

## Retail Store Microservices Project Documentation

GitHub-URL: [https://github.com/Bhargavkulla/AWS\\_CAPSTONE\\_FINAL\\_PROJECT.git](https://github.com/Bhargavkulla/AWS_CAPSTONE_FINAL_PROJECT.git)

### 1) Project Overview

This project implements a Retail Store Microservices Application with high availability, monitoring, CI/CD automation, and cross-region disaster recovery. It uses Amazon EKS, CloudFormation, Terraform, CodePipeline, CodeBuild, SonarQube, CloudWatch, and Prometheus-Grafana for a complete DevOps lifecycle.

### 2) Infrastructure Setup

#### Networking (VPC and Subnets)

- VPC Creation

Enabled DNS support (necessary for EKS and RDS)

- Subnets

2 Public Subnets

2 Private Subnets

- Internet Gateway

Created and attached to the VPC

- NAT Gateway

Created in Public Subnet 1 using an Elastic IP

- Route Tables

Public Route Table: Associated with public subnets and route to IGW

Private Route Table: Associated with private subnets and route via NAT Gateway

#### EKS Cluster Setup

- Created Amazon EKS Cluster for container orchestration.

#### Database Layer

- Amazon RDS (MySQL) for catalog service
- Amazon DynamoDB for cart service
- DB Subnet Group created for RDS

### 3) CI/CD Pipelines

#### Region 1 – us-east-1 (CloudFormation)

- Infrastructure provisioned using **CloudFormation StackSets**

- Deployment pipeline created using **AWS CodePipeline**
- **Elastic Container Registry (ECR)** created for image storage
- **CodeBuild** used for build and deployment stages
- Verified deployment using:

```
aws eks update-kubeconfig --region us-east-1 --name ecommerce-cluster
```

#### **Region 2 – us-west-1 (Terraform)**

- Infrastructure built with **Terraform** via **CodeBuild**
- Code source maintained in **AWS CodeCommit**
- Application deployed with **CodePipeline**
- Verified deployment using:

```
aws eks update-kubeconfig --region us-west-1 --name ecommerce-cluster
```

### **4) Application Monitoring**

#### **Amazon CloudWatch**

- Log Collection: Using Fluent Bit DaemonSet to push logs to CloudWatch Logs
- Metrics Visualization: Container Insights enabled for CPU, memory, and pod availability
- Alarms Setup:
  - High CPU Usage (>80%)
  - Pod restart detection (>1 restart in 5 mins)
  - High Memory Usage (>30%)
- Alerting:
  - SNS Topic eks-alerts created
  - Email subscriptions configured
  - Verified alert delivery via email

### **5) Code Quality Analysis**

- Integrated **SonarQube** with CI pipeline
- Ensured:
  - No bugs or security issues
  - Passed Quality Gates
  - No code duplication

## **6) Domain and Routing (Route 53)**

- Purchased domain: **bhargavkulla.com**
- Configured **Failover Routing Policy** with Route 53
- **Health Checks:**
  - Primary Endpoint (us-east-1)
  - Secondary Endpoint (us-west-1)
- Automatic DNS failover from primary to secondary region upon health check failure

## **7) Monitoring Stack (Prometheus & Grafana)**

- **Deployed in Monitoring Namespace**
  - Prometheus (kube-prometheus)
  - Grafana
  - Kube-state-metrics
  - Prometheus-node-exporter
  - AlertManager
- **Grafana Dashboards:** Configured to monitor Kubernetes and application performance

## **8) CI/CD Event Triggers and Notifications**

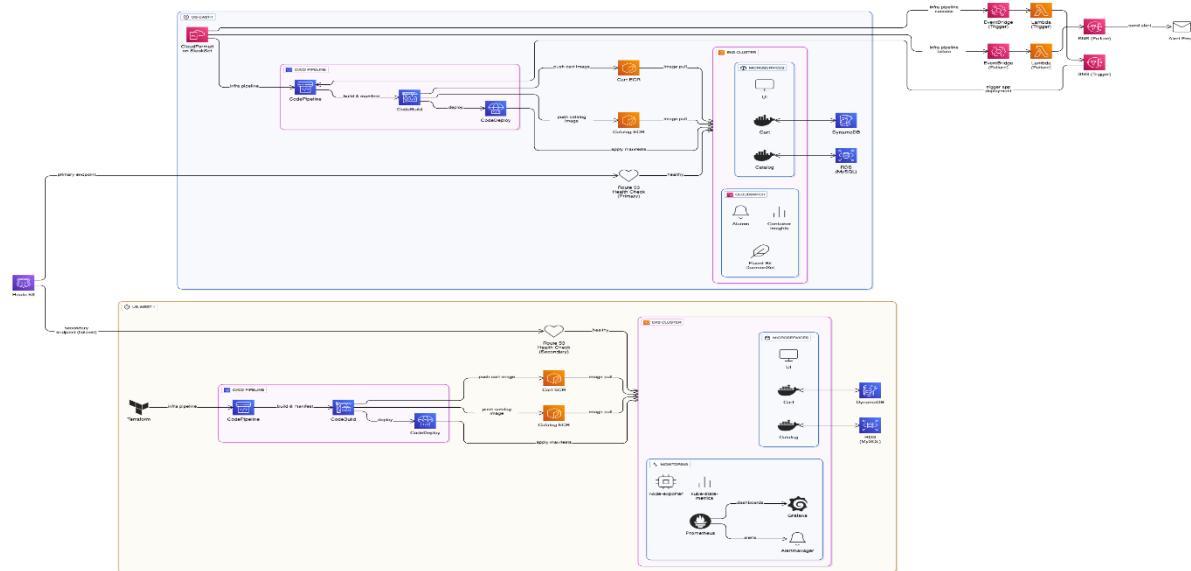
### **Pipeline Failure Notifications**

- **SNS topic created**
- **Email subscription added**
- **Lambda Function** configured to send alerts
- **EventBridge Rule** triggered on CodePipeline Pipeline Execution Failure event

## **9)Final Verifications**

- All Kubernetes pods and services verified to be running
- Frontend load balancer accessed using the domain
- Alert testing completed successfully
- Verified successful failover and DNS resolution using Route 53

## Architecture Diagram



## PIPELINES (Screenshots)

The screenshot shows the AWS CodePipeline console with the following details:

- Header:** us-east-1.console.aws.amazon.com/codesuite/codepipeline/pipelines?region=us-east-1&pipelines-meta=eyJmjlp7InRleHQiOiiifSwicyJwcm9w...  
Delete bucket - S3...
- Navigation:** AWS Services Search [Alt+S] United States (N. Virginia) Bhargav1 @ 423623849965-mm1
- Left Sidebar:** Developer Tools **CodePipeline**
  - Source • CodeCommit
  - Artifacts • CodeArtifact
  - Build • CodeBuild
  - Deploy • CodeDeploy
  - Pipeline • CodePipeline
    - Getting started
    - Pipelines**
    - Account metrics
  - Settings
- Content Area:** Developer Tools > CodePipeline > Pipelines
- Pipelines List:**

Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions
EKS-INFRA-BUILD	Succeeded	Source - <a href="#">8f738310</a> : Create infra.yaml	15 minutes ago	<a href="#">View details</a>

The screenshot shows the AWS CodePipeline console with the following details:

- Region:** us-east-1
- Pipeline Name:** EKS-INFRA-BUILD
- Stages:**
  - Source:** GitHub (via GitHub App) - 9 minutes ago
  - Deploy:** AWS CloudFormation Stack Set - Just now
- Actions:**
  - Source: Create inf
  - Deploy: Create inf
- Execution Status:** All actions succeeded.
- Buttons:** Edit, Stop execution, Create trigger, Clone pipeline, Release change

The screenshot shows the AWS CloudFormation console with the URL [us-east-1.console.aws.amazon.com/cloudformation/home?region=us-east-1#/stacksets/EKS-STACK-SET:5eb6d374-b871-4732-960f-6bf80ce091e...](https://us-east-1.console.aws.amazon.com/cloudformation/home?region=us-east-1#/stacksets/EKS-STACK-SET:5eb6d374-b871-4732-960f-6bf80ce091e...). The left sidebar shows the navigation path: CloudFormation > StackSets > EKS-STACK-SET: StackSet details. The main content area is titled "EKS-STACK-SET" and displays the "Stack instances (1)" tab. A table lists one stack instance:

AWS account	AWS region	Stack ID	Detailed status	Last operation ID	Status Reason	Drifts
423623849965	us-east-1	arn:aws:cloudformation:us-east-1:423623849965:stack/StackSet-EKS-STACK-SET-487e31c6-76ac-493d-8aa4-d489ac623736/b9a99450-5011-11ff-bd21-128134032663	SUCCEEDED	7074f366-ea1a-4e13-8da4-07937a851e69	-	NO

## ECR (Elastic Container Registry)

The screenshot shows the AWS Amazon ECR console with the URL [us-east-1.console.aws.amazon.com/ecr/private\\_repositories/repositories?region=us-east-1](https://us-east-1.console.aws.amazon.com/ecr/private_repositories/repositories?region=us-east-1). The left sidebar shows the navigation path: Amazon Elastic Container Registry > Private registry > Repositories. The main content area is titled "Private repositories (2)". A table lists two repositories:

Repository name	URI	Created at	Tag immutability	Encryption type
cart	423623849965.dkr.ecr.us-east-1.amazonaws.com/cart	June 18, 2025, 17:12:20 (UTC+05.5)	Mutable	AES-256
catalog	423623849965.dkr.ecr.us-east-1.amazonaws.com/catalog	June 18, 2025, 17:11:48 (UTC+05.5)	Mutable	AES-256

The screenshot shows the AWS CodeBuild console with the URL [us-east-1.console.aws.amazon.com/codebuild/projects?region=us-east-1&projects-meta=eyJmlj...](https://us-east-1.console.aws.amazon.com/codebuild/projects?region=us-east-1&projects-meta=eyJmlj...) . The left sidebar shows the navigation path: Developer Tools > CodeBuild > Build projects. The main content area is titled "Build projects (1)" and displays the "Info" tab. A table lists one build project:

Name	Source provider	Repository	Latest build status	Description	Last Modified
EKSBUILD	GitHub	Bhargavkulla/Final_prject	Succeeded	-	5 minutes ago

**CodeBuild**

**EKSBUILD:3800aea4-bfe1-4055-89cc-48258a9a5324**

**Build status**

Status	Initiator	Build ARN	Resolved source version
<span style="color: green;">Succeeded</span>	Bhargav1	arn:aws:codebuild:us-east-1:423623849965:build/EKSBUILD:3800aea4-bfe1-4055-89cc-48258a9a5324	48a372276b8999d42797996c330b3af0 49965:build/EKSBUILD:3800aea4-bfe1-4055-89cc-48258a9a5324
Start time	End time	Build number	
Jun 23, 2025 2:54 PM (UTC+5:30)	Jun 23, 2025 2:57 PM (UTC+5:30)	1	

**Build logs** | Phase details | Reports | Environment variables | Build details | Resource utilization

Showing the last 1622 lines of the build log. [View entire log](#) | [Tail logs](#)

No previous logs

**CodePipeline**

**Pipelines**

Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions
APPLICATION-PIPELINE	<span style="color: green;">Succeeded</span>	Source - <a href="#">4ba37227</a> [D: Update README.md]	6 minutes ago	<span style="color: green;">View details</span>
EKS-INFRA-BUILD	<span style="color: green;">Succeeded</span>	Source - <a href="#">8f738310</a> [D: Create infrasyaml]	37 minutes ago	<span style="color: green;">View details</span>

**APPLICATION-PIPELINE**

**Pipeline** | Executions | Triggers | Settings | Tags | Stage

**Source** → **Build** → **Deploy**

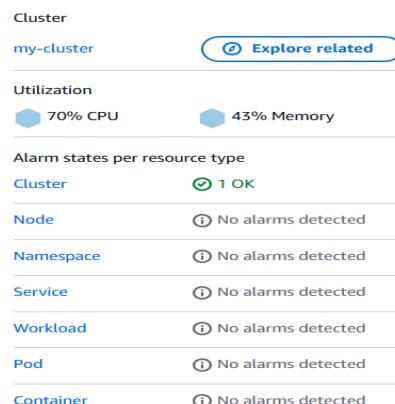
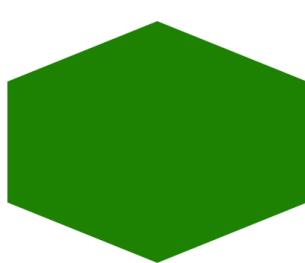
**Source**: GitHub (via GitHub App) 4 minutes ago  
All actions succeeded.

**Build**: AWS CodeBuild Just now  
All actions succeeded.

**Deploy**: Amazon EKS Just now  
All actions succeeded.

**Actions**: 48a37227 [Source: Update REA] 48a37227 [Source: Update REA]

## Amazon CloudWatch



Fluent Bit is deployed as a DaemonSet to collect logs from all nodes and send them to CloudWatch Logs.

Logs are automatically grouped by namespace:

**Amazon Elastic Kubernetes Service**

**Clusters**

**Workloads**

**Pods**

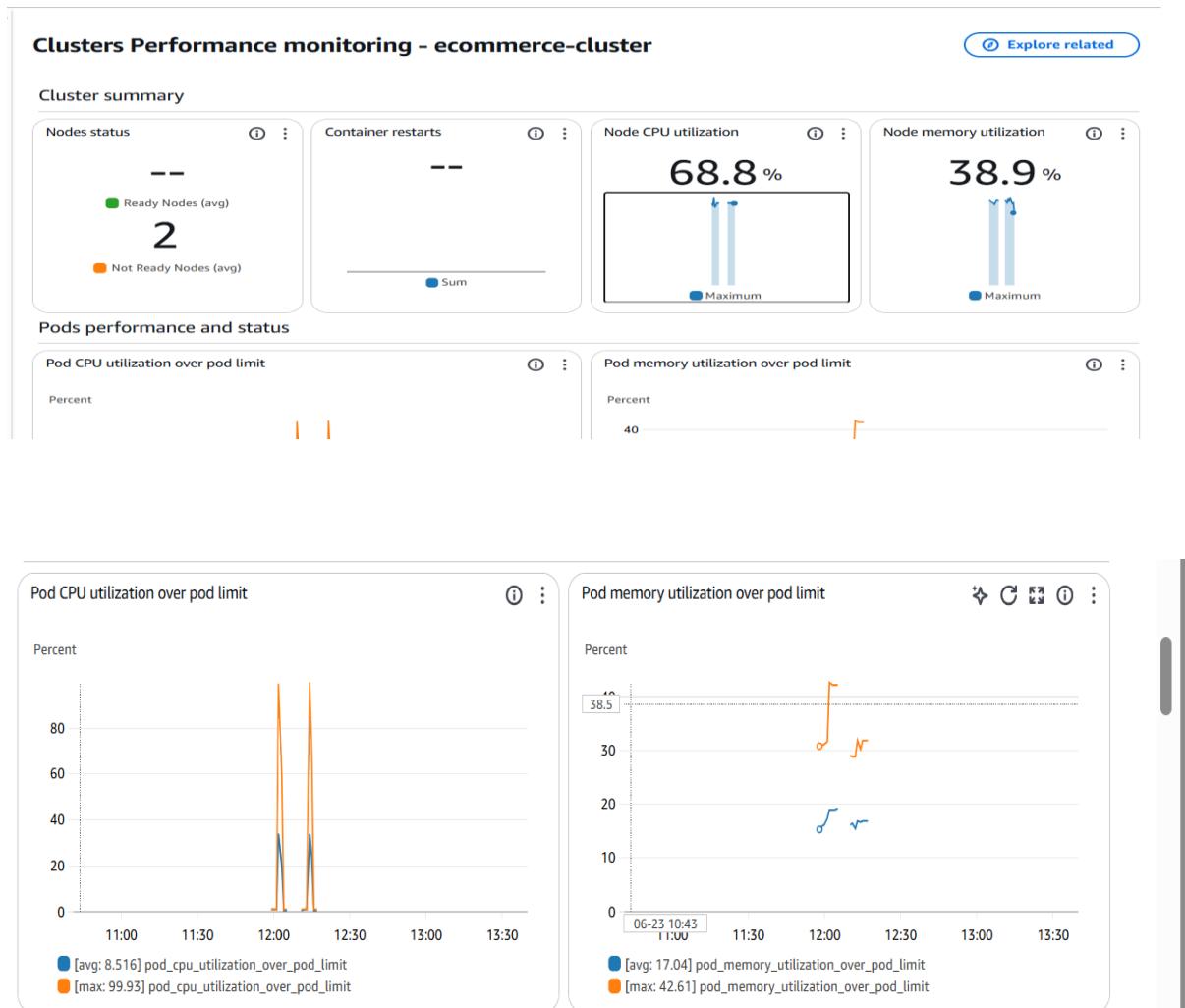
**Workloads: Pods (2)**

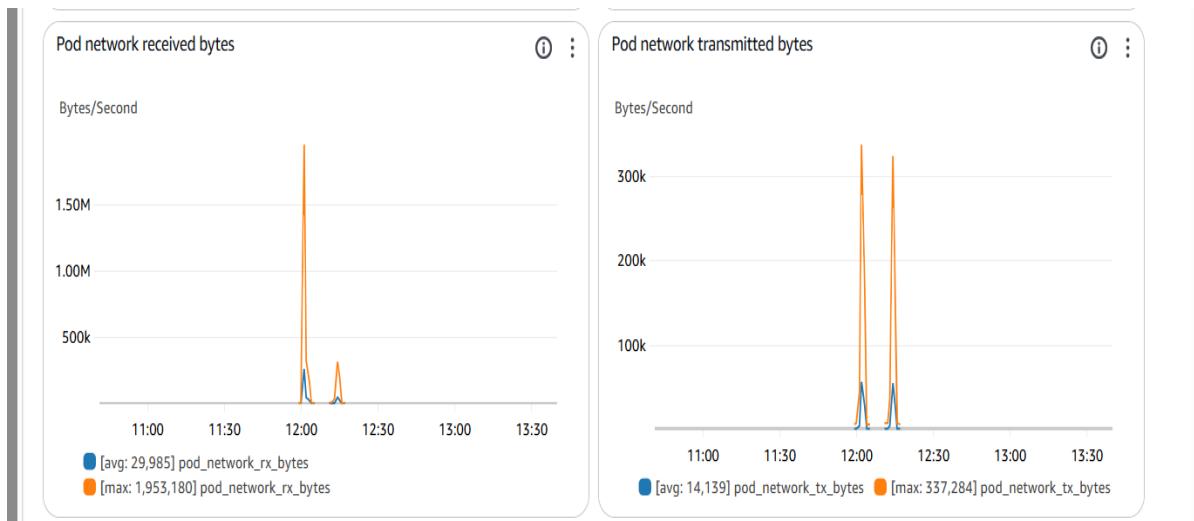
Pod is the smallest and simplest Kubernetes object. A Pod represents a set of running containers on your cluster. [Learn more](#)

Name	Created
fluent-bit-lf4ct	17 minutes ago
fluent-bit-lf1f5	17 minutes ago

The screenshot shows the AWS CloudWatch Log groups interface. On the left, there's a navigation sidebar with sections for CloudWatch, Alarms, Logs (selected), Metrics, and more. The main area is titled "Log groups (52)" and contains a search bar with the query "ecommerce-cluster". Below the search bar is a table listing log groups, each with a checkbox, name, log class (Standard), configuration link, and retention policy (Never expire). The table includes columns for Log group, Log class, Anomaly detection, Data protection, Sensitive data, Retention, and Metric filters.

Metrics like CPU, memory, and pod availability are visualized using Container Insights.





An SNS topic like eks-alerts was created to receive CloudWatch alarm notifications via email.

Amazon SNS

Topics

Subscriptions

Mobile

Push notifications

Text messaging (SMS)

eks-alerts

Details

Name	eks-alerts	Display name	-
ARN	arn:aws:sns:us-east-1:423623849965:eks-alerts	Topic owner	423623849965
Type	Standard		

Subscriptions (1)

ID	Endpoint	Status	Protocol
3d8a6418-6736-4d81-88b5-76c5ac8...	289244@ust.com	Confirmed	EMAIL

CloudWatch alarm is set to monitor CPU usage over 80% for two periods.

Alarms (1)

Search

Alarm state: Any

Alarm type: Any

Actions status: Any

Hide Auto Scaling alarms

HighCPUUsageOnNode

Metric alarm

Insufficient data

HighCPUUsageOnNode

HighCPUUsageOnNode

View

Investigate

Actions

Explore related

Details

Name

HighCPUUsageOnNode

Type

Metric alarm

Description

No description

State

Insufficient data

Threshold

cpu\_usage\_total > 80 for 2 datapoints within 10 minutes

Last state update

2025-06-23 13:33:45 (UTC)

Actions

Actions enabled

Datapoints to alarm

2 out of 2

Missing data treatment

Treat missing data as missing

Percentiles with low samples evaluate

ARN

arn:aws:cloudwatch:us-east-1:423623849965:alarm:HighCPUUsageOnNode

View EventBridge rule

This alarm detects if any pod in the cluster restarts more than once in a 5-minute window, triggering an alert for investigation.

The screenshot shows the AWS CloudWatch Metrics Alarms console. On the left, a sidebar displays search fields and dropdowns for filtering alarms by state, type, and actions status. Below this, a list shows one alarm: "PodRestartsDetected" (Metric alarm, Insufficient data). The main panel is titled "PodRestartsDetected" and contains the following details:

Details	
Name	PodRestartsDetected
Type	Metric alarm
Description	No description
State	Insufficient data
Threshold	<code>pod_restart_count &gt; 1 for 1 datapoints within 5 minutes</code>
Last state update	2025-06-23 14:02:51 (UTC)
Actions	Actions enabled
Namespace	ContainerInsights
Metric name	pod_restart_count
ClusterName	ecommerce-cluster
Statistic	Sum
Period	5 minutes
Unit	Count
Datapoints to alarm	1 out of 1
Missing data treatment	Treat missing data as missing
Percentiles with low samples	evaluate
ARN	<code>arn:aws:cloudwatch:us-east-1:423623849965:alarm:PodRestartsDetected</code>

At the bottom, there is a link to "View EventBridge rule".

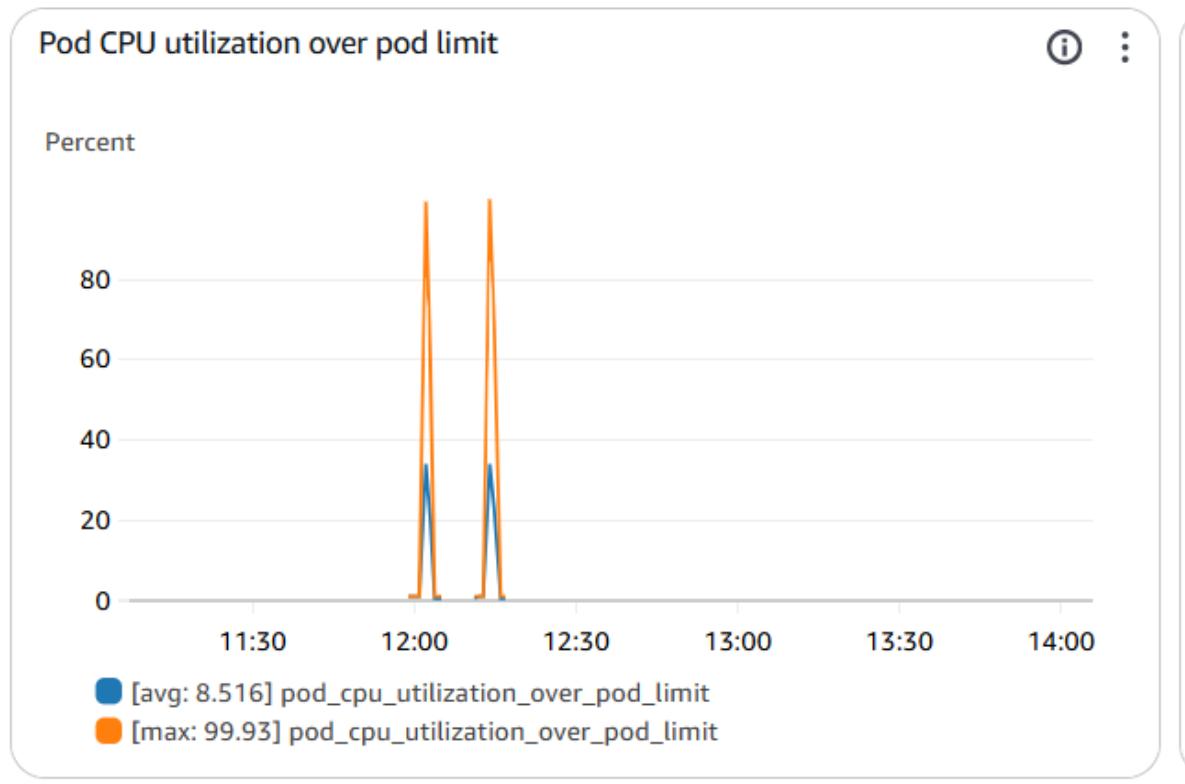
A CloudWatch alarm named HighMemoryUsageOnNode was configured to monitor memory usage of the EKS cluster. If memory exceeds 30% for two consecutive 5-minute periods, an email alert is triggered via the eks-alerts SNS topic.

The screenshot shows the AWS CloudWatch Metrics Alarms console. On the left, a sidebar displays search fields and dropdowns for filtering alarms by state, type, and actions status. Below this, a message states "No alarms" and "No alarms to display". There is a link to "Read more about Alarms" and a button to "Create alarm". The main panel is titled "HighMemoryUsageOnNode" and contains the following details:

Details	
Name	HighMemoryUsageOnNode
Type	Metric alarm
Description	No description
State	Insufficient data
Threshold	<code>memory_usage_total &gt; 30 for 2 datapoints within 10 minutes</code>
Last state update	2025-06-23 13:56:57 (UTC)
Actions	Actions enabled
Namespace	ContainerInsights
Metric name	memory_usage_total
ClusterName	ecommerce-cluster
Statistic	Average
Period	5 minutes
Unit	Percent
Datapoints to alarm	2 out of 2
Missing data treatment	Treat missing data as missing
Percentiles with low samples	evaluate
ARN	<code>arn:aws:cloudwatch:us-east-1:423623849965:alarm:HighMemoryUsageOnNode</code>

At the bottom, there is a link to "View EventBridge rule" and a note: "Use EventBridge to respond when the alarm changes state. Copy this Custom Event Pattern and use it when creating your EventBridge Rule.".

## Pods performance and status



### Testing for Alert Message

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#home:

CloudWatch Metrics Overview Alarms by AWS service Recent alarms Actions

Alarms by AWS service Services In alarm 0 Insufficient data 0 OK 1 EC2

Recent alarms HighCPUUsageOnNode1

Percent

CPUUtilization > 80 for 1 datapoint...

02:28 05:27

Default Dashboard Create a new default dashboard

Application Insights

The screenshot shows the AWS CloudWatch Alarms console. On the left, there's a sidebar with navigation links like 'CloudWatch', 'Dashboards', 'AI Operations', 'Alarms', 'Logs', 'Billing', and 'Logs'. The main area is titled 'Alarms (1)' and lists one alarm: 'HighCPUUsageOnNode1' (OK, last updated 2025-06-24 05:23:25) which triggers on 'CPUUtilization > 80 for 1 datapoints within 1 minute'. There are buttons for 'Create alarm', 'Actions', and 'Actions enabled'.

Here I Got Alert Message to my mail

The email subject is 'ALARM: "HighCPUUsageOnNode1" in US East (N. Virginia)'. The recipient is 'Bhargava Ram Kulla(UST,IN)'. The message body contains the following text:

You are receiving this email because your Amazon CloudWatch Alarm "HighCPUUsageOnNode1" in the US East (N. Virginia) region has entered the ALARM state, because "Threshold Crossed: 1 datapoint [2.556691692055874 (24/06/25 05:15:00)] was greater than the threshold (1.0)." at "Tuesday 24 June, 2025 05:20:13 UTC".

View this alarm in the AWS Management Console:  
[https://urldefense.com/v3/\\_https://us-east-1.console.aws.amazon.com/cloudwatch/deeplink.js?region=us-east-1!alarmsV2:alarm\\*HighCPUUsageOnNode1\\_!y8!!PdM5GIU!QQGLAc\\_RPBRIAS8huiHEbXE7udlnZZ-glm8xhCJM9VRcAk93B-sGRvZ6rTsaVhpsk-FL1jrk18VLvcmmN9Tkqm8\\$](https://urldefense.com/v3/_https://us-east-1.console.aws.amazon.com/cloudwatch/deeplink.js?region=us-east-1!alarmsV2:alarm*HighCPUUsageOnNode1_!y8!!PdM5GIU!QQGLAc_RPBRIAS8huiHEbXE7udlnZZ-glm8xhCJM9VRcAk93B-sGRvZ6rTsaVhpsk-FL1jrk18VLvcmmN9Tkqm8$)

**Alarm Details:**

- Name: HighCPUUsageOnNode1
- Description: OK -> ALARM
- State Change: Threshold Crossed: 1 datapoint [2.556691692055874 (24/06/25 05:15:00)] was greater than the threshold (1.0).
- Reason for State Change: Threshold Crossed: 1 datapoint [2.556691692055874 (24/06/25 05:15:00)] was greater than the threshold (1.0).
- Timestamp: Tuesday 24 June, 2025 05:20:13 UTC
- AWS Account: 423623849965
- Alarm Arn: arn:aws:cloudwatch:us-east-1:423623849965:alarm:HighCPUUsageOnNode1

**Threshold:**

- The alarm is in the ALARM state when the metric is GreaterThanThreshold 1.0 for at least 1 of the last 1 period(s) of 60 seconds.

**Monitored Metric:**

- MetricNamespace: AWS/EC2

ALARM: "HighCPUUsageOnNode1" in US East (N. Virginia)

Delete Archive Move to Phish Alert Share to Teams Zoom ...

ALARM: "HighCPUUsageOnNode1" in US East (N. Virginia)

- Alarm Arn: arn:aws:cloudwatch:us-east-1:423623849965:alarm:HighCPUUsageOnNode1

Threshold:  
- The alarm is in the ALARM state when the metric is GreaterThanThreshold 1.0 for at least 1 of the last 1 period(s) of 60 seconds.

Monitored Metric:  
 - MetricNamespace: AWS/EC2  
 - MetricName: CPUUtilization  
 - Dimensions: [InstanceId = i-0c5136a5d12b92c2f]  
 - Period: 60 seconds  
 - Statistic: Average  
 - Unit: not specified

State Change Actions:  
 - OK:  
 - ALARM: [arn:aws:sns:us-east-1:423623849965:EKSAlertTopic]  
 - INSUFFICIENT\_DATA:

If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:  
[https://urldefense.com/v3/\\_https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:423623849965:EKSAlertTopic:a60863cd-9d59-415a-ac05-3248efa8a4ad&Endpoint=289244@ust.com](https://urldefense.com/v3/_https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:423623849965:EKSAlertTopic:a60863cd-9d59-415a-ac05-3248efa8a4ad&Endpoint=289244@ust.com)

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at  
[https://urldefense.com/v3/\\_https://aws.amazon.com/support\\_:\\_!PdM5GIUQQGLAc\\_RPBRIAS8huiHEbXE7udlnZZ-glm8xhCJM9VRcAk93B-sGRVZ6rTsaVhpsk-FL1jrk18VLvcmmkXDeHL4S](https://urldefense.com/v3/_https://aws.amazon.com/support_:_!PdM5GIUQQGLAc_RPBRIAS8huiHEbXE7udlnZZ-glm8xhCJM9VRcAk93B-sGRVZ6rTsaVhpsk-FL1jrk18VLvcmmkXDeHL4S)

Rainy days ahead 28°C Search ENG IN 10:51 24-06-2025

## SonarQube

We use SonarQube here to automatically review and measure code quality and security

- Code quality is good
- There are no bugs, security issues, or duplication
- The Quality Gate has passed

Not secure 54.234.52.40/dashboard?id=project

Delete bucket - S3...

sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration

project main Overview Issues Security Hotspots Measures Code Activity

Last analysis of this Branch had 4 warnings June 23, 2025 at 12:38 PM Version not provided

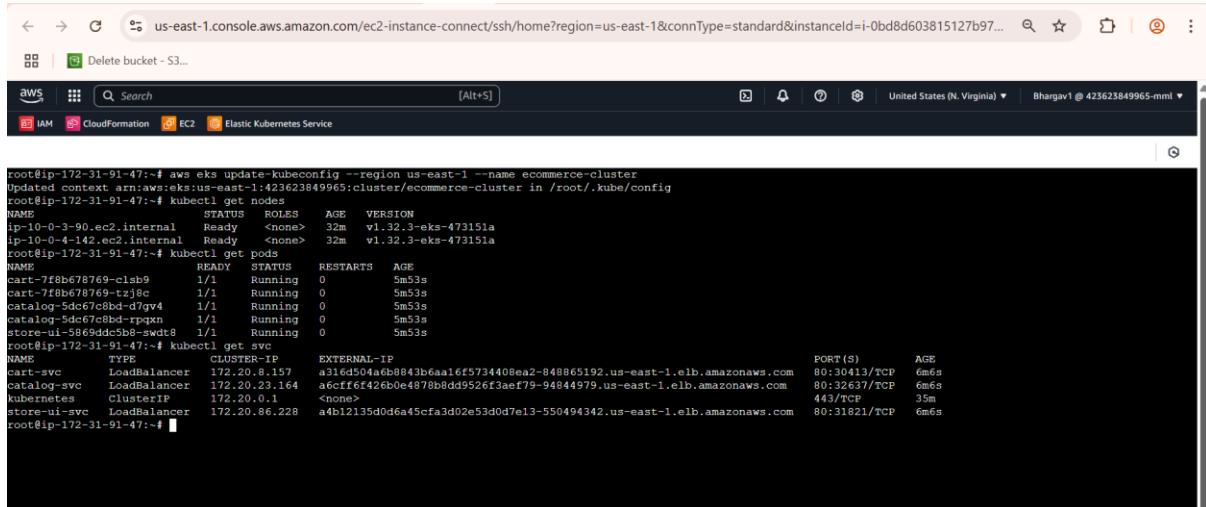
Project Settings Project Information

**QUALITY GATE STATUS** Passed All conditions passed

**MEASURES**

Measure	Status	Details
New Code	Overall Code	Since June 23, 2025 Started 1 hour ago
0 New Bugs	Reliability	A
0 New Vulnerabilities	Security	A
0 New Security Hotspots	Reviewed	Reviewed
1h Added Debt	Maintainability	A
3 New Code Smells		

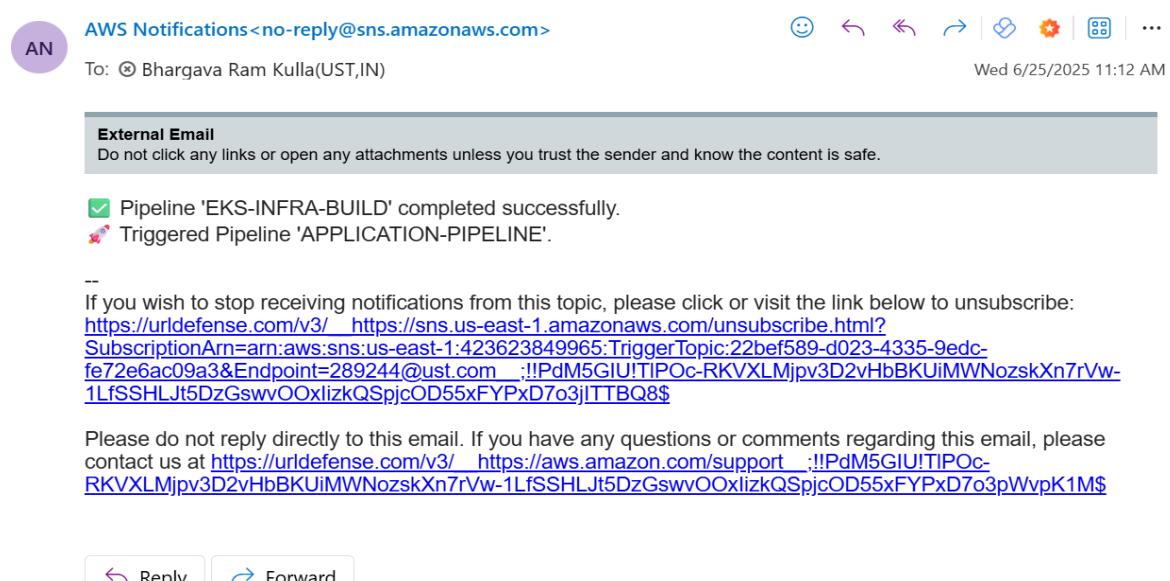
Next we will check whether our all pods are running or not



```
root@ip-172-31-91-47:~# aws eks update-kubeconfig --region us-east-1 --name ecommerce-cluster
Updated context arn:aws:eks:us-east-1:423623849965:cluster/ecommerce-cluster in /root/.kube/config
root@ip-172-31-91-47:~# kubectl get nodes
NAME   STATUS   ROLES      AGE   VERSION
ip-10-0-3-90.ec2.internal   Ready    <none>   32m   v1.32.3-eks-473151a
ip-10-0-4-142.ec2.internal Ready    <none>   32m   v1.32.3-eks-473151a
root@ip-172-31-91-47:~# kubectl get pods
NAME        READY   STATUS    RESTARTS   AGE
cart-7f8b678769-clzb9   1/1     Running   0          5m53s
cart-7f8b678769-tzj8c   1/1     Running   0          5m53s
catalog-5dc67c8bd-d7qv4  1/1     Running   0          5m53s
catalog-5dc67c8bd-rpqxn 1/1     Running   0          5m53s
store-ui-5869ddcbb8-swdt8 1/1     Running   0          5m53s
root@ip-172-31-91-47:~# kubectl get svc
NAME        TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
cart-svc   LoadBalancer   172.20.8.157   a31ed504adb8843b6aa16f5734408ea2-848865192.us-east-1.elb.amazonaws.com   80:30413/TCP   6m6s
catalog-svc LoadBalancer   172.20.23.164   a6cffef42eb0e4878b8d9526f3aef79-94844979.us-east-1.elb.amazonaws.com   80:32637/TCP   6m6s
kubernetes ClusterIP      172.20.0.1   <none>        443/TCP   35m
store-svc   LoadBalancer   172.20.86.228   a4b12135d0d6a45cfa3d02e53d0d7e13-550494342.us-east-1.elb.amazonaws.com   80:31821/TCP   6m6s
root@ip-172-31-91-47:~#
```

## Pipeline Trigger Using Lambda, SNS and EventBridge

### Pipeline Triggered: APPLICATION-PIPELINE



## Route53

- Bought a domain bhargavkulla.com
- Set up a Route 53 health check to monitor the health of the primary endpoint
- Configured DNS Record with Failover Routing
- Then accessed the website with the domain name bhargavkulla.com

us-east-1.console.aws.amazon.com/route53/v2/hostedzones#

Delete bucket - S3...

aws Search [Alt+S]

IAM CloudFormation EC2 Elastic Kubernetes Service

Route 53 > Hosted zones

Hosted zones (2)

Hosted zone name	Type	Created by	Record count	Description	Hosted zone ID
bhargav	Private	Route 53	4	-	20175139307272...
bhargavkulla.com	Public	Route 53	3	HostedZone created b...	20548864155TN6...

View details Edit Delete Create hosted zone

Hosted zones

Dashboard Hosted zones Health checks Profiles New IP-based routing CDR collections Traffic flow Traffic policies Policy records Domains Registered domains Requests Resolver VPCs Inbound endpoints Outbound endpoints

us-east-1.console.aws.amazon.com/route53/v2/healthchecks/home

Delete bucket - S3...

aws Search [Alt+S]

IAM CloudFormation EC2 Elastic Kubernetes Service

Route 53 > Health checks

Health checks (1) Info

Route 53 health checks monitor the health and performance of your application's servers and endpoints.

ID	Name	Details	Status in last 24 hours	Current s...	Alarm	Actions
e0662d27-45d7...	primary	http://a4b1213...	Green	Healthy	None, ...	⋮

Create health check

Select a health check

Route 53

Dashboard Hosted zones Health checks Profiles New IP-based routing CDR collections Traffic flow Traffic policies Policy records Domains Registered domains Requests Resolver VPCs Inbound endpoints Outbound endpoints

Not secure bhargavkulla.com

Delete bucket - S3...

Home Gadget Repository

The most public Secret Shop

Everything a secret agent needs, minus the paperwork

Explore →

Mission Critical Gear View Gadget Repository →

← → ⌂ Not secure bhargavkulla.com/catalog

Delete bucket - S3...

Home Gadget Repository 0

CATEGORIES

All Products  
Accessories  
Vehicles  
Clothing  
Food

These products are for demonstration purposes only

Aqua Ace GT  
★☆☆☆☆  
\$10000

Add to Loadout

Audio-Illusion Spinner  
★☆☆☆☆  
\$190

Add to Loadout

Facechanger Formal Wear  
★☆☆☆☆  
\$70

Add to Loadout

← → ⌂ Not secure bhargavkulla.com/cart

Delete bucket - S3...

Home Gadget Repository 1

### Loadout

Aqua Ace GT  
Quantity: 1  
\$10000  
\$10000 each

Subtotal  
Shipping and taxes calculated at checkout  
\$10000

Start Equipment Requisition

← → ⌂ Not secure bhargavkulla.com/checkout

Delete bucket - S3...

### Rendezvous Location

First Name: Bhargava  
Last Name: Ram

Street Address: 100 Main Street

City: Anytown  
State/Province: CA

ZIP: 11111

E-mail: bhargav\_ram@example.com

Amount due: \$10000

Subtotal: \$10000  
Total: \$10000

Continue →

Show desktop

The screenshot shows a payment page titled "Mission Funding". On the left, there are fields for "Card Holder Name" (John Doe), "Card Number" (1234567890123456), "Expiry Date" (01/35), and "CVC/CVV" (123). On the right, a summary table shows the following details:

Amount due	
<b>\$10015</b>	
Subtotal	\$10000
Taxes	\$5
Shipping	\$10
<b>Total</b>	<b>\$10015</b>

Below the form are buttons for "Back to Cart" and "Purchase →". At the bottom, there are links for "QUICK LINKS" (Gadget Repository, About), "TOOLS" (Information, Topology), and "CONTACT" (Email, Phone). A note at the bottom states: "This site is for demonstration purposes only".

## If Pipeline Fails?

- We will get mail that Pipeline Failed
- We will do this using Event Bridge
- For that First we should create Topic then add subscription
- Then Create Lambda
- Then Go to Event Bride and select CodePipeline(Failure)

AWS Notifications<no-reply@sns.amazonaws.com>

To: Bhargava Ram Kulla(UST,IN)

Tue 6/24/2025 7:19 PM

**External Email**  
Do not click any links or open any attachments unless you trust the sender and know the content is safe.

**✖ Pipeline 'APPLICATION-PIPELINE' has FAILED.**  
Execution ID: 79f2e94e-d5ef-4d4c-be76-ab62e6a1e07d  
Failed Stage: Error fetching stage: 'stageStates'  
State: FAILED

--  
If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:  
[https://urldefense.com/v3/\\_https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:423623849965:bhargava:082a4489-4ebb-45e1-9d67-1c67caf1f259&Endpoint=289244@ust.com\\_](https://urldefense.com/v3/_https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:423623849965:bhargava:082a4489-4ebb-45e1-9d67-1c67caf1f259&Endpoint=289244@ust.com_);!!PdM5GIU!Q2n0UgnUoPV4J1qpPlsKq8UIDckjoZmDxx5RrWpncTXkcMYbKSrgMAp0kIOzHHMLu-R4nSh1gNx1OpzNDEeCx8\$

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at  
[https://urldefense.com/v3/\\_https://aws.amazon.com/support\\_](https://urldefense.com/v3/_https://aws.amazon.com/support_);!!PdM5GIU!Q2n0UgnUoPV4J1qpPlsKq8UIDckjoZmDxx5RrWpncTXkcMYbKSrgMAp0kIOzHHMLu-R4nSh1gNx1OpzjQYL0o\$

## REGION 2 (us-west-1)

### Codecommit

The screenshot shows the AWS CodeCommit interface. On the left, there's a sidebar with navigation links like 'Source' (selected), 'Getting started', 'Repositories', 'Code', 'Pull requests', 'Commits', 'Branches', 'Git tags', 'Settings', 'Approval rule templates', 'Build' (selected), 'Deploy', 'Pipeline', and 'Settings'. The main area is titled 'Terraform\_infra' and shows a list of files: buildspec.yaml, main.tf, outputs.tf, and variables.tf. There are buttons for 'Notify' (dropdown), 'Reference' (dropdown set to 'main'), 'Create pull request', and 'Clone URL'.

The screenshot shows the AWS CodeBuild project creation screen. It asks for a 'Project name' (Terraform-build) and 'Project type' (Default project selected). Below that is an 'Additional configuration' section with a 'Description' field. The 'Source' section is expanded, showing 'Source 1 - Primary' with 'Source provider' set to 'AWS CodeCommit' and 'Repository' set to 'Terraform\_infra'. A 'Reference type' dropdown is also present.

### CodeBuild using CodeCommit

The screenshot shows the AWS CodeBuild project configuration screen for 'Terraform-build'. It displays 'Configuration' details: Source provider (AWS CodeCommit), Primary repository (Terraform\_infra), Artifacts upload location (disabled), and Service role (arn:aws:iam:423623849965:role/service-role/codebuild-Terraform-build-service-role). The 'Build history' tab is selected, showing one build run: Terraform-build-349d801-8997-4ecf-8219-fab9f80b598, which succeeded with status 'Succeeded', build number 3, source version 'refs/heads/main', submitter 'Bhargav1', duration '6 minutes 12 seconds', and completed 'Just now'.

Screenshot of the AWS CodeBuild console showing the build status for a Terraform build.

**Build status:**

Status	Initiator	Build ARN	Resolved source version
<span style="color: green;">Succeeded</span>	Bhargav1	arn:aws:codebuild:us-west-1:423623849965:mmf:65.build/Terraform-build:34c9d801-8997-4ecf-8219-fa8f980b5898	4dedbc536f3afb83851986f30b9363e7643ff79a
Start time	End time	Build number	
Jun 26, 2025 11:06 AM (UTC+5:30)	Jun 26, 2025 11:12 AM (UTC+5:30)	3	

**Build logs:** Showing the last 618 lines of the build log. [View entire log](#) [Tail logs](#)

```

[Container] 2025/06/26 05:36:45.741399 Running on CodeBuild On-demand
[Container] 2025/06/26 05:36:45.741415 Waiting for agent ping
[Container] 2025/06/26 05:36:47.849670 Waiting for DOWNLOAD SOURCE
[Container] 2025/06/26 05:36:53.770253 Phase is DOWNLOAD SOURCE
[Container] 2025/06/26 05:36:53.771558 CODEBUILD_SRC_DIR=/codebuild/output/src895837439/src/git-codecommit.us-west-1.amazonaws.com/v1/repos/Terraform_infra
[Container] 2025/06/26 05:36:53.772928 YAML location is codebuild/output/src895837439/src/git-codecommit.us-west-1.amazonaws.com/v1/repos/Terraform_infra/buildspec.yaml

```

Screenshot of the AWS CodeBuild console showing the list of build projects.

**Build projects:**

Name	Source provider	Repository	Latest build status	Description	Last Modified
Terraform-build	AWS CodeCommit	Terraform_infra	<span style="color: green;">Succeeded</span>	-	27 minutes ago

## Created ECR's

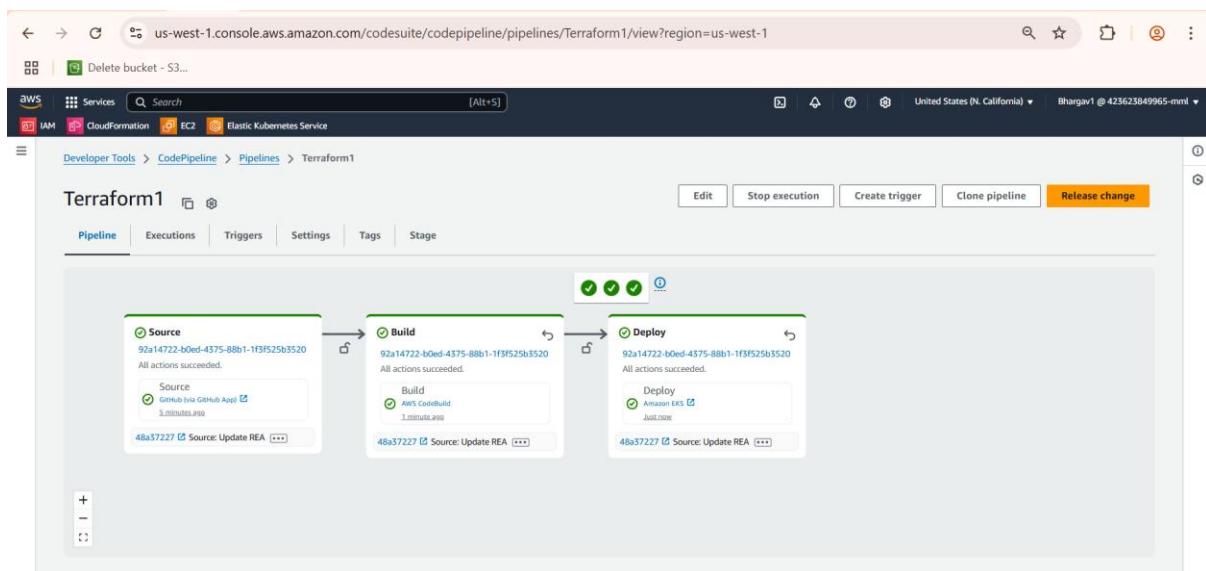
Screenshot of the AWS Amazon Elastic Container Registry (Amazon ECR) console showing the private registry repositories.

**Private repositories:**

Repository name	URI	Created at	Tag immutability	Encryption type
cart	423623849965.dkr.ecr.us-west-1.amazonaws.com/cart	June 20, 2025, 18:02:14 (UTC+05:5)	Mutable	AES-256
catalog	423623849965.dkr.ecr.us-west-1.amazonaws.com/catalog	June 20, 2025, 18:02:24 (UTC+05:5)	Mutable	AES-256

Pipelines Info

Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions
Terraform1	Succeeded	Source - 48a37227 Update README.md	5 minutes ago	<span>View details</span>



Check all pods are running or not then check service

**aws eks update-kubeconfig --region us-west-1 --name ecommerce-cluster**

```

$ aws eks update-kubeconfig --region us-west-1 --name ecommerce-cluster
Updated context arn:aws:eks:us-west-1:423623849965:cluster/ecommerce-cluster in /home/cloudshell-user/.kube/config
$ kubectl get nodes
NAME   STATUS   ROLES   AGE   VERSION
ip-10-0-3-222.us-west-1.compute.internal   Ready   <none>   48m   v1.29.15-eks-473151a
ip-10-0-4-194.us-west-1.compute.internal   Ready   <none>   48m   v1.29.15-eks-473151a
~ $ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
cart-7d8c5cf7-dxzf7   1/1   Running   0          14m
cart-7d8c5cf7-lz5d7   1/1   Running   0          14m
catalog-6df5b694fb-bqjnv   1/1   Running   0          14m
catalog-6df5b694fb-bqjnv   1/1   Running   0          14m
store-e-150654918878   1/1   Running   0          14m
~ $ kubectl get svc
NAME          TYPE        CLUSTER-IP      EXTERNAL-IP      PORT(S)        AGE
cart-svc     LoadBalancer 172.28.238.211  ab58093845ed64c78ac130b3f4ca4156-1876844573.us-west-1.elb.amazonaws.com  80:31284/TCP   14m
catalog-svc  LoadBalancer 172.28.240.222  a4c7af79889648d7a2f9eb5547cd5-54677947.us-west-1.elb.amazonaws.com  80:3189/TCP   14m
kubernetes   ClusterIP   172.28.0.1       <none>           443/TCP       23m
storage-svc  LoadBalancer 172.28.226.191  ab4c9bfcd25d48fe92ca2965b4b94d-219534627.us-west-1.elb.amazonaws.com  80:39396/TCP   14m
~ $ 

```

## Route53

The screenshot shows two views of the AWS Route 53 console.

**Health checks (2) Info**

Route 53 health checks monitor the health and performance of your application's servers and endpoints.

ID	Name	Details	Status in last 24 hours	Current s...	Alarm	Actions
2ce57053-4c52...	secondary	http://ab4c69bf...	<span>Healthy</span>	<span>None</span>	<a href="#">Create alarm</a>	<span>⋮</span>
e0662d27-45d7...	primary	http://a4b12135...	<span>Healthy</span>	<span>None</span>	<a href="#">Create alarm</a>	<span>⋮</span>

**Hosted zone details**

Records (4) Info

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

Record ...	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...)	Health ...	Evaluat...	Recor...
bhargavk...	A	Failover	Primary	Yes	dualstack.a4b12135d0d6a45...	-	e0662d27...	Yes	1
bhargavk...	A	Failover	Secondary	Yes	dualstack.ab4c69bf825d48f...	-	2ce57053...	Yes	2
bhargavk...	NS	Simple	-	No	ns-1198.awsdns-21.org. ns-351.awsdns-43.com. ns-680.awsdns-21.net. ns-1674.awsdns-17.co.uk.	172800	-	-	-
bhargavk...	SOA	Simple	-	No	ns-1198.awsdns-21.org. aw...	900	-	-	-

Website accessed with bhargavkulla.com

The screenshot shows the website [bhargavkulla.com](http://bhargavkulla.com).

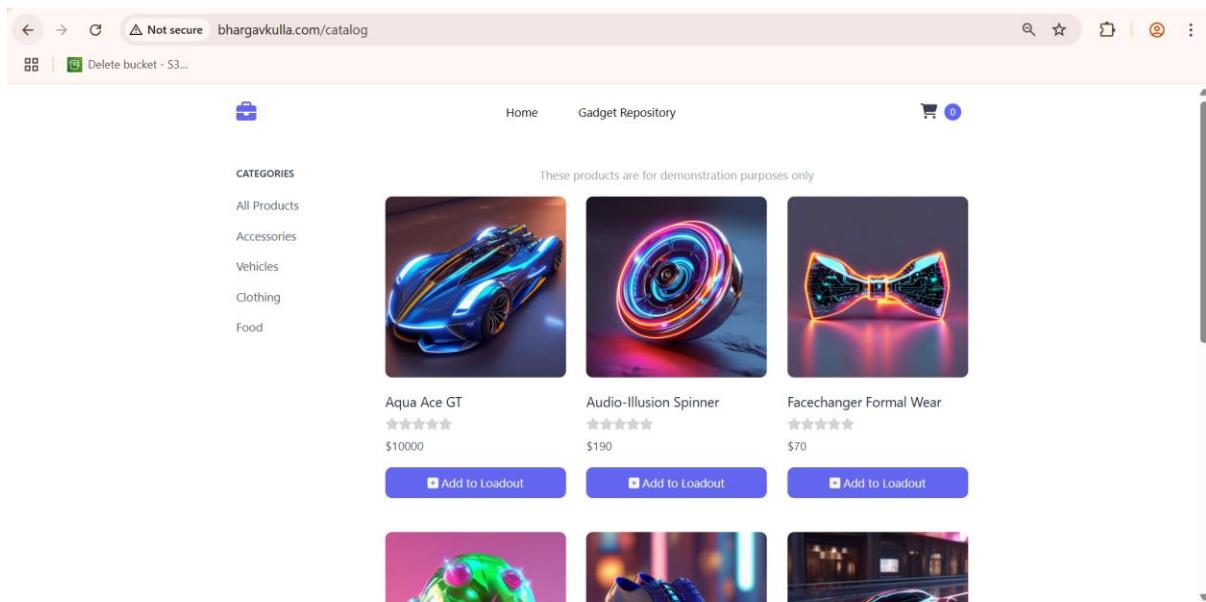
The most public Secret Shop

Everything a secret agent needs, minus the paperwork

Explore →

Mission Critical Gear

View Gadget Repository →



## Prometheus and Grafana

