Abstract

This project demonstrates the successful deployment of a globally accessible and highly available webpage using Amazon Web Services (AWS). The static content of the webpage is hosted on Amazon S3, while Amazon CloudFront ensures fast, low-latency delivery by caching content at global edge locations. Terraform was employed as an Infrastructure as Code (IaC) tool to automate the creation and management of resources, ensuring scalability, consistency, and reduced manual errors. Key optimizations include the implementation of caching policies, secure access through Origin Access Identity (OAI), and HTTPS enforcement to protect user data.

Feedback received during earlier phases led to simplifications, such as removing Route 53 for DNS management to streamline the architecture and improve cost-efficiency. Testing confirmed global accessibility, secure content delivery, and low latency, making the webpage suitable for future enhancements. Potential improvements include integrating a custom domain using Route 53, enabling monitoring with AWS CloudWatch, and adding dynamic features through AWS Lambda.

This project highlights AWS's capability to deliver reliable, scalable, and secure cloud-based solutions while demonstrating the importance of automation, performance optimization, and security in cloud infrastructure.

Keywords: AWS, Amazon S3, CloudFront, Terraform, scalability, high availability, security, global accessibility.