Introduction

What is S3?

Amazon S3 (Simple Storage Service) is a scalable object storage service used for storing and retrieving any amount of data at any time. It organizes data into containers called “buckets.” Each bucket can store an unlimited number of objects, which are the fundamental entities stored in S3.

Understanding S3 Bucket structure

- Buckets: These are the top-level containers in S3. Each bucket has a unique name and is used to store objects.
- Objects: These are the files stored in a bucket. Each object is identified by a unique key (or ID) within the bucket.
- Object Keys: While S3 does not have a traditional file system hierarchy, it uses a flat namespace. The / character in object keys is used to simulate a directory structure, making it easier to organize and manage objects. However, these are not actual directories but part of the object’s key.

S3 Endpoint Access

Accessing S3 is similar to accessing any other web service over HTTP, which most users are already familiar with. The endpoint URL follows the same structure as a typical web address, making it straightforward to understand and use.

An S3 endpoint address typically looks like this: https://dnsname.com/bucket-name/object-key

- Endpoint: https://dnsname.com
- Bucket Name: bucket-name
- Object Key: object-key

For example, if you have a bucket named my-bucket and an object with the key folder1/file.txt, the S3 URL would be: https://dnsname.com/my-bucket/folder1/file.txt

IAM Key Pairs

To access and manage your S3 resources securely, you will use IAM (Identity and Access Management) key pairs instead of a traditional login and password. An IAM key pair consists of an Access Key ID and a Secret Access Key. These keys are used to authenticate your requests to AWS services:

- Access Key ID: this is similar to a username
- Secret Access Key: this is similar to a password and should be kept secure.

Unlike a traditional login and password, different IAM key pairs can be attached to different sets of permissions defined in their policy files. These policies control what actions the keys are allowed to perform, enhancing security by ensuring that each key pair has only the necessary permissions for its intended tasks.

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