**UpGrad Course 5-Capstone Project**

GitHub : <https://github.com/bharathkatta/Capstone-Project>

# **Task 1: Setup EKS Cluster**

AWS Configuration

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Terraform-configuration

Text

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VPC- Creation

VPC

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Subnets

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Description automatically generated

Subnets tags

Graphical user interface, text, application, email

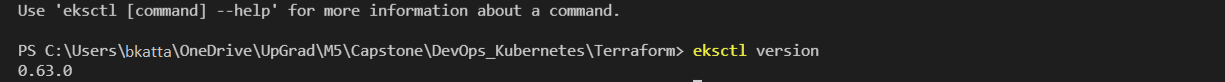
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Nat Gateway

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Eksctl setup



**Creating AWS EKS Cluster**

My-eks-conf.yaml

Provide the VPC and Subnets details created with VPC in cluster file according to requirements

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Run: eksctl create cluster -f my-eks-conf.yaml

Or run: make create\_cluster (this is the direct method of running the files with make command)

Wait for 15-20 minutes

Graphical user interface, text

Description automatically generated

EKS cluster in console

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Install the following add ons to the EKS cluster:

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Deploying Cert manager

Text

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Deploying Ingress controller

Text

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**Task 2: Deployment of sample application**

Creating Docker file and deploying into ECR

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Graphical user interface, application

Description automatically generated

Deploying upg-loadme.yaml and upg-loadme-ingress.yaml files

eksctl apply –f "upg-loadme.yaml”

eksctl apply –f “upg-loadme-ingress.yaml”

Text

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Load-balancer end point:

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application

Description automatically generated

**Task 3: Deploy Redis server on Kubernetes**

Redis-server:

A screenshot of a computer

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Redis-server:

Text

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Redis-cli:

Text

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**Task 4: Test auto scaling of the application.**

Metrics server deploying:

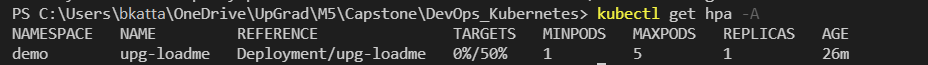
Text

Description automatically generated

helm repo add metrics-server <https://kubernetes-sigs.github.io/metrics-server/>

helm upgrade --install metrics-server metrics-server/metrics-server --namespace demo

Metrics server



Followed the below link and installed apache bench load testing

<https://www.digitalocean.com/community/tutorials/how-to-use-apachebench-to-do-load-testing-on-an-ubuntu-13-10-vps>

Load increase with ab  
ab -n100 -c10 'http://k8s-demo-upgloadm-d1877ac40b-1171554919.us-east-1.elb.amazonaws.com/load?scale=100'

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After increasing load, hpa scaling

Text

Description automatically generated with medium confidence

ab -n300 -c10 'http://k8s-demo-upgloadm-d1877ac40b-1171554919.us-east-1.elb.amazonaws.com/load?scale=300'

Text

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Load decreases according to the requests

Text

Description automatically generated

Top Pods in AWS -EKS

Text

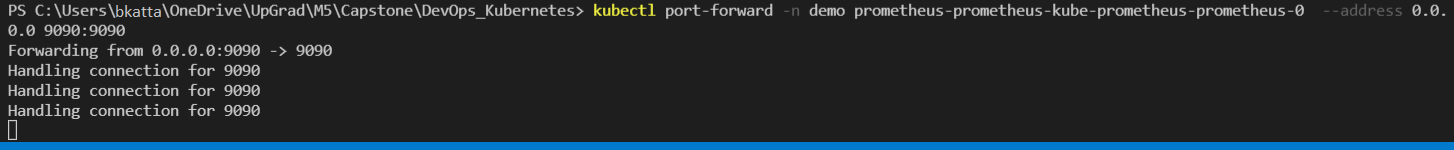
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Port forwarding:

Forwarding 3000 and 9090 ports to access dashboards

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Grafana-Prometheus-Dashboard

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[Prometheus](http://localhost:9090/graph) Dashboard

Graphical user interface

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