**LAB1**

**I.Requirement:**

1. Architecture

Diagram

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2.Server Requires

|  |  |  |
| --- | --- | --- |
| **No** | **Function** | **Type** |
| 1 | Jenkins server | Amazon Linux 2 |
| 2 | K8S cluster ( master ) | Amazon Linux 2 |
| 3 | K8S cluster (worker) | Amazon Linux 2 |

**II.Step by step:**

1.Jenkins server :

* Setup Jenkins in ec2 by below automation script :

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Then access to URL : <http://IP:8080> and input init password .

* Setup docker in ec2 by below automation script:

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Result :

Text

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Run this command to add user Jenkins to Docker group : $ sudo usermod -aG docker jenkins

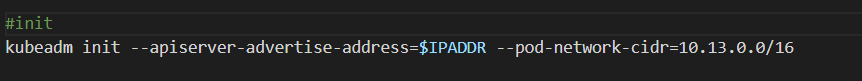
2. K8S cluster (master & worker) :

* Need to setup docker as above step
* Setup Kubernetes cluster by below automation script (both master & worker)

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* After the installation have finished, run this command in master server :



Result :

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* You will see the cmd for joining cluster as above picture, copy and run this command in worker server

Run this command: “systemctl start kubelet“ then run below command

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Check status node , you will see status **NotReady** as below picture

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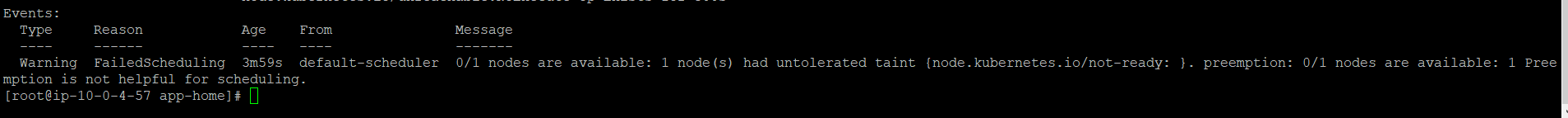
Check pods in kube-system to know a reason as below picture, you will see coredns pods still pending

Text

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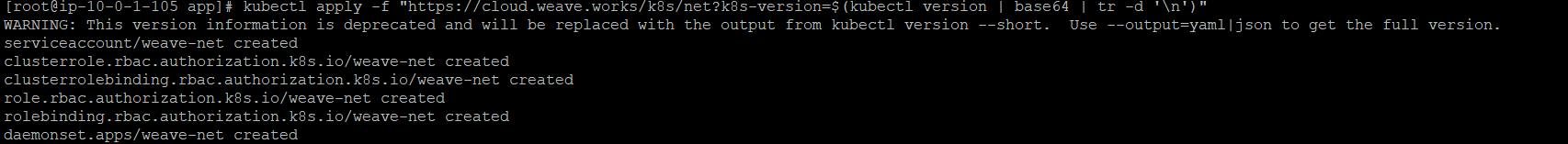
Describe this pods to know a reason





Run this command to resolve above issue:

kubectl apply -f "https://cloud.weave.works/k8s/net?k8s-version=$(kubectl version | base64 | tr -d '\n')"



Check pods again:

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Check status node again:

3.Setup app as the requirements

- Install helm in master node by below cmd:

**$** curl -fsSL -o get\_helm.sh https://raw.githubusercontent.com/helm/helm/main/scripts/get-helm-3

**$** chmod 700 get\_helm.sh

**$** ./get\_helm.sh

* 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

Description automatically generated

3. postgres-config.yml

Text

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4. postgres-pvc.yaml

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5. service-be.yaml

Text

Description automatically generated

6.service-fe.yaml

Text

Description automatically generated

7. deployment-fe.yaml

Text

Description automatically generated

8. deployment-be.yaml

Text

Description automatically generated

.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:

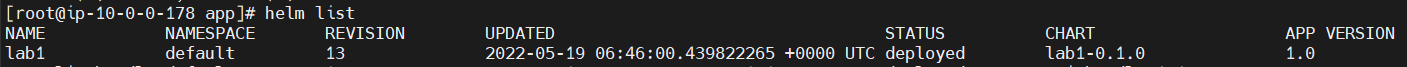
*helm template ./<chart-name>*

.Run this command to install app by helm chart :

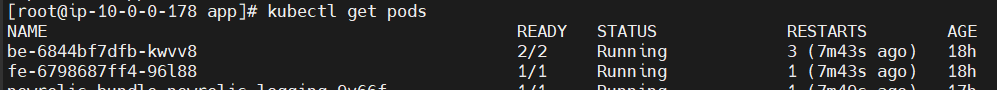
*helm install <name> <chart-name>/ --values <chart-name>/values.yaml*

.Run this command to see status chart:

*helm list*

**

.Run this command to see status pod and deploy:



*Text

Description automatically generated*

.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 :

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.Edit BEURL in source FE

Text

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.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

**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

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* 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