**LAB1**

**I.Requirement:**

1. Architecture

Diagram

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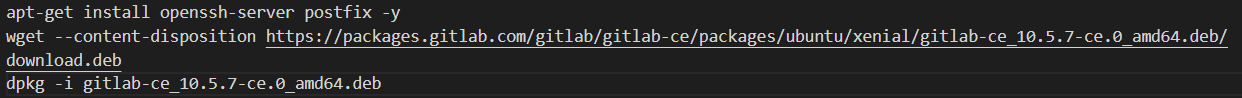
2.Server Requires

|  |  |  |
| --- | --- | --- |
| **No** | **Function** | **Type** |
| 1 | Jenkins server | Amazon Linux 2 |
| 2 | Gitlab | Ubuntu18.08 |
| 3 | K8S cluster | EKS |

**II.Step by step:**

1.Gitlab Server :

- Download gitlab package and install :



- Then edit external URL :

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- Reconfigure



2.Jenkins server :

* Setup docker then create Jenkins container in ec2 by below automation script :

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The access to Jenkins url by IP:8080/Jenkins and complete the setup wizard

- Add node host machine to Jenkins :

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Result :

Table

Description automatically generated with medium confidence

3. K8S cluster (master & worker) :

- Install tool needed for setup EKS cluster :

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- Next configure aws cli by cmd : aws configure

- Setup eks cluster :

**Amazon Web Services** cung cấp ba option để deploy Kubernetes vào EKS:

* Option 1: Fargate - Linux
* Option 2: Managed Node - Linux
* Option 3: Self-Managed Node - Windows

We will use option 2 for this lab .

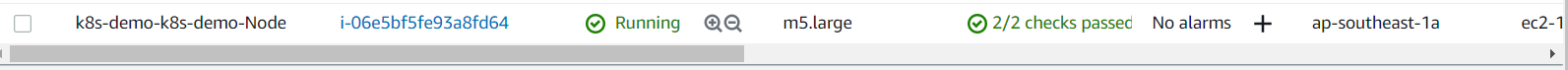
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Result :

A screenshot of a computer

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4.Setup app as the requirements

- Install helm in master node by below cmd (need to use helm version 3.8.2):

**$** curl -L https://git.io/get\_helm.sh | bash -s -- --version v3.8.2

* Define helm chart:

.Run this command for creating a new chart :

*helm create <chart-name>*

.Go to the directory chart and define chart :

1.Chart.yaml

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2. \_\_helpers.tpl

Text

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3. postgres-config.yml

Text

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4. postgres-pvc.yaml

Text

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5. service-be.yaml

Text

Description automatically generated

6.service-fe.yaml

Text

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7. deployment-fe.yaml

Text

Description automatically generated

8. deployment-be.yaml

Text

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.Create chart follow this format :

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.Run this command to check your helm chart :

*helm lint ./<chart-name>*

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.Run this command to see the templates with all values:

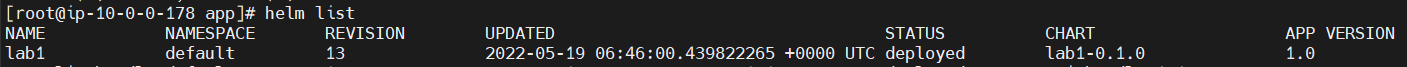
*helm template ./<chart-name>*

.Run this command to install app by helm chart :

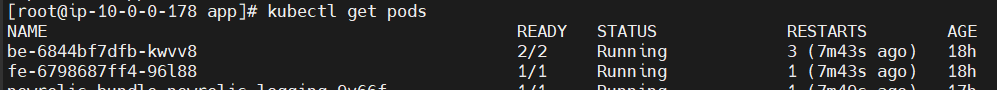
*helm install <name> <chart-name>/ --values <chart-name>/values.yaml*

.Run this command to see status chart:

*helm list*

**

.Run this command to see status pod and deploy:



*Text

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.Run this command to upgrade chart:

*helm upgrade <name> ./<chart-name>*

.After all pods backend is running , execute query sql to postgres db :

.exec to pods and run cmd:

* kubectl exec -i -t <pod-be> --container postgres -- /bin/bash
* psql -h localhost -U admin --password -p 5432 postgresdb
* execute query to postgress

Graphical user interface, text, application

Description automatically generated

4.Define app configuration and Jenkins pipeline :

.Edit DB information in queries.js in source be as below pic :

Text

Description automatically generated

.Edit BEURL in source FE

Text

Description automatically generated

.add agent in jenkins and then define Jenkins pipeline :

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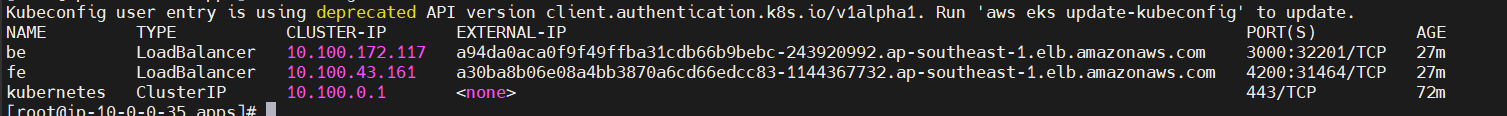
Text

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A screenshot of a computer

Description automatically generated with medium confidence

We will use LoadBalancer type instead of ClusterIP type in svc . Result :



**Result** :

Graphical user interface, table

Description automatically generated

Graphical user interface

Description automatically generated

Setup new relic for host :

* Register free account
* Copy License
* Create file yaml by below cmd:

echo "license\_key: YOUR\_LICENSE\_KEY" | sudo tee -a /etc/newrelic-infra.yml

* Add repository:

sudo curl -o /etc/yum.repos.d/newrelic-infra.repo <https://download.newrelic.com/infrastructure_agent/linux/yum/amazonlinux/2/x86_64/newrelic-infra.repo>

* Refresh repository :

sudo yum -q makecache -y --disablerepo='\*' --enablerepo='newrelic-infra'

* Install :

sudo yum install newrelic-infra -y

Setup new relic for container by helm :

* Create file values and define as below pic

Text

Description automatically generated

* Add repo to helm chart :

helm repo add newrelic <https://helm-charts.newrelic.com>

* Install by helm chart :

helm upgrade --install newrelic-bundle newrelic/nri-bundle -f your-custom-values.yaml