School of Computer Science, Engineering and Applications(SCSEA)
B.Tech FIY (CCSA)
Subject : Cloud Automation & Devops (P)

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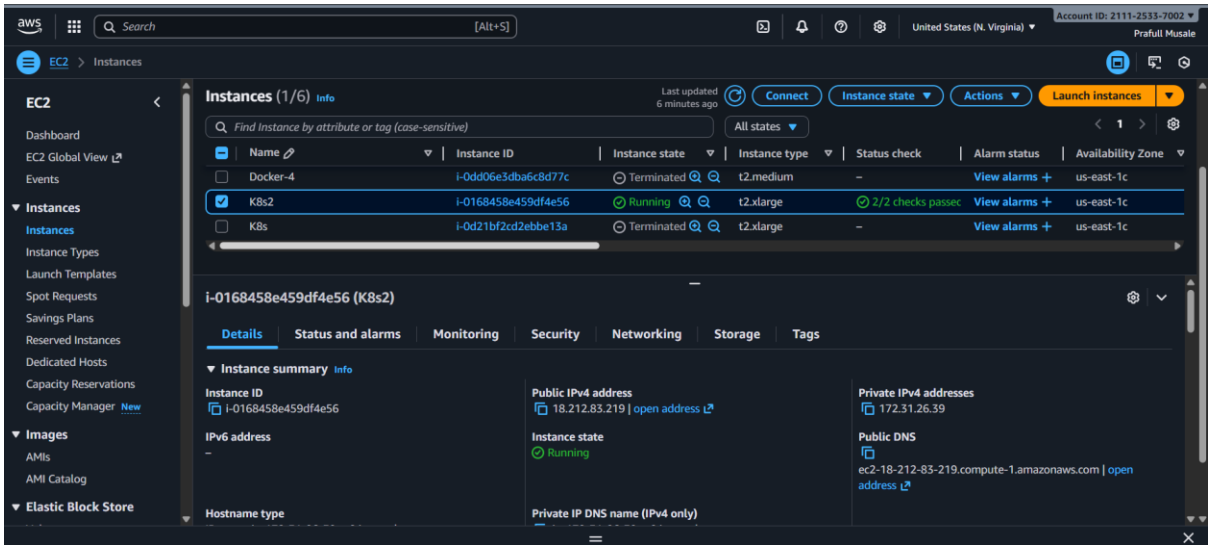
Title of Practicle : **6. Deploying multi-container on Kubernetes**

1. Launch an instance with installation of docker and Kubernetes



2. User data for installation

```
#!/bin/bash
sudo apt-get update -y
sudo apt-get install \
apt-transport-https \
ca-certificates \
curl \
gnupg-agent \
software-properties-common -y
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
sudo add-apt-repository \
"deb [arch=amd64] https://download.docker.com/linux/ubuntu \
$(lsb_release -cs) \
```

```
stable"

sudo apt-get install docker-ce docker-ce-cli containerd.io -y

sudo usermod -a -G docker ubuntu

 # Initialize Kubernetes cluster

sudo kubeadm init --pod-network-cidr=192.168.0.0/16 --ignore-preflight-
errors=NumCPU || (echo 'Failed to initialize cluster' && exit 1)


# Setup kubectl

mkdir -p $HOME/.kube ; sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config ||
echo 'Failed to copy admin.conf' ; sudo chown $(id -u):$(id -g) $HOME/.kube/config ||
echo 'Failed to change ownership of config'


# Install Calico CNI

kubectl apply -f
https://raw.githubusercontent.com/projectcalico/calico/v3.28.3/manifests/calico.yam
l


# Save join command with full permissions

sudo kubeadm token create --print-join-command
```

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3. Now create multi-container.yml file

```
apiVersion: v1
kind: Pod
metadata:
  name: two-containers
spec:
  restartPolicy: OnFailure
  initContainers:
    - name: populate-content
      image: debian:stable-slim
      command: ["/bin/sh", "-c"]
      args:
        - mkdir -p /pod-data && echo "Hello from the init container" > /pod-data/index.html
      volumeMounts:
        - name: shared-data
          mountPath: /pod-data
  containers:
    - name: nginx-container
      image: nginx:stable-alpine
      ports:
        - containerPort: 80
      volumeMounts:
        - name: shared-data
          mountPath: /usr/share/nginx/html:ro
  volumes:
    - name: shared-data
      emptyDir: {}

~
~
"multi-container.yml" 27L, 651B                                    27,0-1        All
```

4. Then apply it

```
ubuntu@ip-172-31-26-39:~$ kubectl apply -f multi-container.yml
pod/two-containers created
ubuntu@ip-172-31-26-39:~$ kubectl get pods -w
```

5. Now check the pods

```
NAME             READY   STATUS    RESTARTS   AGE
two-containers   1/1     Running   0          23s

^Cubuntu@ip-172-31-26-39:~kubectl port-forward pod/two-containers 8080:8080
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
^[[A^Cubuntu@ip-172-31-26-39:~$ ^C
```