Documentation: Deployment and Configuration of Fantasy Manhwa Web Application on AWS

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1. Introduction

This document outlines the deployment and configuration of the Fantasy Manhwa web application on AWS. The project aims to create a scalable and secure application that displays a curated list of fantasy manhwa titles, allowing users to explore various genres and descriptions.

2. Project Overview

The Fantasy Manhwa application is a static website hosted on an EC2 instance, showcasing popular manhwa titles along with their genres and images. The application leverages AWS services such as S3 for image storage and a Load Balancer with Auto Scaling to ensure high availability and responsiveness.

3. AWS Configuration

3.1 EC2 Setup

Instance Launch: An EC2 instance was launched using the Amazon Linux 2 AMI with the t2.micro instance type, suitable for low-traffic applications.

Security Group: A security group was created to allow inbound traffic on HTTP (port 80) and SSH (port 22) for management purposes.
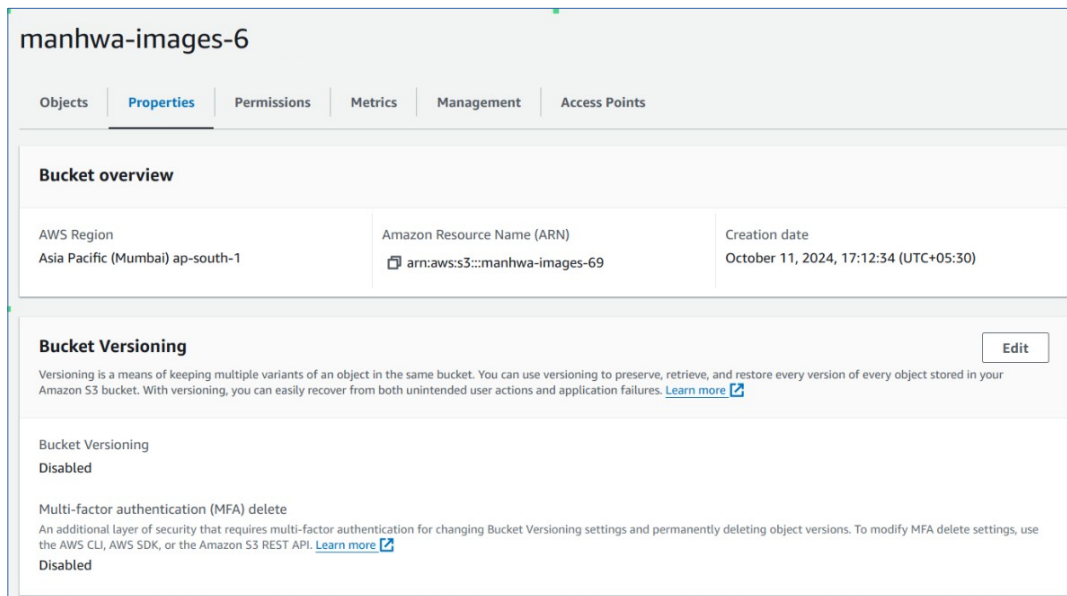
SSH Access: SSH key pairs were configured to access the EC2 instance securely.

EC2 > Instances > i-0dd39b839a728e87b

Instance summary for i-0dd39b839a728e87b (manhwa-demo-site) Info
Updated less than a minute ago

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0dd39b839a728e87b (manhwa-demo-site)	15.207.249.167 | open address	172.31.94.1
IPv6 address	Instance state	Public IPv4 DNS
–	⊘ Running	ec2-15-207-249-167.ap-south-1.compute.amazonaws.com | open address
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-172-31-94-1.ap-south-1.compute.internal	ip-172-31-94-1.ap-south-1.compute.internal	
Answer private resource DNS name	Instance type	Elastic IP addresses
–	t2.micro	–
Auto-assigned IP address	VPC ID	AWS Compute Optimizer finding
15.207.249.167 [Public IP]	vpc-05aaa0724923a5e28	ⓘ Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM Role	Subnet ID	Auto Scaling Group name
EC2-Metadata-Access	subnet-047ec9860f0bebf82 (my-subnet-1)	–
IMDSv2	Instance ARN	
Required	arn:aws:ec2:ap-south-1:696593578559:instance/i-0dd39b839a728e87b	

3.2 S3 Configuration

Bucket Creation: An S3 bucket named manhwa-images-6 was created to store the application images.

Permissions: The bucket permissions were configured to allow public read access, enabling the web application to display images hosted in S3.

manhwa-images-6

Objects | Properties | Permissions | Metrics | Management | Access Points

Bucket overview

AWS Region	Amazon Resource Name (ARN)	Creation date
Asia Pacific (Mumbai) ap-south-1	arn:aws:s3:::manhwa-images-69	October 11, 2024, 17:12:34 (UTC+05:30)

Bucket Versioning [Edit]

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more

Bucket Versioning
Disabled

Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. Learn more
Disabled

3.3 Load Balancer and Auto Scaling

Application Load Balancer: An Application Load Balancer (ALB) was configured to manage incoming traffic and distribute it across multiple instances.

Auto Scaling Group: An Auto Scaling Group (ASG) was set up to automatically adjust the number of instances based on demand, ensuring application availability and performance during peak loads.
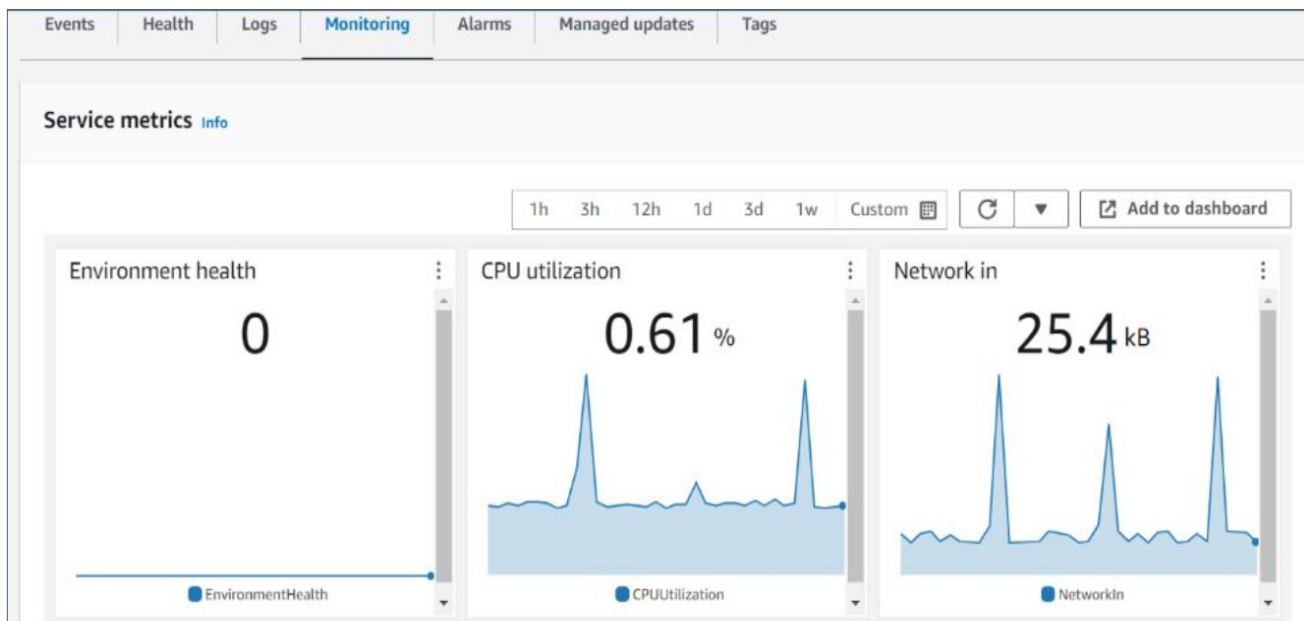
3.4 HTTPS Setup

SSL Certificate: An SSL certificate was requested via AWS Certificate Manager (ACM) to secure the application with HTTPS.

Load Balancer Configuration: The SSL certificate was attached to the Load Balancer to enable secure communication

4. Lessons Learned

Throughout the project, several key lessons were learned:

IAM Roles: Properly configuring IAM roles and permissions is critical for securing access to S3 buckets and other AWS services.

Load Balancer Importance: Implementing a Load Balancer significantly improved the application's availability and user experience during traffic spikes.

SSL Configuration: Securing the application with HTTPS not only enhances security but also builds trust with users**.**

5. Conclusion

The Fantasy Manhwa web application was successfully deployed on AWS, utilizing various services to ensure scalability, security, and performance. The project provided valuable insights into AWS configurations and best practices for deploying web applications in the cloud.