Implementing Amazon S3 Storage on AWS

CREATING S3 BUCKETS

Reza Salehi
CLOUD CONSULTANT
@zaalion linkedin.com/in/rezasalehi2008

Overview

Globomantics is looking for an online storage

Introducing AWS Simple Storage Service (S3)

- Usage scenarios for S3

Data consistency model for S3

Provisioning S3 storage

- Creating a bucket, creating, updating and deleting objects
- For Amazon EC2

AWS S3 storage classes

Summary

Globomantics Is Looking for Online Storage

Storing any file

Images, videos, documents and installation files

Easy to use

Easy to setup, supports manual and automated provisioning

Fast and cheap

Fast retrieval times, economical storage cost

Introducing AWS Simple Storage Service (S3)

AWS Simple Storage Service (S3) is a storage option offered by Amazon for the Internet.

Storage for the Internet

Store and retrieve any amount of data, at any time, from anywhere on the web

Intentionally built with a minimal feature set that focuses on simplicity and robustness

Easily define public and private access rules

Highly scalable, reliable, fast, inexpensive data storage that Amazon uses to run its own global network of web sites

Usage Scenarios for S3

Build an infrastructure that hosts video, photo, or music uploads and downloads

Provide data backup and storage for other services such as EBS snapshots and AMI templates

Hosting static websites consisting of markup and client side scripts

Host your software application installers that clients can download

AWS S3 is an object storage, so it can not be used for software installation.

Data Consistency Model for Amazon S3

Create objects

Amazon S3 provides read-after-write consistency for PUTS of new objects in your S3 bucket

Update/delete objects

Amazon S3 offers eventual consistency for overwrite PUTS (updates) and DELETES in your S3 bucket

Provisioning S3 Storage

Sign up for Amazon S3

Create an S3 bucket. Choose a unique DNS-compliant name for your new bucket

Choose a Region for your bucket

Store objects in buckets and grant or deny access into your Amazon S3 bucket

S3 Regions

You might choose a region to optimize latency, minimize costs, or address regulatory requirements.

Objects stored in a region never leave the region unless you explicitly transfer them to another region.

S3 Buckets

A bucket is a container for objects stored in Amazon S3. Every object is contained in a bucket

They identify the account responsible for storage and data transfer charges

Access control rules can be applied to buckets

They serve as the unit of aggregation for usage reporting

S3 Objects

Objects are the fundamental entities stored in Amazon S3. Objects consist of object data and metadata

The metadata describe the object. Such as the date last modified or Content-Type

You can also specify custom metadata at the time the object is stored

A key is the unique identifier for an object within a bucket. Every object in a bucket has exactly one key

Demo

Provisioning AWS S3

- Creating an S3 bucket
- Creating, updating and deleting objects

Using AWS CLI to provision S3 storage

Reviewing S3 storage classes in the AWS Console

Using S3 Storage from Amazon EC2

```
aws s3 cp s3://mybucket/test.txt test.txt
aws s3 cp test.txt s3://mybucket/test2.txt
aws s3 cp s3://mybucket/test.txt s3://mybucket/test2.txt
```

Copying Files between S3 and EC2

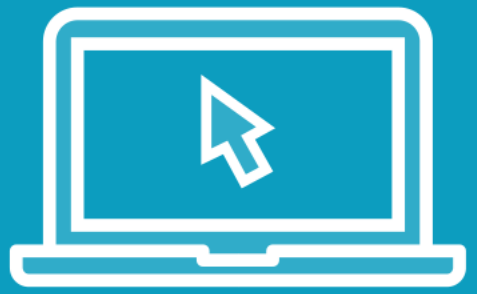
The “cp” command copies a Local File or S3 Object to another location locally or in S3

```
aws s3 sync s3://mybucket1 s3://mybucket2
aws s3 sync . s3://mybucket
aws s3 sync s3://mybucket .
```

Synching Files between S3 and EC2

The “sync” command recursively copies files from the source directory to the destination. Does not create empty folders

Demo



Provisioning AWS S3 for EC2

- Copying files from EC2 instance to S3
- Synching from EC2 to S3
- Public S3 access for public websites

S3 and AMIs

- Review list of AMIs in AWS Console

AWS S3 Storage Classes

AWS S3 Storage Classes

For Frequently Accessed Objects

For Infrequently Accessed Objects

Automatically Optimizes Frequently and Infrequently Accessed Objects

Storage Classes for Frequently Accessed Objects

This class is designed for performance-sensitive use-cases that require millisecond access time and frequently accessed data, two kinds

STANDARD: If you don't specify the storage class when you upload an object, Amazon S3 assigns this storage class

REDUCED_REDUNDANCY: for noncritical, reproducible data. Amazon recommends not to use this storage class

Storage Classes for Infrequently Accessed Objects

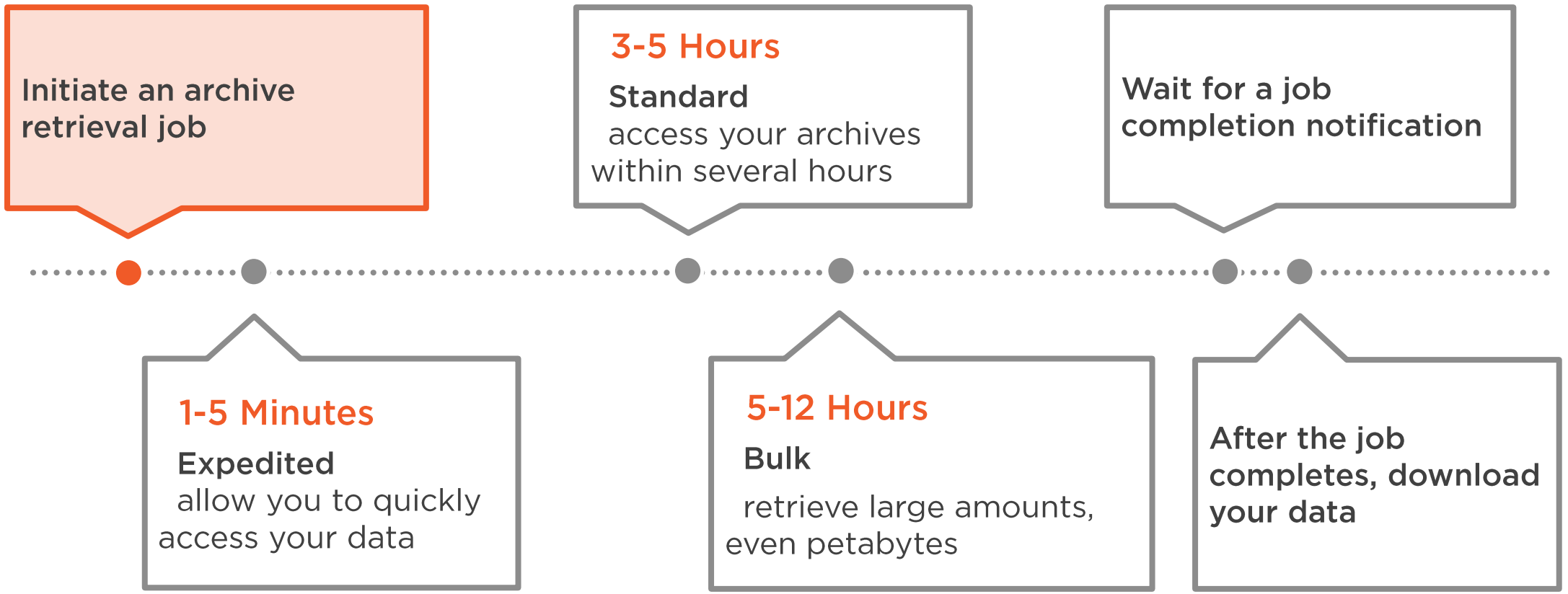
This class is designed for long-lived and infrequently accessed data, three kinds

STANDARD_IA: Stored redundantly across multiple geographically separated Availability Zones

ONEZONE_IA: Stored in only one Availability Zone, which makes it less expensive than STANDARD_IA

GLACIER: suitable for archiving data where data access is infrequent

Glacier Data Retrieval Process



INTELLIGENT_TIERING Class

Automatically Optimizes Frequently and Infrequently Accessed Objects

Optimizes storage costs by automatically moving data to the most cost-effective storage access tier

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- AWS CLI

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