

STATIC WEBSITE DEPLOYMENT ON AWS S3

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1. Abstract

This research paper covers architectural guidance for developing, deploying, and managing web page Deployment on Amazon Web Services (AWS) – S3 for keeping operational simplicity and business requirements in mind. We also recommend an approach that provides insignificant cost of operation, little or no management required, and a highly scalable, and reliable web page. This research paper first reviews how web page are hosted in traditional hosting environments. Then, we explore a simpler and more cost-efficient approach using Amazon Simple Storage Service (Amazon S3). Also this abstract provides an overview of deploying a website on Amazon Web Services (AWS) Simple Storage Service (S3). AWS S3 offers cost-effective and highly available object storage, making it an ideal choice for website hosting. The abstract covers key steps such as domain registration, configuring S3 bucket permissions, and setting up S3 bucket. It also discusses the benefits of using additional AWS services like S3, etc. Best for optimizing performance, ensuring availability, and handling potential challenges are addressed, along with monitoring and maintenance recommendations. This abstract serves as a concise guide for deploying websites on AWS S3, enabling users to establish a reliable online presence.

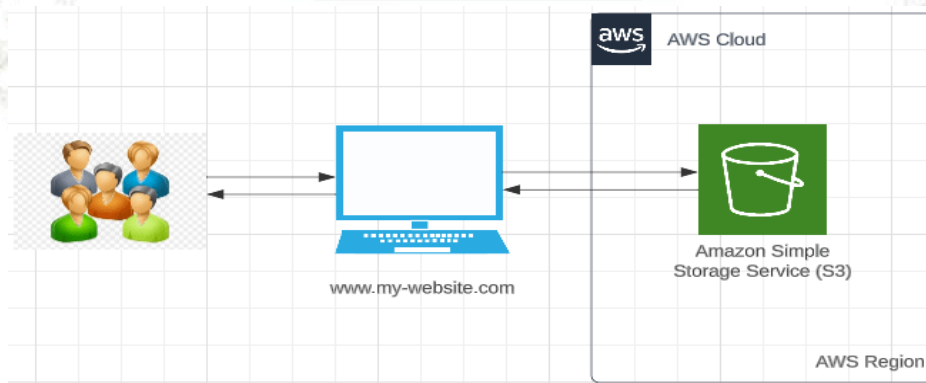
2. Introduction

Website deployment is a critical step in establishing an online presence, and Amazon Web Services (AWS) provides a robust and scalable infrastructure for hosting websites. Among the various AWS services available, Simple Storage Service (S3) stands out as a cost-effective and highly reliable option for hosting static websites. This introduction provides an overview of deploying websites on AWS S3, highlighting its advantages and key considerations.

Advantages of AWS S3 for Website Deployment: AWS S3 offers several advantages that make it an attractive choice for hosting websites. Firstly, it provides durability and availability, ensuring that website content is securely stored and accessible at all times. S3's data redundancy and automatic scaling features enable seamless website performance, even during high traffic periods. Additionally, AWS S3 integrates well with other AWS services, allowing users to leverage a comprehensive suite of tools for enhanced functionality and management.

Implementing appropriate access controls and permissions for the S3 bucket is essential for securing website content. AWS Identity and Access Management (IAM) can be used to define granular access policies, allowing only authorized individuals or systems to modify or retrieve data from the S3 bucket.

3. Module Architecture



4. Methodology

The methodology for website deployment on AWS S3 primarily revolves around utilizing the features and capabilities offered by AWS S3. The following steps outline the process:

1. Domain Registration: Acquire a domain name from a domain registrar of your choice.
2. S3 Bucket Creation: Create an S3 bucket within the AWS Management Console or via AWS CLI/API. This bucket will serve as the storage location for your website files.
3. Bucket Configuration: Configure the S3 bucket settings, including enabling static website hosting, defining the default index document, and configuring error handling.
4. Upload Website Files: Upload your website files, including HTML, CSS, JavaScript, and any other assets, to the S3 bucket. Organize the files into appropriate directories or folders.
5. Bucket Permissions: Set the appropriate permissions on the S3 bucket to control access to the website content. This includes configuring bucket policies, access control lists (ACLs), and IAM roles if necessary.
6. Content Delivery: Optionally, integrate AWS CloudFront with the S3 bucket to improve content delivery performance through caching and global distribution. Configure CloudFront with the S3 bucket as the origin.
7. DNS Configuration: Configure DNS settings to associate the domain name with the S3 bucket or CloudFront distribution. This can be done using AWS Route 53 or any other DNS management service.
8. SSL/TLS Certificate: Enable HTTPS communication for secure browsing by obtaining an SSL/TLS certificate. This can be done through AWS Certificate Manager or by importing a third-party certificate.
9. Testing and Verification: Test the website by accessing the domain name in a web browser. Verify that the website loads correctly, including all assets and functionality.

By following this methodology, users can successfully deploy a website on AWS S3, taking advantage of its reliable storage, scalability, and integration capabilities.

Software Requirements:

- I. **AWS Management Console:** Access to the AWS Management Console is essential for managing and configuring AWS services, including S3.
- II. **Text Editor or Integrated Development Environment (IDE):** A text editor or IDE is necessary for writing and editing website code. Popular options include Visual Studio Code, Sublime Text, Atom, or any other preferred editor that supports HTML, CSS, and JavaScript

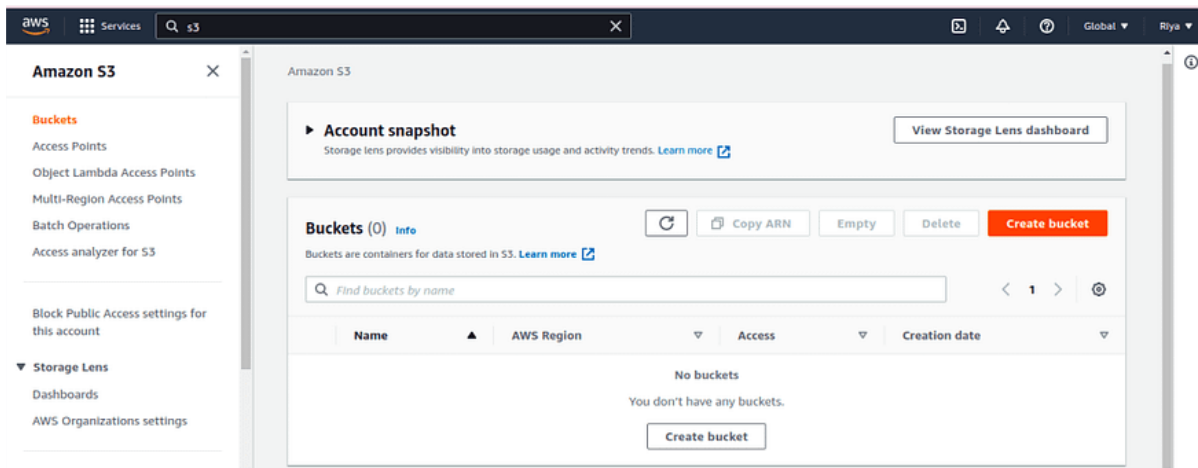


Fig 1] Creating bucket in AWS S3

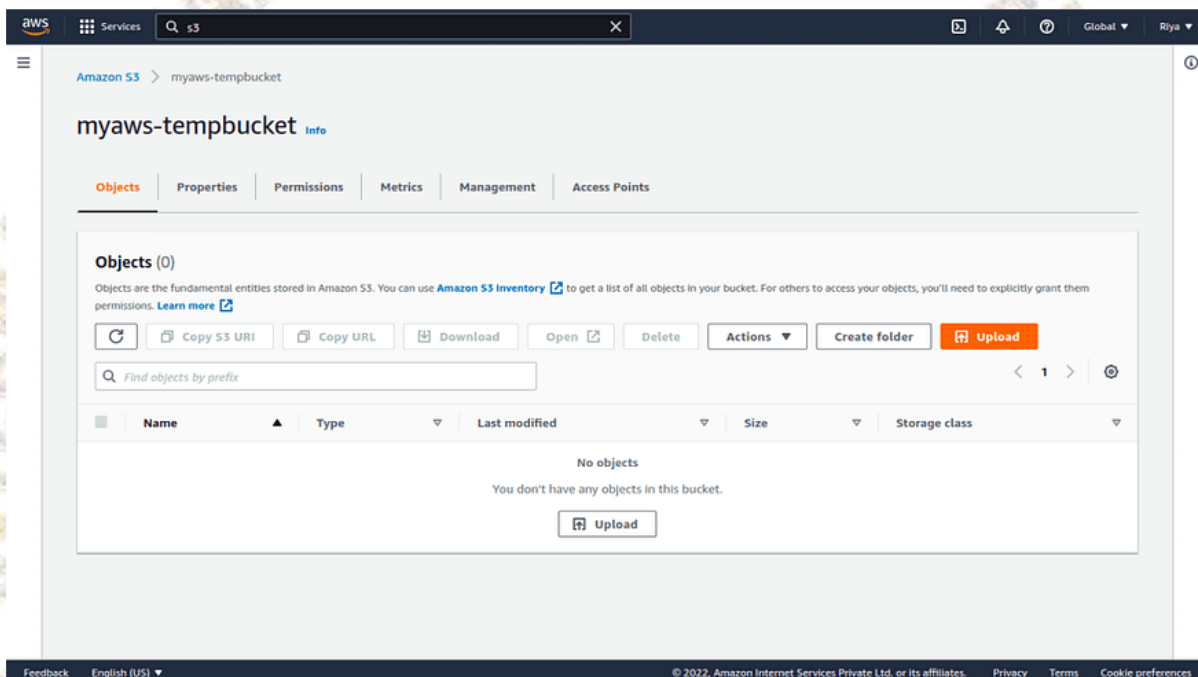


Fig 2] Uploading files into bucket

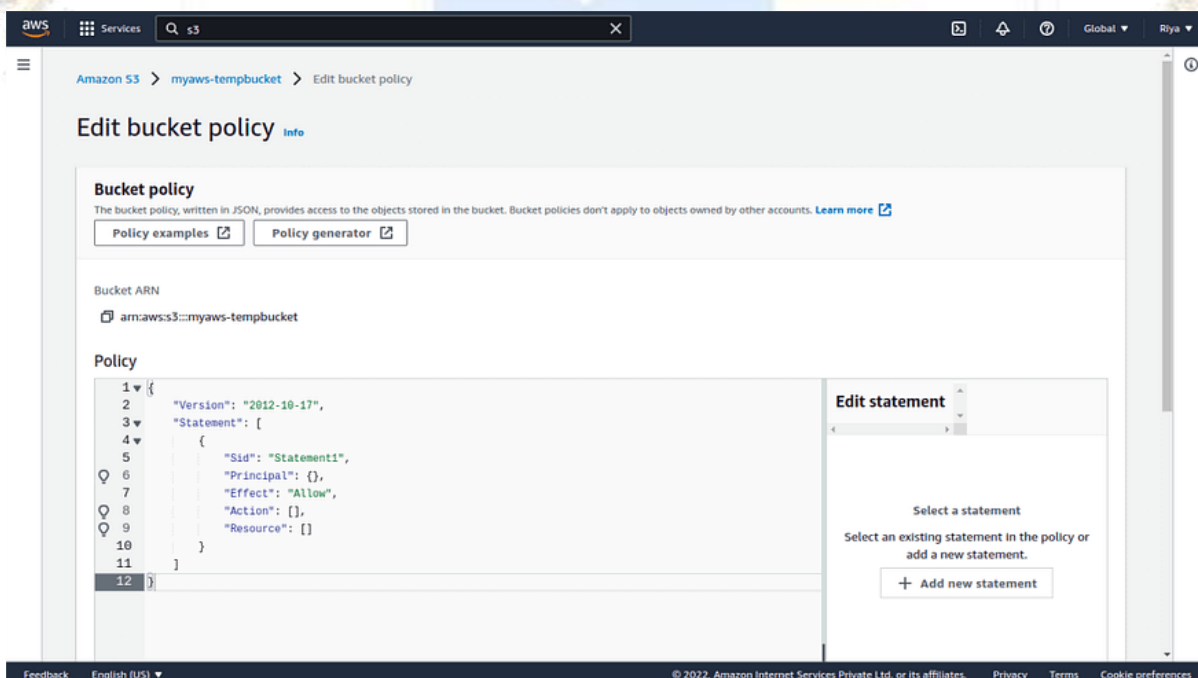
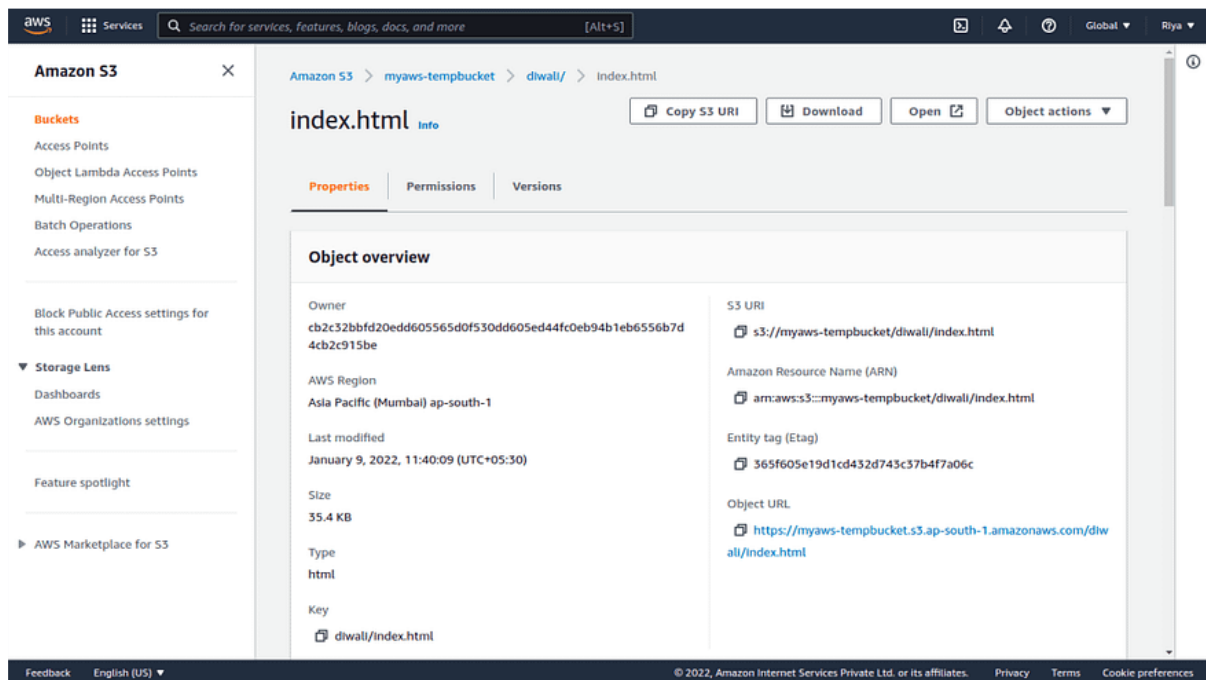


Fig 3] Bucket Policy



Fif 4] Hosting on AWS S3

5.Future Scope

The future scope of website deployment on AWS S3 is promising, with several potential advancements and opportunities. As technology evolves, AWS is likely to introduce new features and enhancements to S3, further improving its capabilities for website hosting. This may include more advanced caching mechanisms, enhanced security features, and integration with emerging technologies such as serverless computing or edge computing. Additionally, with the growing demand for cloud-based solutions, AWS S3 is expected to continue expanding its global infrastructure, offering more edge locations for improved content delivery. As the need for scalable and reliable website hosting solutions increases, the future of website deployment on AWS S3 looks bright, providing businesses and individuals with even more efficient and robust options for establishing their online presence.

6.CONCLUSION

In conclusion, deploying a website on AWS S3 offers numerous benefits, including cost-effectiveness, reliability, and scalability. AWS S3 provides a user-friendly and robust platform for hosting static websites, allowing users to leverage features such as domain registration, content delivery optimization through CloudFront, and integration with other AWS services. By following the recommended best practices and considering factors such as performance optimization and security, users can ensure a seamless and secure online presence. With its continuous innovation and the potential for future advancements, AWS S3 remains a compelling choice for website deployment, enabling individuals, businesses, and organizations to establish and maintain a reliable and scalable online presence.

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