

# **Assignment 1: Hosting a Static Website on AWS S3**

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**Table of Contents**

**Table of Contents ..... 2**

**Assignment 1 - Hosting a Static Website on AWS S3 ..... 3**

**Part 1 - Practical - Hosting Static Website ..... 3**

    Description .....3

    Preparation .....3

    Observations .....3

    Screenshots .....5

    Reflection .....8

**References ..... 8**

**Part 2 - Theory - Cloud Implementation Report ..... 9**

**1. Key Concepts and Implementation: ..... 9**

**2. Graphical Illustration of Hosting Approach: ..... 9**

**3. Service and Cost Analysis: ..... 10**

**4. Administrator Control: ..... 10**

**5. Versioning Concept: ..... 11**

**6. Explanation of Key Concepts: ..... 11**

**7. Summary of Deliverables:..... 12**

## Assignment 1 - Hosting a Static Website on AWS S3

### Part 1 - Practical - Hosting Static Website

#### Description

This section of the lab aims to run a simple, static website using Amazon Web Services (AWS) Simple Storage Service (S3). The study will illustrate essential cloud computing principles such as global reach, cost-effectiveness, and low downtime while also assuring that the hosted website is available worldwide.

This task involves develop two web pages for the website, upload them to an AWS S3 bucket, and set up the bucket to host static websites.

#### Preparation

To start the lab, I made sure I had access to the following tools and resources:

**AWS Account:** I signed into my AWS account to use the S3 service.

**Website Files:** I used two HTML pages template (index.html) to serve as static content for the website.

**Bucket permissions:** I ensured that the S3 bucket's rights were set correctly, allowing public access to the hosted files.

#### Observations

##### 1. Creating an S3 bucket.

- A new Amazon S3 bucket was created, with a globally unique name.
- The bucket options included the option to host static websites.
- The "Block all public access" option has been updated to allow users to browse the hosted website.

##### 2. Uploading Website Files.

- Two HTML files, index.html and about.html, were uploaded to the S3 bucket.
- Additionally, pictures and CSS files were uploaded.
- S3 automatically assigned the correct MIME types.

**3. Configure Bucket Permissions**

- An S3 bucket policy was created to let the public read access to the files.
- The policy was thoroughly evaluated to verify that the site remained accessible without disclosing sensitive information.

**4. Accessing the Website:**

- After successful configuration, the static website is available through the S3 public URL:
- Checked that all website pages loaded properly in a web browser.

**5. Solution Architecture Diagram.**

- A simplified architecture diagram was constructed to demonstrate the hosting strategy.
- The figure showed how the S3 bucket, website URL, and end users interact in the hosting environment.

**6. Performance and Cost Considerations.**

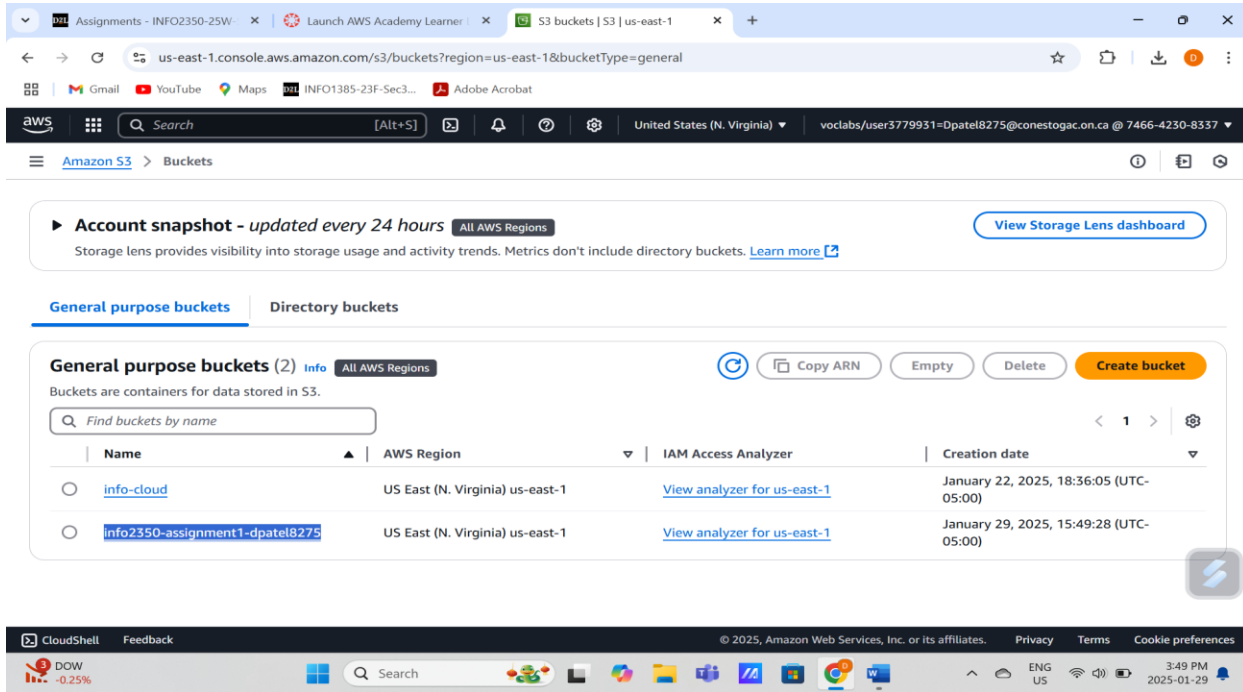
- The S3 static website appeared to load rapidly, indicating excellent availability and low latency.
- Cost-effectiveness was achieved by exploiting AWS's pay-as-you-go paradigm, which avoided unneeded server maintenance costs.

**7. Troubleshooting Issues**

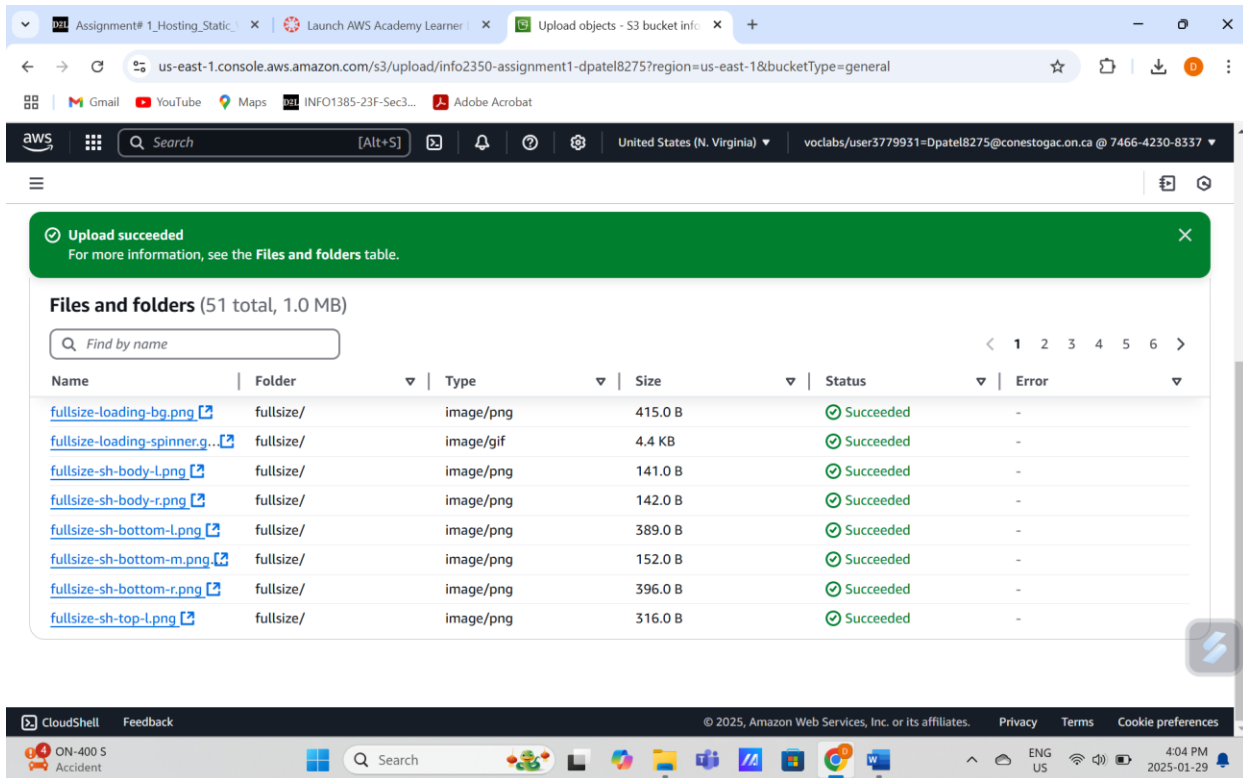
- Initially, access to the website was restricted due to the default public access block configuration. This issue was handled by upgrading the bucket policy.

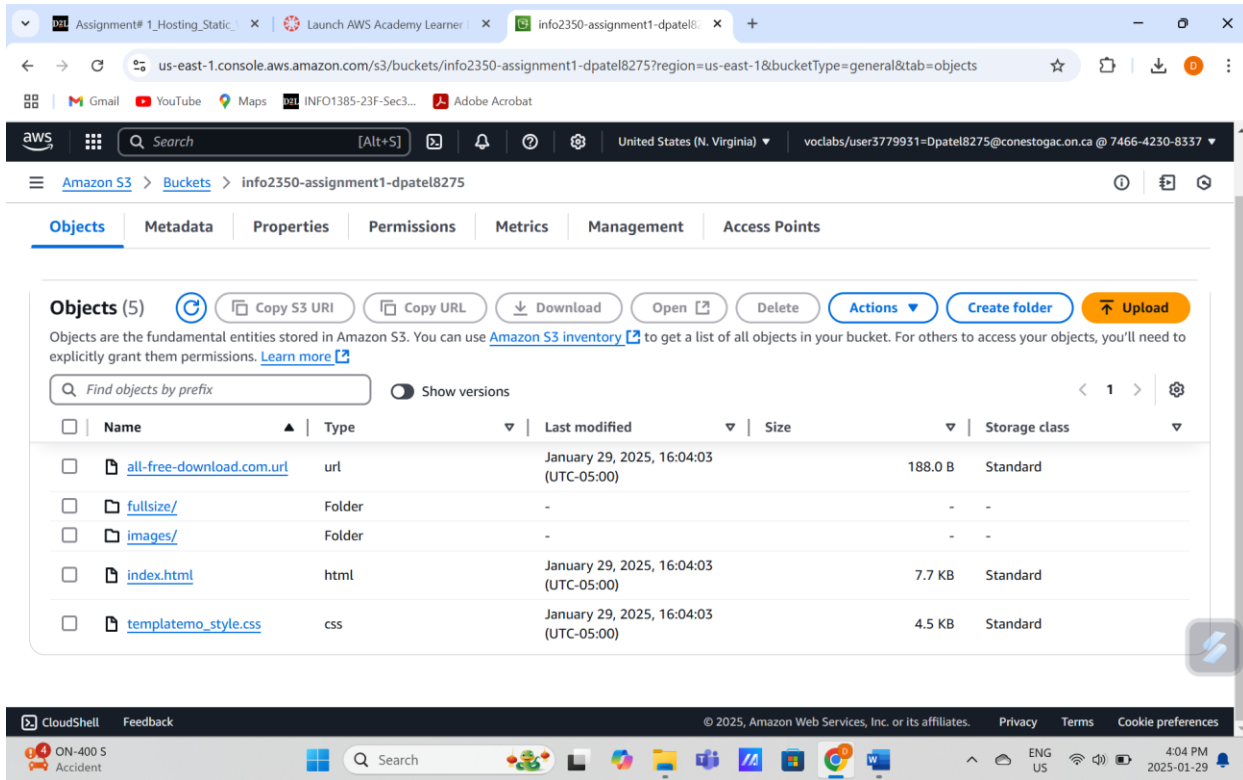
### Screenshots

- **S3 Bucket creation.**

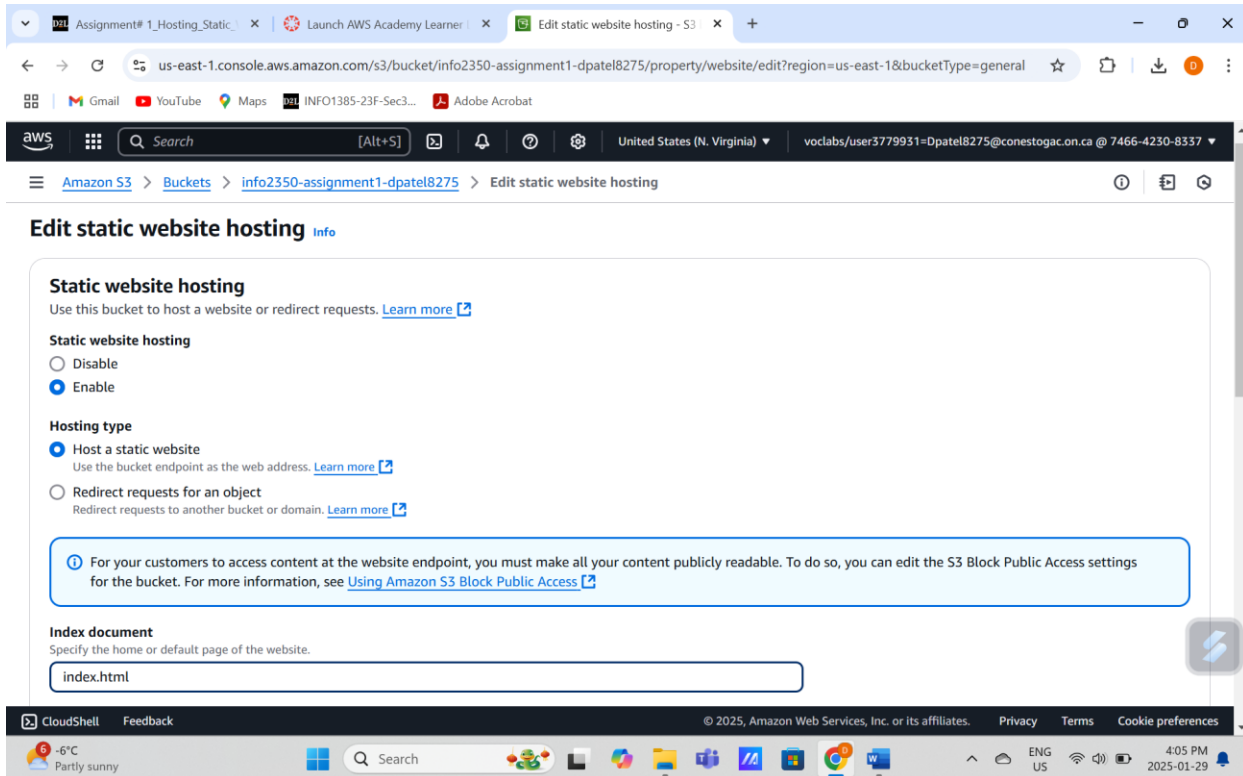


- **Uploaded Website Files in S3.**

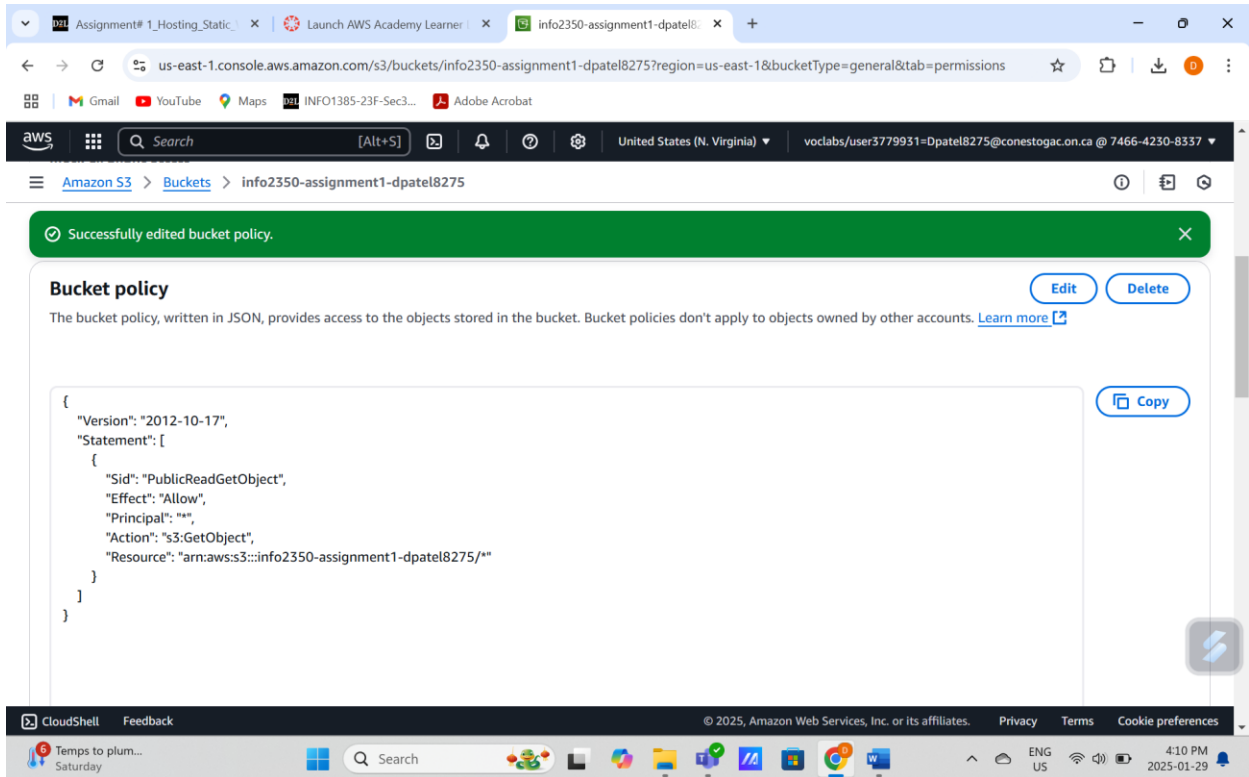




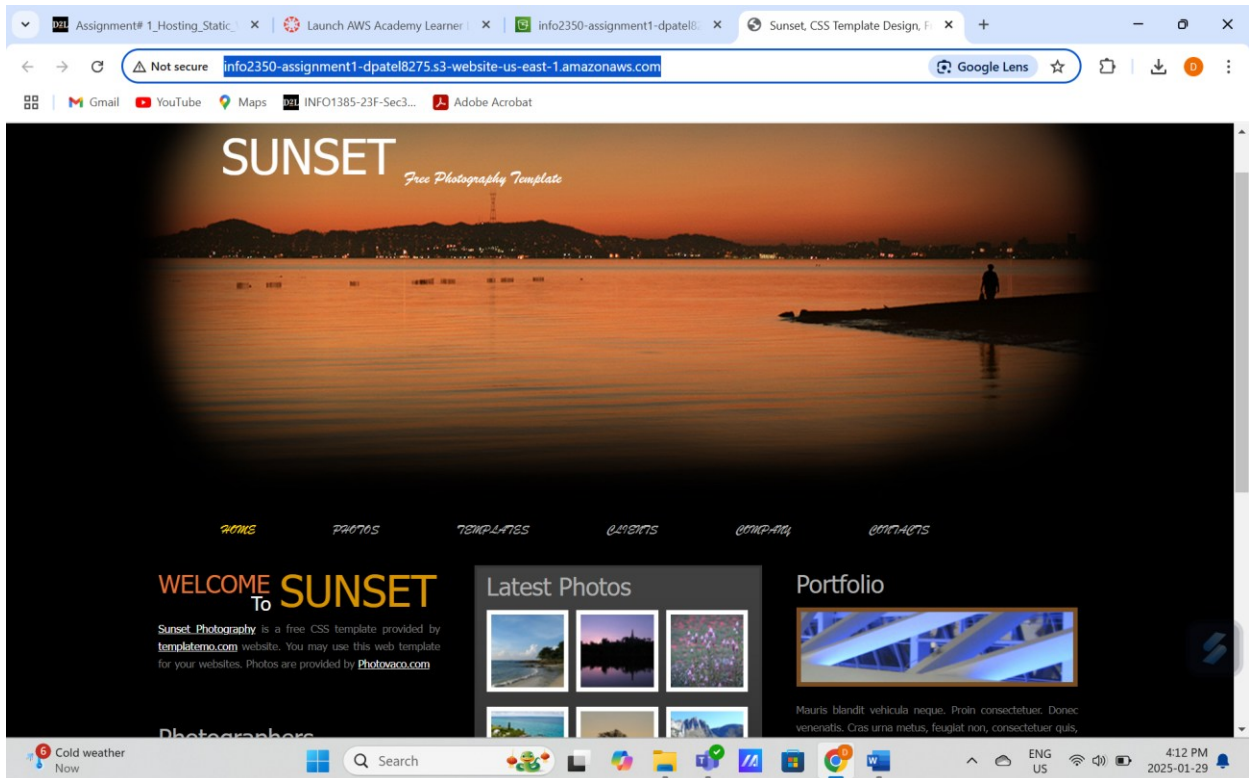
- **Enabled Static Website Hosting.**



- **Bucket Policy Configuration.**



- **Live Website in Browser.**



### Reflection

This lab provides hands-on experience hosting a static website on Amazon S3, emphasizing its simplicity, cost-effectiveness, and worldwide accessibility.

#### **Key Takeaways:**

**Easy Hosting:** S3 eliminates the need for server maintenance, making static website setup simple.

**Security Configurations:** Changing bucket policies was critical for allowing public access while retaining security.

**Performance and cost:** The website was internationally accessible with minimum latency and affordable hosting costs thanks to AWS's pay-as-you-go architecture.

**Architecture and Best Practices:** Creating a solution diagram helped to visualize the process and underlined the importance of structured cloud deployment.

This experiment demonstrated the benefits of cloud-based hosting, namely how AWS S3 provides a scalable, efficient, and secure option for static web pages.

#### **References**

Amazon S3 Documentation: <https://docs.aws.amazon.com/s3>

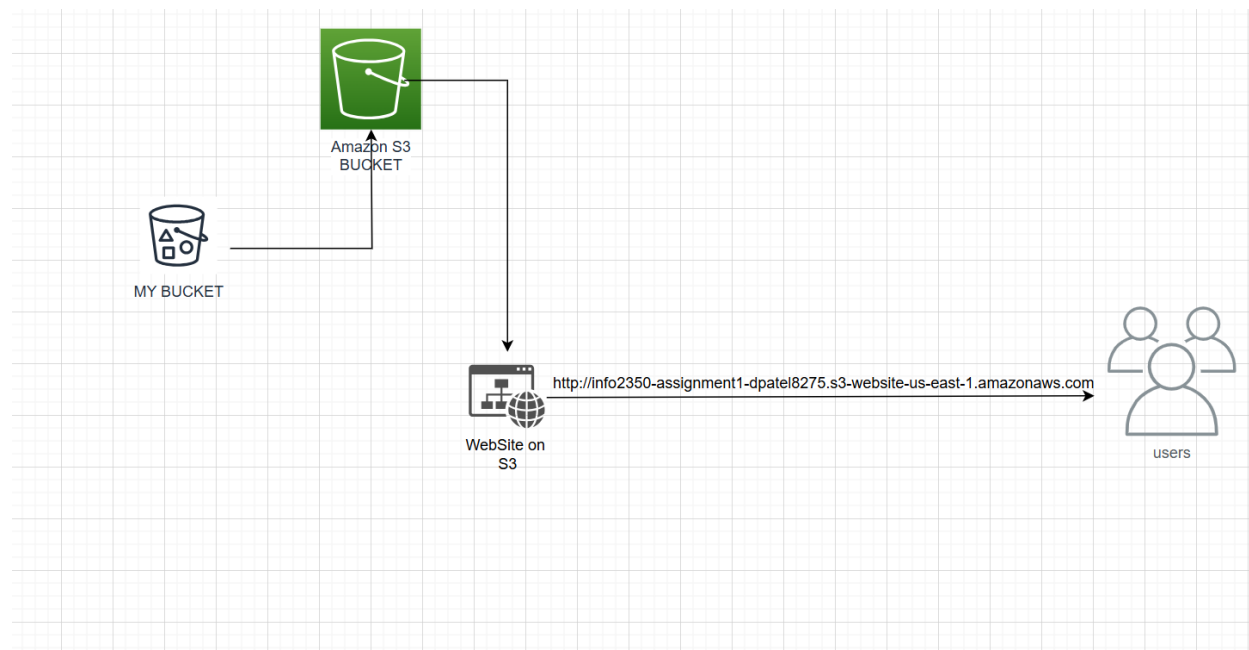
## Part 2 - Theory - Cloud Implementation Report

### 1. Key Concepts and Implementation:

#### Definition of Cloud Computing:

Cloud computing is the on-demand delivery of computing services such as storage, processing power, and databases via the internet, also known as "the cloud." It enables businesses and individuals to access resources without the need to own or maintain physical hardware. This allows for scalability, flexibility, cost efficiency, and high availability. In this lab, cloud computing principles are used to host a website on AWS S3, which provides global access and scalability.

### 2. Graphical Illustration of Hosting Approach:



- **My bucket (source storage).**

This is the S3 bucket where all static website files (HTML, CSS, JavaScript, pictures, etc.) are kept.

- **Amazon S3 Bucket (Hosting).**

This is the main S3 bucket set up for static website hosting.

The website's content is served via an auto-generated S3 URL (e.g., <http://info2350-assignment1-dpatel8275.s3-website-us-east-1.amazonaws.com>).

- **Website in S3**

This is the actual hosted webpage, served directly from S3.

Users can access it via the S3 public endpoint.

- **Users (Global Accessibility).**

Users from various locations visit your static website.

The website should be optimized for worldwide reach to reduce latency.

### 3. Service and Cost Analysis:

- **Service Type:** Storage as a Service. S3 offers object storage in which static files (such as HTML, CSS, and JavaScript) can be stored and retrieved using HTTP.
- **Cost Analysis:** S3 price depends on storage, requests, and data transport.

### 4. Administrator Control:

As an administrator, one has numerous options for managing the hosted website:

**Upload and Manage Files:** Users can upload, delete, and edit website files straight from the S3 bucket.

**Set Permissions:** Users can limit public access to the bucket by making just particular files available to the public.

### 5. Versioning Concept:

Versioning in AWS S3 enables the storage of many versions of an object (file) in the same bucket. When a new version is uploaded, the previous version is not overwritten; rather, a new version is created.

#### **This enables you to:**

- If the most recent update fails, revert to an earlier version of the file.
- Keep backups of prior website versions for reference or rollback. This is very important in reducing downtime due to mistakes encountered in new versions.

### 6. Explanation of Key Concepts:

In this section, this should explain some crucial principles that were included in the hosting process:

- **S3 Static Website Hosting:** This functionality allows an S3 bucket to deliver static files including HTML, CSS, JavaScript, and pictures via HTTP. It is configured by enabling the bucket's static website hosting option.
- **S3 Permissions:** For a static website, the right permissions must be configured to ensure that the files are publicly available. To set rights on objects in a bucket, utilize bucket policies or ACLs (Access Control Lists).

**7. Summary of Deliverables:**

- **A functional static website hosted on AWS with a verifiable URL.**  
<http://info2350-assignment1-dpatel8275.s3-website-us-east-1.amazonaws.com>
- **Architecture diagram for the solution.**

