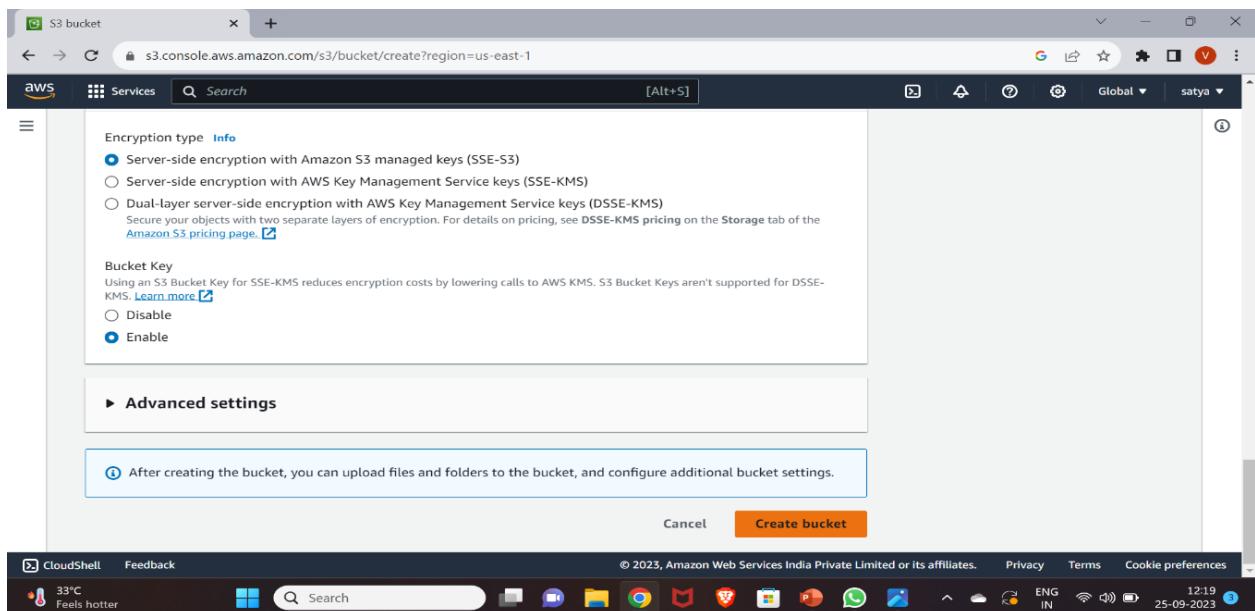
- Tap on the create bucket option.
- Initialize the creation of buckets.

The screenshot shows the "Create bucket" configuration page. The top navigation bar includes "CloudShell", "Feedback", "Services", "Search", and "Global" dropdown set to "satya". The main title is "Create bucket" with an "Info" link. A sub-header states: "Buckets are containers for data stored in S3. [Learn more](#)". The configuration section is titled "General configuration". It contains fields for "Bucket name" (set to "sourcebucket.s14") and "AWS Region" (set to "US East (N. Virginia) us-east-1"). Below these, there is a section for "Copy settings from existing bucket - optional" with a note: "Only the bucket settings in the following configuration are copied." and a "Choose bucket" button. The bottom of the page includes standard footer links for Privacy, Terms, and Cookie preferences, along with system status icons like CloudWatch Metrics and CloudWatch Logs.



## 1.2. TO ENABLE VERSIONING.

- After clicking create bucket option.
  - Select the bucket name where the name should be a unique
  - It must be between 3 to 60 characters.
  - Select the bucket region.
- BUCKET REGION:NORTH VIRGINIA REGION**
- By enabling versioning leads to permanent storage of data.
  - If the data or objects are deleted also we can easily retrieve it back.
  - Finally click the create bucket option then bucket will be created. Similarly create the destination bucket.



# LAUNCH A REPLICATION RULE

## 2.1.WHAT IS REPLICATION RULE?

A replication rule is a set of instructions or guidelines that dictate how data should be duplicated or copied within a computer system, networks, or database. Replication rules commonly used in distributed computing and database management to ensure data redundancy, fault tolerance, and scalability. determines the target locations or servers where copies of the data should be stored. This helps in distributing data for load balancing and fault tolerance. Replication rules outline how data changes are propagated to replicated copies, ensuring consistency and keeping copies up to date. that Replication rules outline how data changes are propagated to replicated copies, ensuring consistency and keeping copies up to date.

The screenshot shows the AWS S3 Management console for the bucket 'sourcebucket.s14'. The 'Management' tab is selected. Under the 'Lifecycle rules' section, there is a table with one row. The columns are: Lifecycle rule name, Status, Scope, Current version actions, Noncurrent versions actions, Expired object delete markers, and Incomplete multipart uploads. The 'Lifecycle rule name' column contains a single entry: '0'. The 'Status' column shows 'Active'. The 'Scope' column is empty. The 'Current version actions' column has a single item: 'Delete'. The 'Noncurrent versions actions' column has a single item: 'Delete'. The 'Incomplete multipart uploads' column is empty. Below the table, there is a section titled 'Replication rules' which is currently empty.

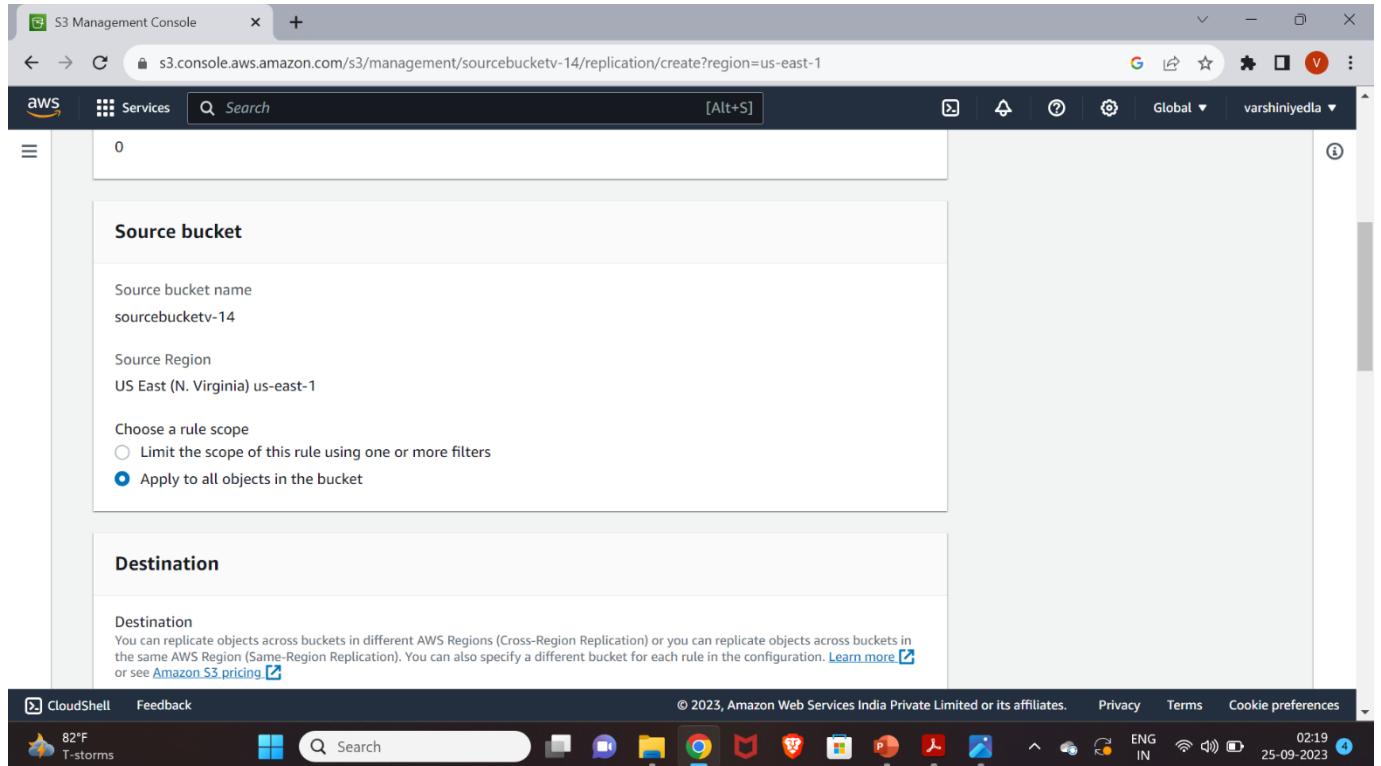
## 2. SETUP AN REPLICATION

- Select the source bucket
- Go to **Management → Replication rules → Create replication rules**
- Replication rules are created for any one of the bucket either from source to destination or destination to source.
- Through this replication we can easily create a duplicate copy.

### 3. SETTING OF REPLICATION

#### 3.1. LAUNCH REPPLICATION

- Under source bucket **Management** and choose **Replication rules**  
    >**create replication rules**
- In the replication rules configuration enter discriptive name for the **Replication rule name**.
- Select the objects that are which are present with in the buckets.
- **Create launch Configuration.**



#### 3.2. SELECTING THE DESTINATION BUCKET

- Choose **Destination bucket address**
- Choose the appropriate bucket for the transformation of objects.
- Select the **choose path option**

S3 Buckets

Buckets (6)

| Name                  | AWS Region                       |
|-----------------------|----------------------------------|
| dattu01               | Asia Pacific (Mumbai) ap-south-1 |
| destinationbucketv-18 | Asia Pacific (Mumbai) ap-south-1 |
| hlo456                | Asia Pacific (Mumbai) ap-south-1 |
| sourcebucketv-14      | US East (N. Virginia) us-east-1  |
| varshu18              | US East (N. Virginia) us-east-1  |
| varu14                | US East (N. Virginia) us-east-1  |

Cancel Choose path

### NOTE:

- Under IAM role choose the path as existing **IAM ROLE**
- Enter create **New Role**

Destination

Destination

You can replicate objects across buckets in different AWS Regions (Cross-Region Replication) or you can replicate objects across buckets in the same AWS Region (Same-Region Replication). You can also specify a different bucket for each rule in the configuration. [Learn more](#) or see [Amazon S3 pricing](#).

Choose a bucket in this account

Specify a bucket in another account

Bucket name

Choose the bucket that will receive replicated objects.

destinationbucketv-18

Browse S3

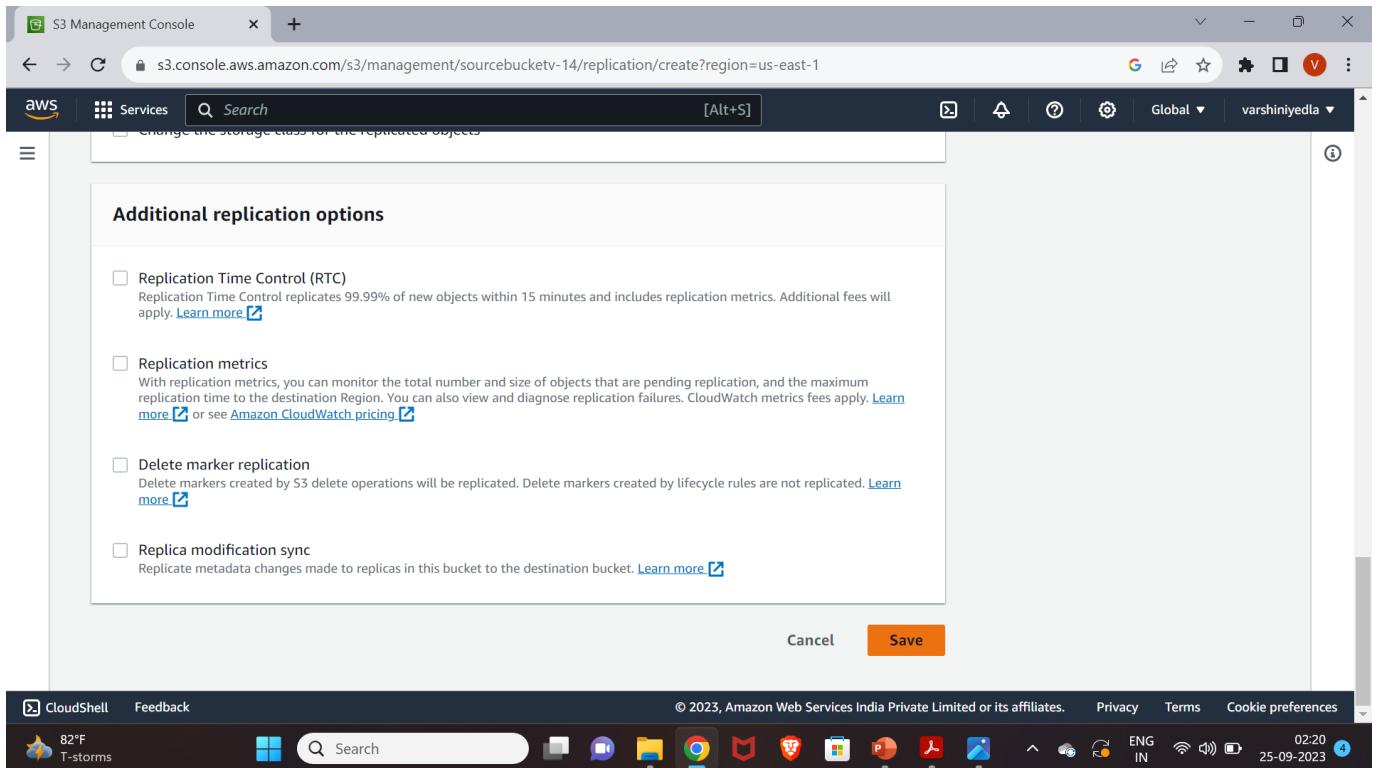
Format: s3://bucket/prefix

Destination Region

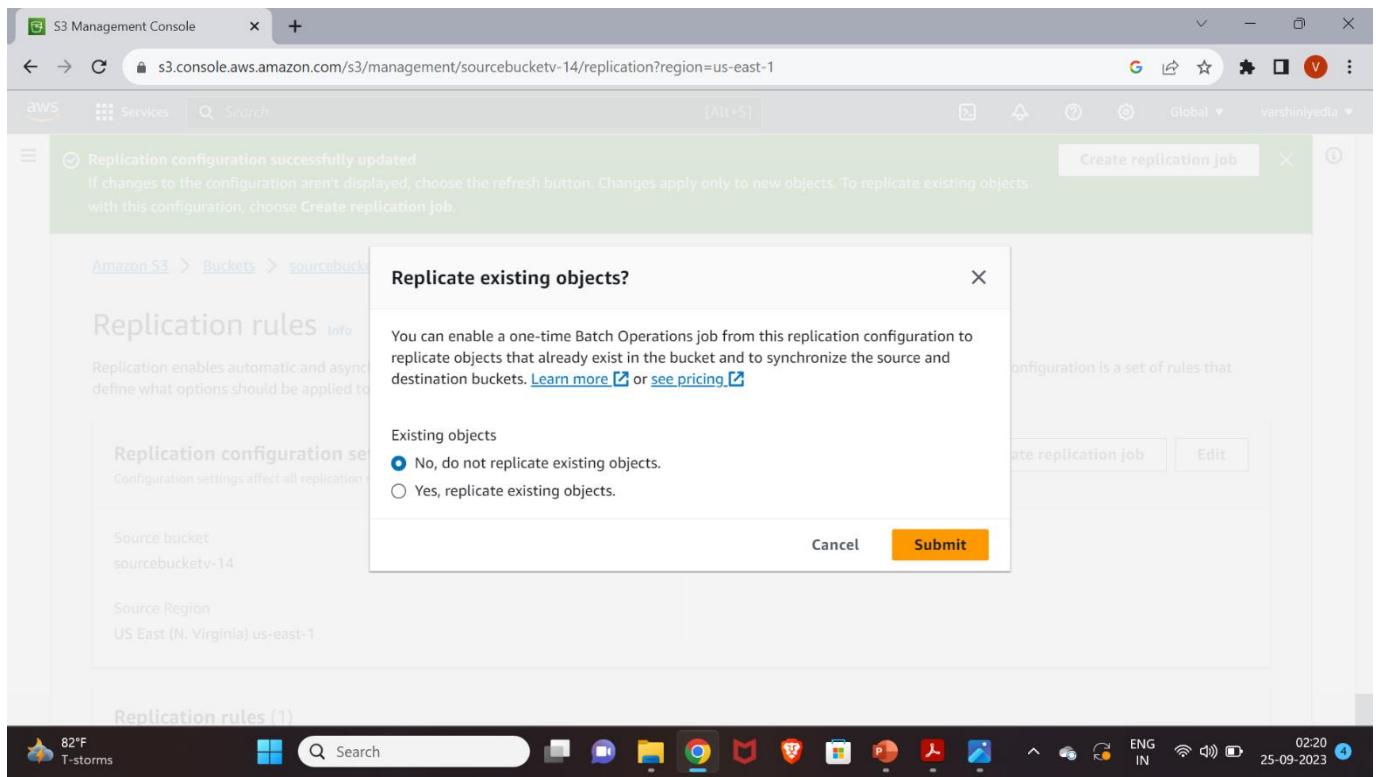
Asia Pacific (Mumbai) ap-south-1

IAM role

- After destination address and IAM roles have selected then click **SAVE**
- Hence the replication rule will be created



- We can enable operations from this replication configuration to replicate objects that already exist in the bucket
- Replication needs synchronization of source and destination buckets
- **Click don't replicate the existing objects**
- Finally click **submit**
- Hence the total replication rule for the transfer of duplicate objects from Source bucket to destination buckets



## 4. GETTING STARTED WITH REPLICATING OBJECTS

### 4.1. CONFIGUREING TYPE OF REPLICATING OBJECTS

- As we known that replication is done in 3 different types but objects transfer
- We can replicate objects to a single or multi destination objects
- The objects can be replicate from source to destination bucket with In Same region
- We can replicate objects of same AWS account from source to destination in different regions
- Also we can replicate objects of different AWS account from source To Destination of different AWS regions
- Replication of existing objects as they are already present in source bucket can be done in two ways
- One as **Don't replicate existing** objects Another yes replicate existing objects
- Click submit

S3 Management Console

s3.console.aws.amazon.com/s3/buckets?region=ap-south-1

aws Services Search [Alt+S]

Successfully created bucket "destinationbucket.s18"  
To upload files and folders, or to configure additional bucket settings choose View details.

Buckets (4) Info Buckets are containers for data stored in S3. [Learn more](#)

| Name                  | AWS Region                       | Access                | Creation date                            |
|-----------------------|----------------------------------|-----------------------|--|
| destination.satya1    | Asia Pacific (Mumbai) ap-south-1 | Objects can be public | September 25, 2023, 00:37:47 (UTC+05:30) |
| destinationbucket.s18 | Asia Pacific (Mumbai) ap-south-1 | Objects can be public | September 25, 2023, 12:20:41 (UTC+05:30) |
| source.satya          | US East (N. Virginia) us-east-1  |                       | September 25, 2023, 00:35:27 (UTC+05:30) |
| sourcebucket.s14      | US East (N. Virginia) us-east-1  |                       | September 25, 2023, 12:19:28 (UTC+05:30) |

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33°C Feels hotter Search ENG IN 12:20 25-09-2023

sourcebucket.s14 - S3 bucket

s3.console.aws.amazon.com/s3/buckets/sourcebucket.s14?region=us-east-1&tab=objects

aws Services Search [Alt+S]

Amazon S3 > Buckets > sourcebucket.s14

sourcebucket.s14 Info

Objects Properties Permissions Metrics Management Access Points

Objects (0)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

C Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

Find objects by prefix Show versions

| Name       | Type | Last modified | Size | Storage class |
|------------|------|---------------|------|---------------|
| No objects |      |               |      |               |

CAD/INR +0.20% Search

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## 4.2. WHAT IS OBJECTS

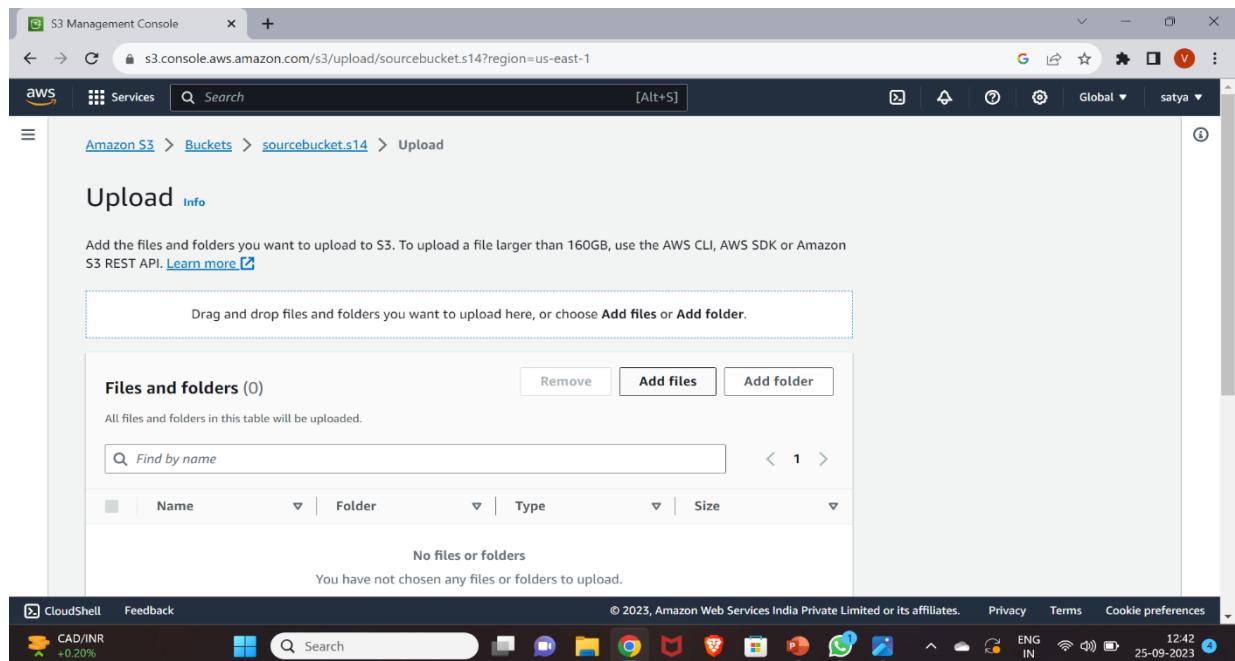
In AWS (Amazon web services), Objects typically refer to data stored in an object storage service called Amazon S3 (simple storage services). Amazon S3 allows you to store and retrieve data, such as files, images, videos, and backup, in a scalable and highly available manner. Where objects in S3 are the basic entities that you store in buckets. Each object consists of data, a key (a unique identifier within a bucket), and metadata. Objects can range in size from a few bytes to several terabytes. Each object in S3 can have associated metadata, which provides additional information about the object, such as content type, creation date, or custom metadata that you define. This represents the objects in Amazon S3 types of object that can be uploaded.

- Files
- Images
- Videos
- Text info..etc

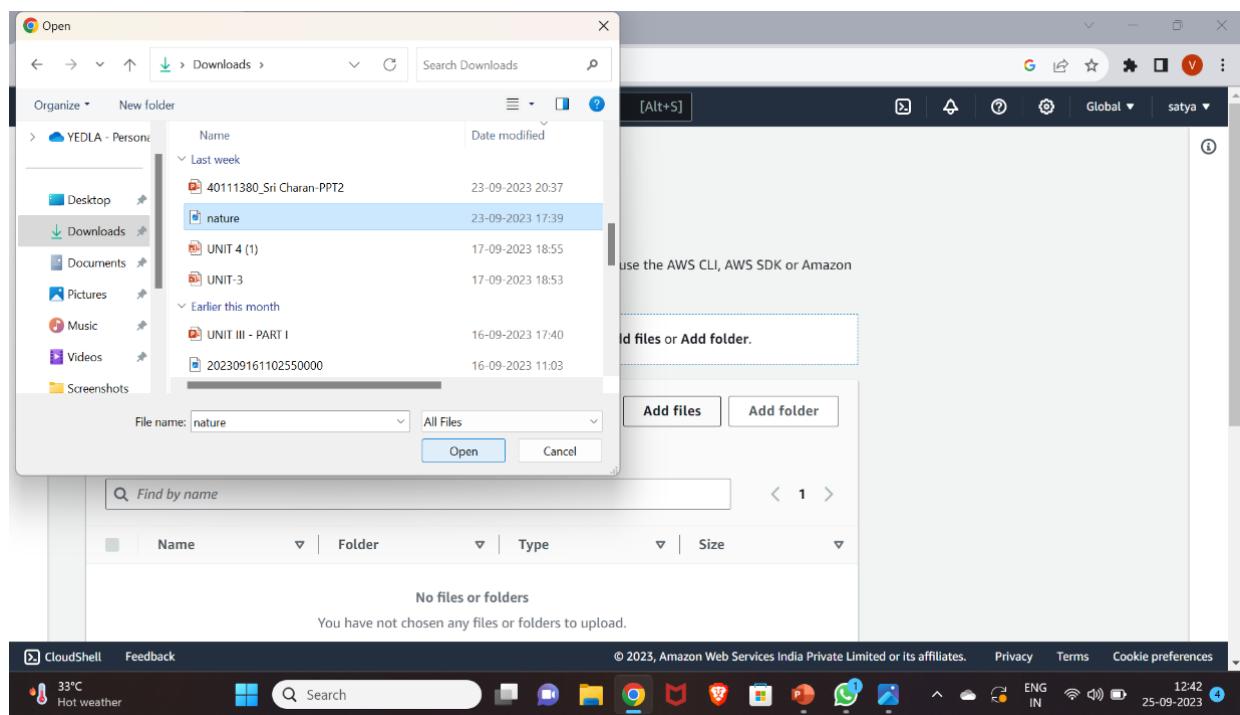
## 4.3. UPLOADING OBJECTS

- After the replication rule was created for the source bucket
- Now again open the source bucket under that move to object and click upload
- And finally upload objects into source bucket
- This can be either file, images, videos.

## 5. TRANSFERRING OBJECTS



- Go to the upload and click on the add file option
- **Source bucket>objects upload add files**
- Select the required objects from the file manager present in the pc
- Then finally click upload



The screenshot shows the AWS S3 Management Console. A green success message at the top states "Upload succeeded" and "View details below." Below this, a summary table shows the destination bucket "s3://sourcebucket.s14" with one succeeded file (1 file, 8.6 KB) and zero failed files (0 files, 0 B). At the bottom, tabs for "Files and folders" and "Configuration" are visible.

- hence the statics of uploading objects was successful
- Now we can check objects has been added into the source bucket

## SOURCE BUCKET

The screenshot shows the AWS S3 Management Console for the bucket "sourcebucket.s14". The "Objects" tab is selected, displaying one object named "nature.jpeg" which is a jpeg file from September 25, 2023, at 12:42:45 (UTC+05:30), 8.6 KB in size, and stored in Standard storage class. The interface includes a toolbar with actions like Copy S3 URI, Copy URL, Download, Open, Delete, Actions, Create folder, and Upload, along with a search bar and version control options.

## DESTINATION BUCKET

The screenshot shows the AWS S3 console interface. The top navigation bar includes the AWS logo, a search bar, and tabs for Services, Metrics, Management, and Access Points. The main content area displays the 'Objects' tab for the bucket 'destinationbucket.s18'. A sub-header 'Objects (1)' is shown. Below it, a table lists the single object: 'nature.jpeg', which is a jpeg file uploaded on September 25, 2023, at 12:42:45 (UTC+05:30), with a size of 8.6 KB and a storage class of Standard. The table has columns for Name, Type, Last modified, Size, and Storage class. Action buttons like Copy S3 URI, Download, Open, Delete, Actions, Create folder, and Upload are available above the table. A search bar and a 'Show versions' button are also present.

- After objects uploaded in the source bucket
- At the same time same objects will be replicated into the destination bucket of Different AWS region
- By refreshing the destination bucket with in 10 to 15 sec the object get replicated
- Through this we found the cross-region replication of data in S3

### **3.2 ALGORITHM**

#### **STEPS TO CREATE & UPLOAD S3 BUCKET**

- Login to AWS management console
- Navigate to S3 in the AWS console
- Create a new bucket
- Select the bucket and choose upload tab
- Upload your files & folder by using drag and drop or manually
- If we want that data we can download from anywhere

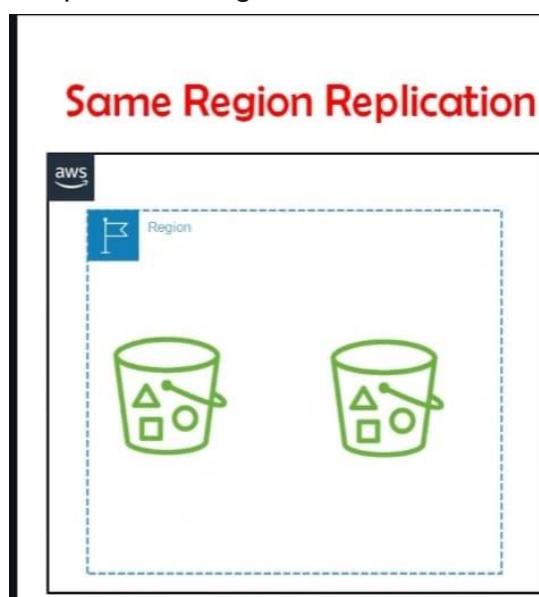
#### **STEPS TO AMAZON S3 REPLICATION**

- Login to AWS management console
- Navigate to S3 in the AWS console
- Create a source bucket and destination bucket in different regions
- Open source bucket and select management tab
- Create replication rule
- Select source bucket
- Select destination bucket (same or another account)
- Save the replication rule
- Upload the object in source bucket it replicate in destination bucket also

## 4. RESULT, DISCUSSION AND PERFORMANCE ANALYSIS

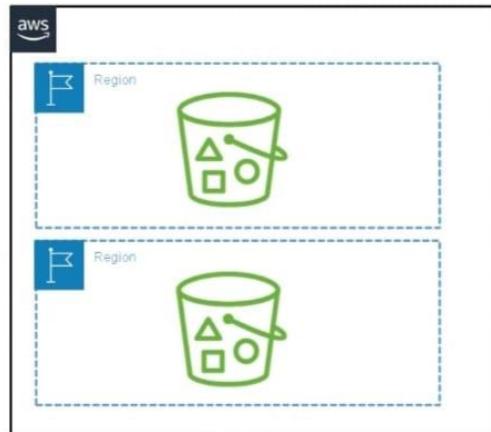
- Cross-region replication (CRR) in Amazon S3 is a feature that allows you to replicate objects from one S3 bucket in one AWS region to another S3 bucket in a different AWS region. This feature is commonly used for data redundancy, disaster recovery, and ensuring low-latency access to data in different regions. To perform a result and performance analysis of cross-region replication data in S3, you would typically consider this aspects: they are replication status monitoring, latency, data consistency etc. This Performance Tuning: Depending on your specific use case, you may need to fine-tune your replication configuration to optimize performance. This could involve adjusting the replication rules, choosing the right storage class in the destination region, or modifying the replication time control (RTC) settings. And To perform a comprehensive analysis, it's essential to monitor and evaluate these aspects continuously. AWS provides various tools and services to help you monitor and optimize your S3 cross-region replication setup effectively. This is done between 3 replications
- Same region replication
- Cros region replication
- Cros accounts replication

The following are replications regions



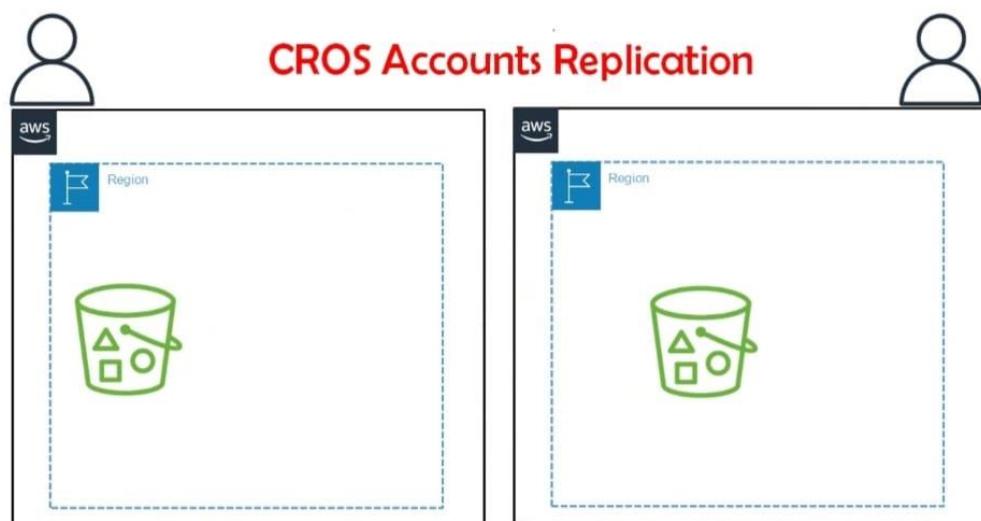
**Fig 4.1: same region replication**

## CROS Region Replication



*Fig 4.2: Cros region replication*

## CROS Accounts Replication



*Fig 4.3: Cros accounts replication*

## **5. SUMMARY AND CONCLUSION**

### **5.1 SUMMARY**

Cross-Region Replication (CRR) in Amazon S3 allows you to automatically copy data from one S3 bucket to another in a different AWS region. It's used for data redundancy, disaster recovery, compliance, and data locality. You configure replication rules, enable versioning, and manage permissions. CRR involves data transfer costs, offers monitoring tools, and ensures eventual consistency. It enhances data durability and availability, with options for failover and recovery in case of region-specific issues. Cross-region replication (CRR) in Amazon S3 is a feature that allows you to automatically replicate data from one S3 bucket to another in a different AWS region. Here's a summary of how it works and its key points:

- Data Redundancy: CRR is used for creating redundant copies of your data in a different geographic location for disaster recovery, compliance, or data locality reasons.
- Source and Destination Buckets: You set up a source bucket in one AWS region and a destination bucket in another AWS region. The source bucket contains the data you want to replicate.
- Replication rules: You define replication rules that specify which objects should be replicated. You can choose to replicate all objects or filter based on prefixes, tags, or other criteria
- Versioning: Both source and destination buckets must have versioning enabled. This ensures that all versions of objects are replicated.
- Permissions: permission for replication can be managed using buckets policies And IAM roles. Ensure that the necessary permission is in place for both bucket And associated resources.
- Data recovery: In case of a region-specific failure, you can switch to using the Destination bucket. This allows for data recovery and business continuity.

## 5.2 CONCLUSION:

Cross-region replication in amazon s3 is a robust data management solution that offers several key benefits.it enhance data durability by automatically replicating objects to a secondary region, providing protection against region-specific failures. Additionally, it enables compliance with data residency requirements and offers the flexibility to optimize data access and latency for users in different geographic locations. The cross-region replication in AWS is used to replicate the objects from the source bucket to the destination buckets. In the process, the duplicate file of the uploaded file is created in eh destination bucket. This ensures that the file is safe in the destination bucket, even if deleted. In detail, if the file uploaded in the source is deleted, it is not deleted in the destination bucket. in conclusion, cross-regionreplication in S3 is a valuable feature for organizations seeking to ensure data resilience, meet compliance needs, and optimize data access for a global user base. However, it's essential to carefully plan and configure replication policies to align with specific business goals and cost considerations.

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