Scalable Static Website with S3 + GitHub Actions + Cloudflare

Introduction

This project demonstrates the deployment of a scalable static website using AWS S3, GitHub Actions, and Cloudflare (optional for custom domains). The goal was to automate deployment with global CDN distribution and HTTPS security at minimal or no cost.

Abstract

The project showcases an automated CI/CD pipeline where commits to GitHub trigger deployment of static files to an AWS S3 bucket. For custom domains, Cloudflare can provide SSL and caching. This approach ensures a highly available, cost-effective, and globally distributed static site deployment.

Tools Used

- AWS S3 (Free Tier) – for static website hosting
- GitHub Actions – for CI/CD pipeline
- Cloudflare (Optional) – for CDN, DNS, SSL/HTTPS
- HTML/CSS – static website content
- Bash – automation scripting

Steps Involved in Building the Project

1. Created a static HTML/CSS website and pushed to GitHub.
2. Configured GitHub Actions workflow to deploy files to AWS S3.
3. Enabled S3 static website hosting.
4. (Optional) Integrated Cloudflare for custom domain, SSL, and caching.
5. Tested deployment and validated auto-updates on each GitHub commit.

Conclusion

The project successfully achieved automated deployment of a scalable static website using AWS S3 and GitHub Actions, with optional Cloudflare integration for custom domain and SSL. This approach delivers a reliable, cost-effective, and globally distributed hosting solution with minimal configuration effort.