aws certified

Solutions Architect

ASSOCIATE

PROJECT TITLE

DEPLOY-STATIC-WEBSITE-ON-S3-BUCKET-AND-CONFIGURE-CLOUDFRONT-DISTRIBUTION

NAME: SANDHYA

CERTIFICATION: AWS SOLUTIONS ARCHITECT: SAA C03

VALIDATION NUMBER:BB8SQRWBQJR11193

INTRODUCTION

Hello, I’m Sandhya, a certified Solutions Architect with hands-on experience in AWS foundational services and Infrastructure Management. I’ve successfully completed certifications in AWS (SAA-C03), Azure (AZ-104), and DevOps (AZ-400), which have equipped me with a robust understanding of cloud technologies and best practices.

During my certification labs, I’ve honed my skills in deploying and managing scalable, secure, and resilient infrastructure. One of my capstone projects involved creating a static website hosted on an Amazon S3 bucket, which I integrated with Amazon CloudFront. This setup ensured low latency access, high availability, and enhanced security for the website. Additionally, I implemented AWS WAF to protect the web application from common web exploits, demonstrating my commitment to building secure cloud solutions.

As a Solutions Architect, I’m passionate about leveraging cloud technologies to solve complex business challenges and drive innovation. I’m looking forward to discussing how my skills and experiences align with the needs of your organization.

PROBLEM STATEMENT & PROPOSED SOLUTION

An organization requires a solution for hosting a static web page that ensures firewall protection, failover capabilities, geographical restrictions, and low latency access. The current infrastructure lacks the necessary security measures, redundancy, and global accessibility, leading to potential security breaches, downtime, and slow website performance. To address these concerns, the organization needs a comprehensive hosting solution that can provide robust firewall protection, automatic failover mechanisms, the ability to enforce geographical restrictions for access, and ensure low latency access to the web page for users worldwide.

To address the challenges outlined in the problem statement, the following AWS services can be used to create a secure, resilient, and globally accessible hosting solution for a static web page:

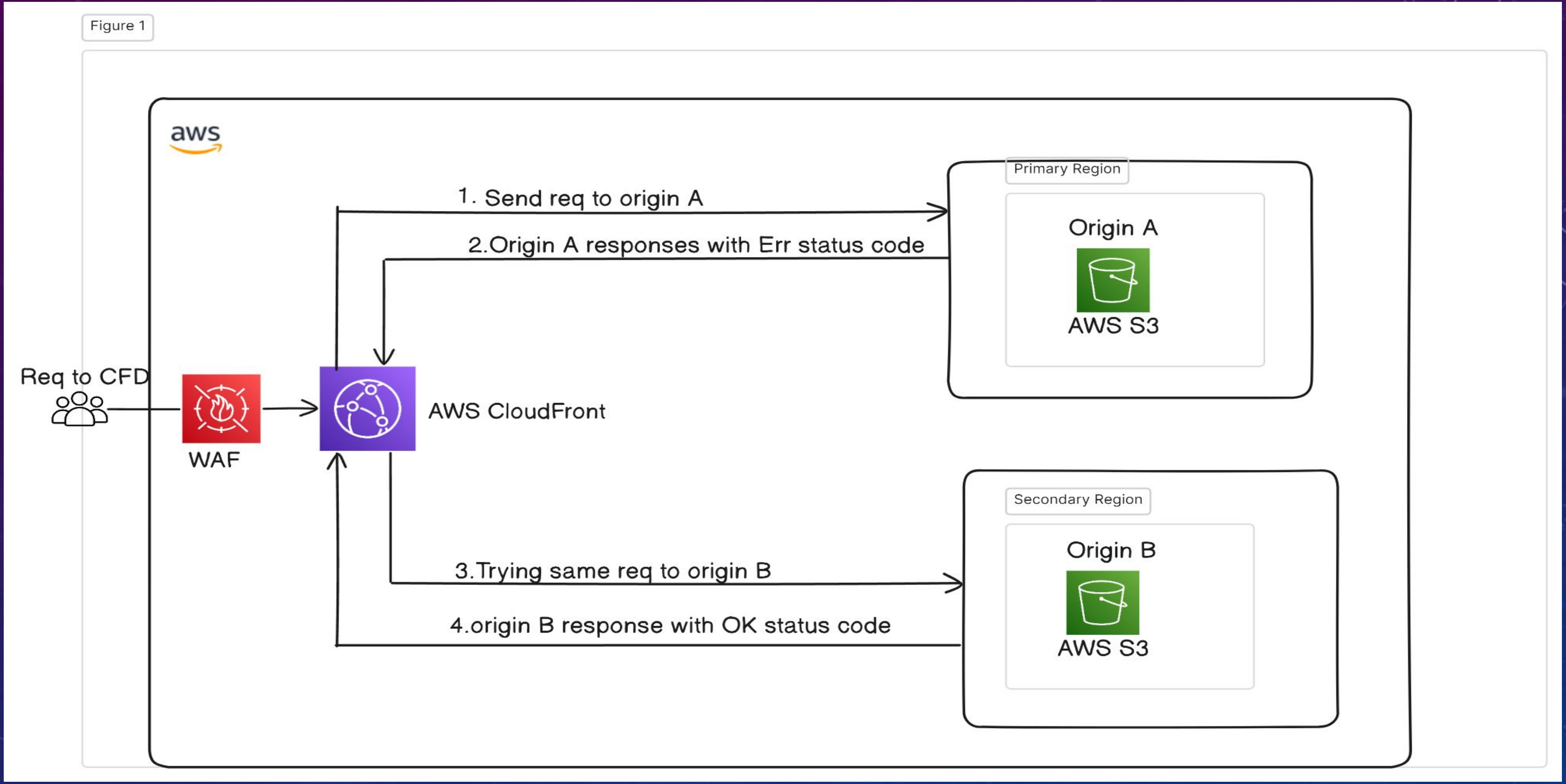
Amazon S3: Hosts the static content of the web page and provides high durability and availability.

AWS WAF (Web Application Firewall): To protect the web page from common web exploits. Protects against common web attacks by controlling incoming and outgoing traffic

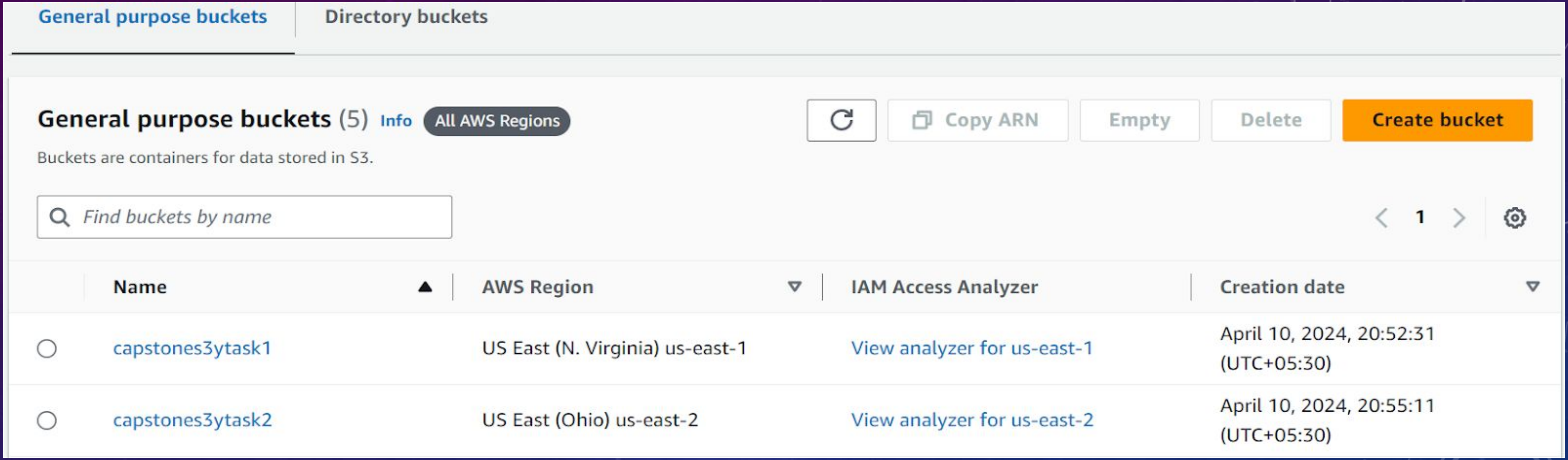
Amazon CloudFront: To distribute the content globally, ensuring low latency and implementing geographical restrictions. A content delivery network (CDN) that caches content at edge locations, ensuring low latency access globally.

Benefits: Enhanced Security, Improved Performance, Increased Reliability, Reduced Bandwidth Costs.

ARCHITECTURAL DIAGRAM



CREATING S3 BUCKETS & UPLOADED INDEX.HTML



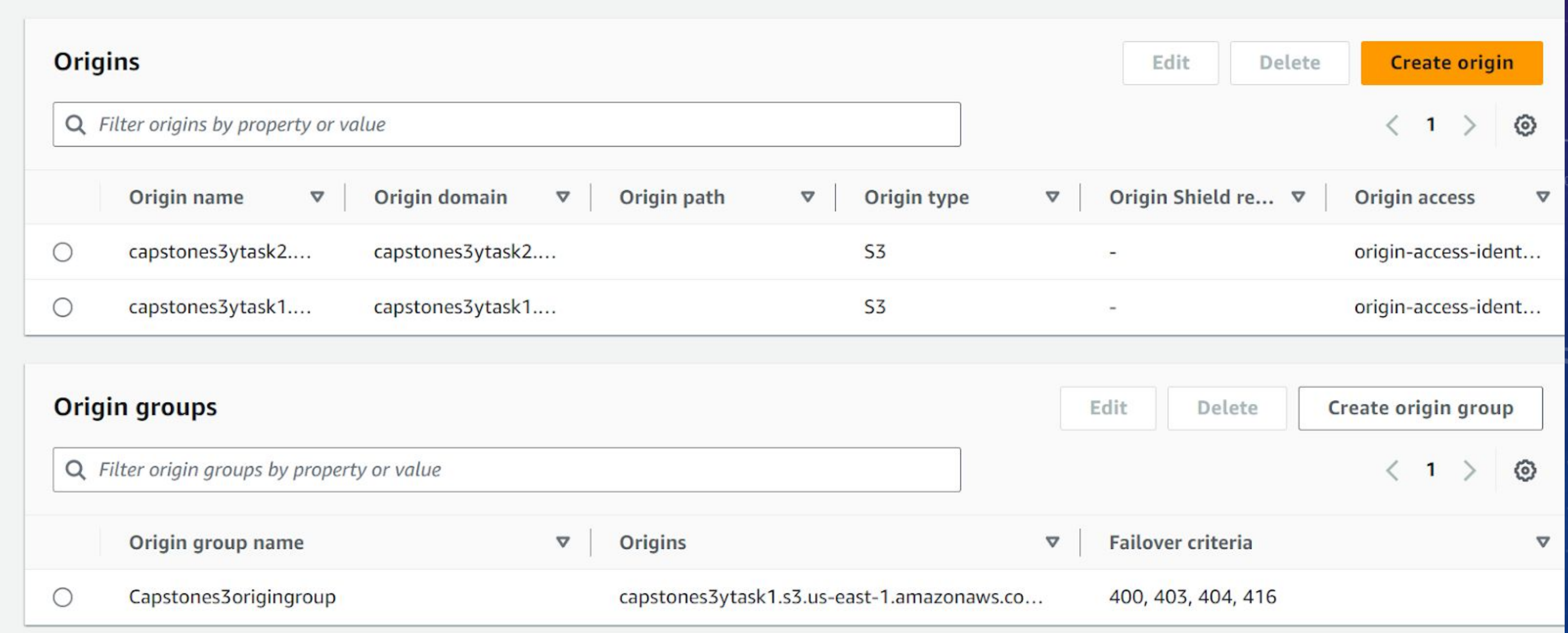
General purpose buckets (5) Info All AWS Regions

Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
○	capstones3ytask1	US East (N. Virginia) us-east-1	View analyzer for us-east-1	April 10, 2024, 20:52:31 (UTC+05:30)
○	capstones3ytask2	US East (Ohio) us-east-2	View analyzer for us-east-2	April 10, 2024, 20:55:11 (UTC+05:30)

CREATE A CLOUDFRONT DISTRIBUTION

Create 2 Origin access Identities & origin group name. One for Primary bucket and the other one for secondary bucket.



Origins

Edit
Delete
Create origin
Filter origins by property or value
1

	Origin name	Origin domain	Origin path	Origin type	Origin Shield re...	Origin access
○	capstones3ytask2....	capstones3ytask2....		S3	-	origin-access-ident...
○	capstones3ytask1....	capstones3ytask1....		S3	-	origin-access-ident...

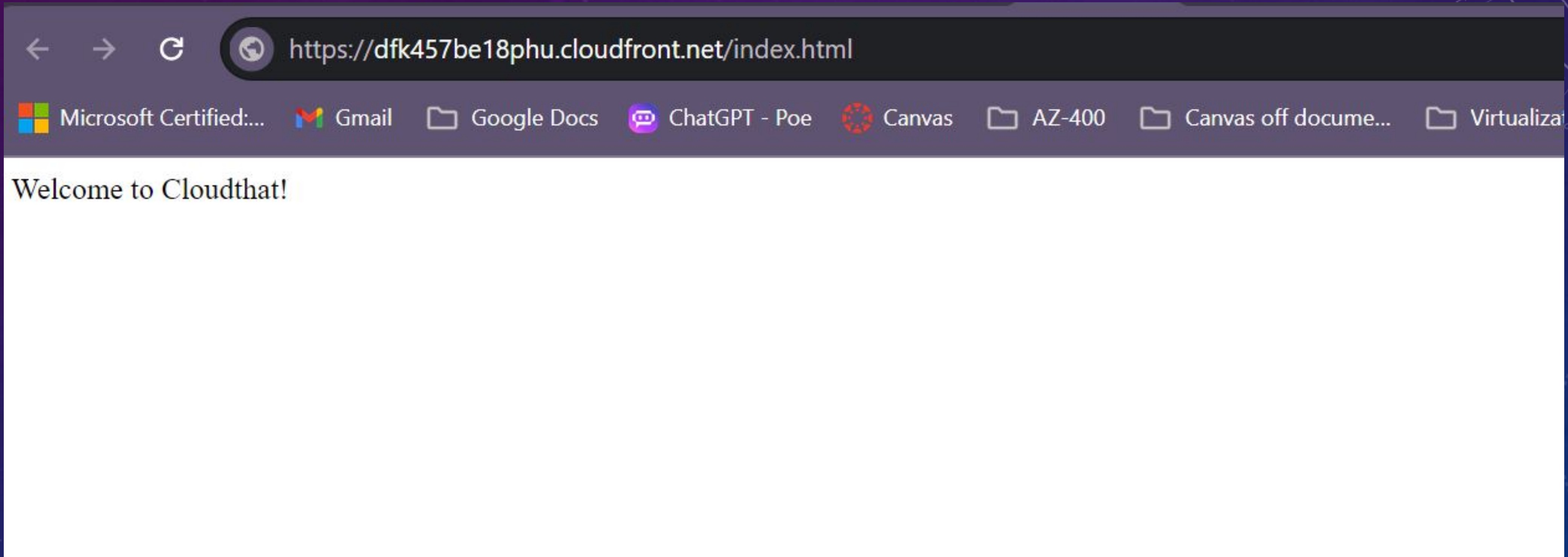
Origin groups

Edit
Delete
Create origin group
Filter origin groups by property or value
1

	Origin group name	Origins	Failover criteria
○	Capstones3origingroup	capstones3ytask1.s3.us-east-1.amazonaws.co...	400, 403, 404, 416

TEST THE FAILOVER

Paste domain name in browser and add /index.html in front of domain name.
You will observe website

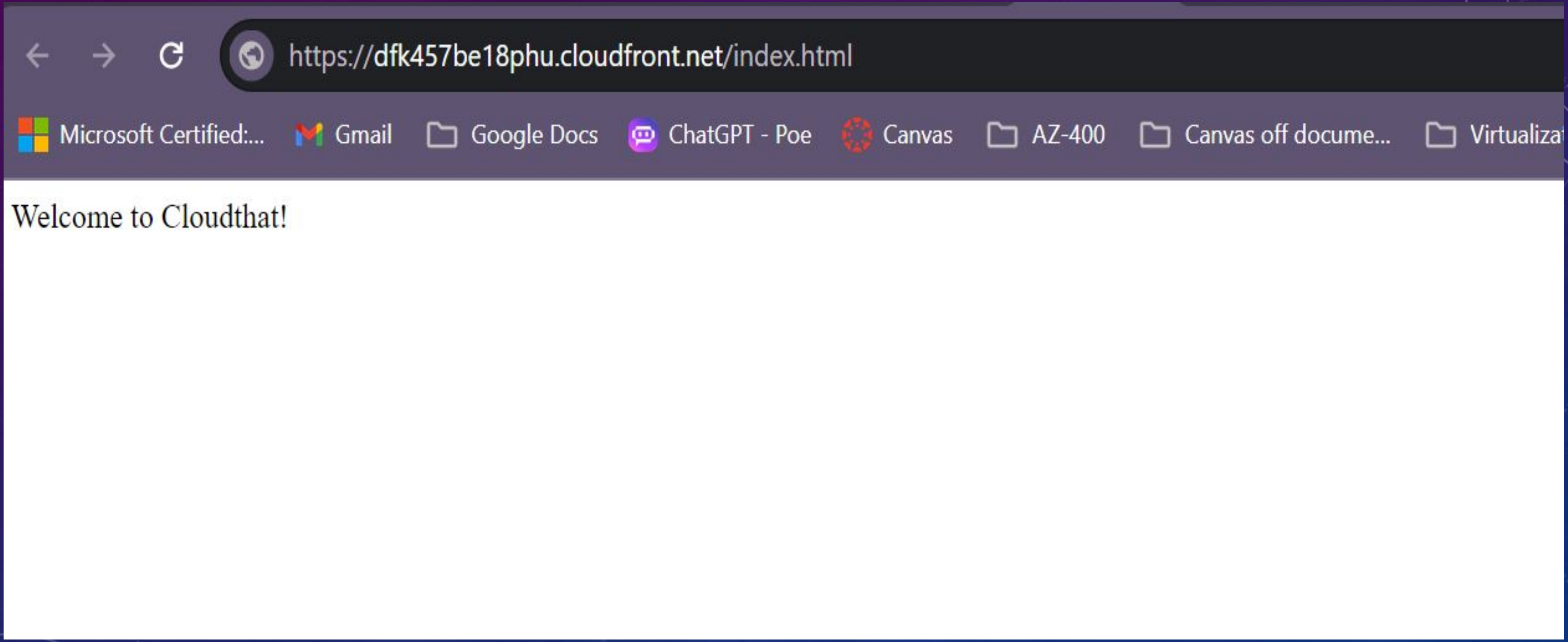


https://dfk457be18phu.cloudfront.net/index.html

Welcome to Cloudthat!

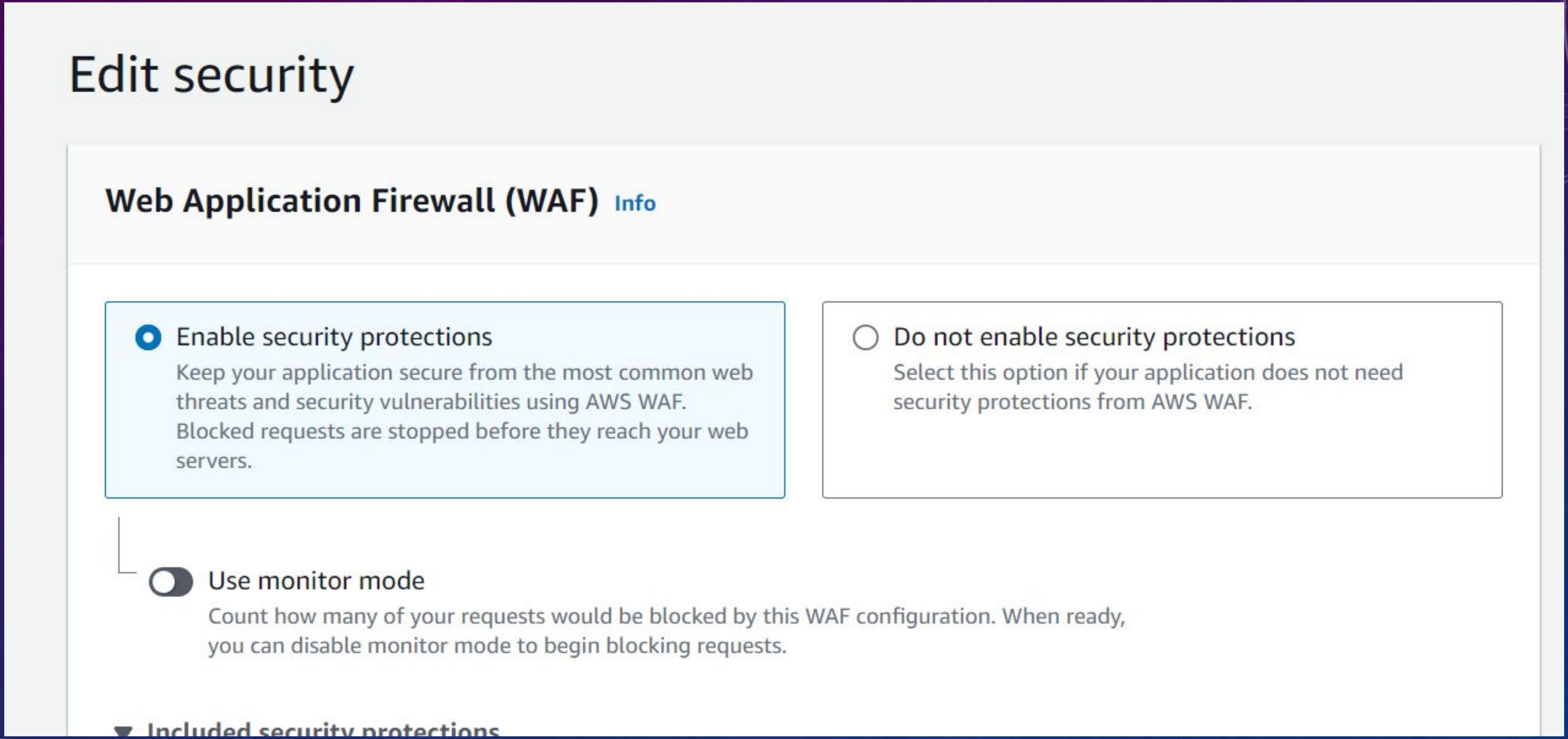
Delete index.html in the primary bucket. Try accessing the website and see the results.

CONTENT SERVED FROM CACHE



Welcome to Cloudthat!

ADDING WAF TO CLOUDFRONT



Edit security

Web Application Firewall (WAF) Info

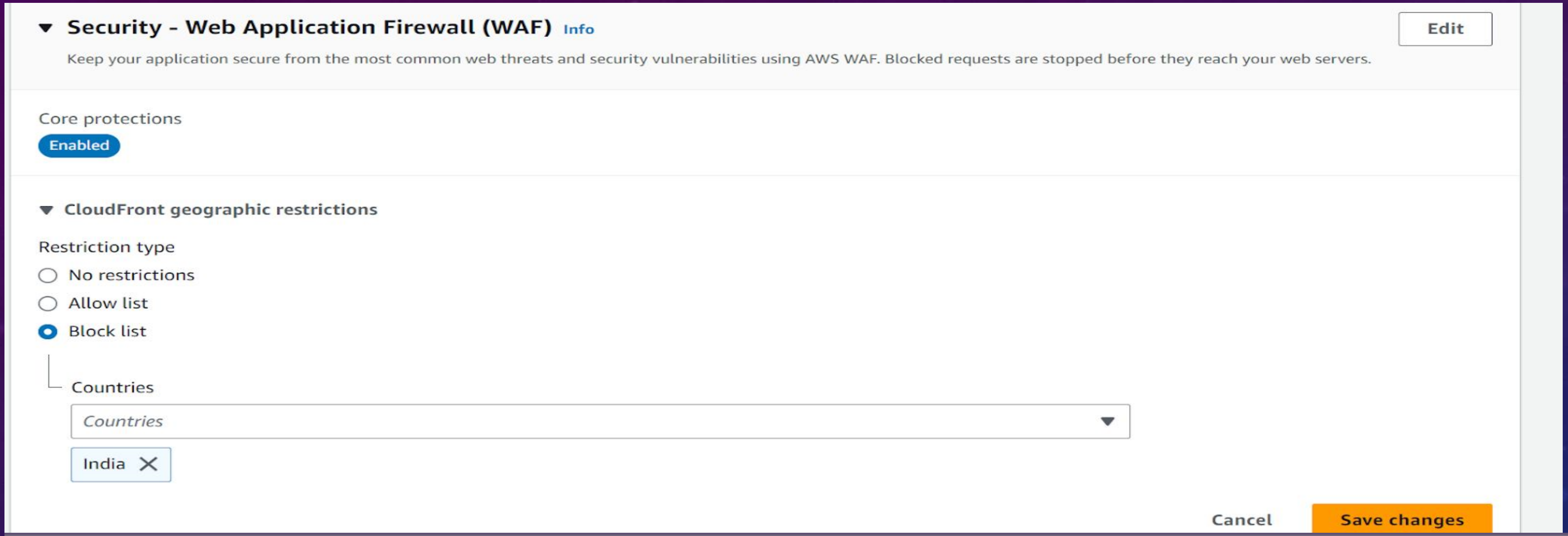
● Enable security protections
Keep your application secure from the most common web threats and security vulnerabilities using AWS WAF. Blocked requests are stopped before they reach your web servers.

○ Do not enable security protections
Select this option if your application does not need security protections from AWS WAF.

Use monitor mode
Count how many of your requests would be blocked by this WAF configuration. When ready, you can disable monitor mode to begin blocking requests.

▼ Included security protections

IMPLEMENTING GEO RESTRICTION



▼ Security - Web Application Firewall (WAF)

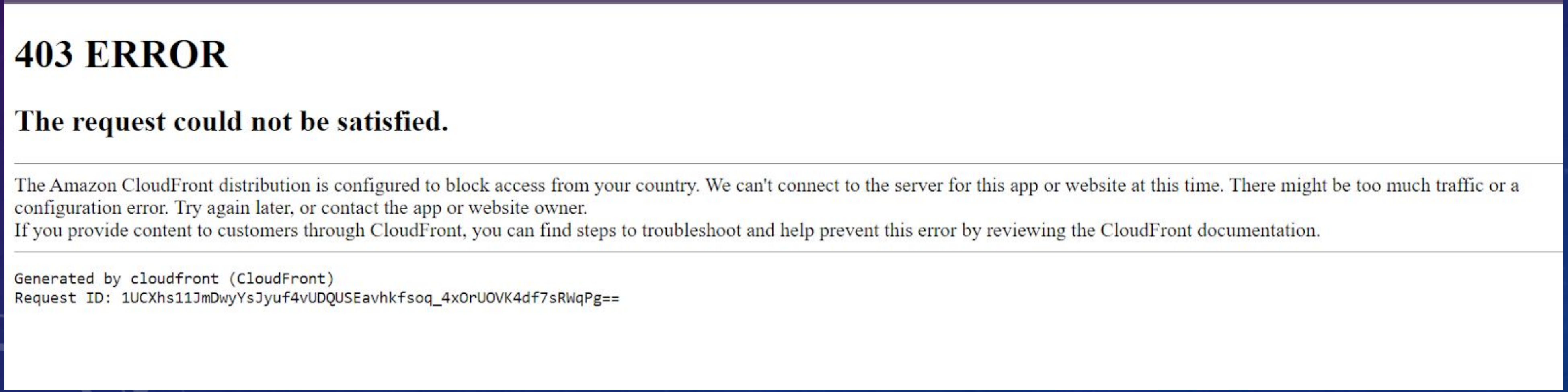
Keep your application secure from the most common web threats and security vulnerabilities using AWS WAF. Blocked requests are stopped before they reach your web servers.

Core protections
Enabled

▼ CloudFront geographic restrictions

Restriction type
○ No restrictions
○ Allow list
● Block list

Countries
Countries ▼
India ✕



403 ERROR

The request could not be satisfied.

The Amazon CloudFront distribution is configured to block access from your country. We can't connect to the server for this app or website at this time. There might be too much traffic or a configuration error. Try again later, or contact the app or website owner.
If you provide content to customers through CloudFront, you can find steps to troubleshoot and help prevent this error by reviewing the CloudFront documentation.

```
Generated by cloudfront (CloudFront)
Request ID: 1UCXhs11JmDwyYsJyuf4vUDQUSEavhkfsoq_4xOrUOVK4df7sRWqPg==
```

CONCLUSION & BEST PRACTICES

- *Key Takeaways:*
- Successfully deployed a static website on AWS with high availability, low latency, and enhanced security.
- Utilized AWS S3 for hosting, CloudFront for content delivery, and WAF for web application security.

- *Best Practices:*
- Resource Cleanup: Post-deployment, ensure to remove unused resources to prevent incurring extra costs.
- Security: Maintain strong security practices by regularly updating IAM policies and using services like AWS WAF.
- Documentation: Keep your project documentation up-to-date for clarity and future reference.
- Final Thoughts: This project has been a valuable opportunity to apply my knowledge of AWS services to create a secure, efficient, and user-friendly web hosting solution. It demonstrates my ability to address key web application requirements and my readiness to take on the role of a Solutions Architect.
- I appreciate your time and consideration. I'm happy to answer any questions you may have.

Thank you!