Software Construction and Development

Assignment 03

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SE-Q

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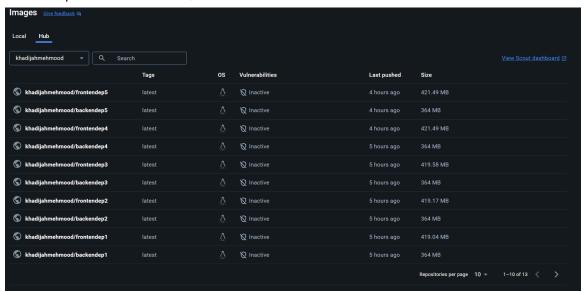
Docker hub

Docker build -t imagename .

docker tag name username/name:latest

Docker push username/name

K8s Playground
1. Initializes cluster master node:

- kubeadm init --apiserver-advertise-address $(hostname -i) --pod-network-cidr 10.5.0.0/16

- kubeadm token create --print-join-command

- kubeadm join 192.168.0.13:6443 --token ufbx6r.2xm6j6xc6muaelyg --discovery-token-ca-cert-hash sha256:28e2a20c9b26bcf9eff3e95be819f90caac7e729dfeeb051998fec2d9a4bf17c
- [node1 ~]$ git clone https://github.com/Khadijahmehmoodd/SCD-A3-K8S.git
- [node1 ~]$ cd SCD-A3-K8S

episode-01

- [node1 SCD-A3-K8S]$ cd episode-01
- [node1 episode-01]$ ls
- [node1 episode-01]$ cd manifests
- [node1 manifests]$ kubectl apply -f deployment.yaml -n cluster
- [node1 manifests]$ kubectl apply -f service.yaml -n cluster

episode-02

- [node1 SCD-A3-K8S]$ cd episode-02
- [node1 episode-02]$ cd manifests
- [node1 manifests]$ kubectl apply -f deployment.yaml -n cluster
- [node1 manifests]$ kubectl apply -f service.yaml -n cluster

episode-03

- [node1 SCD-A3-K8S]$ cd episode-03
- [node1 episode-03]$ cd manifests
- [node1 manifests]$ kubectl apply -f deployment.yaml -n cluster
- [node1 manifests]$ kubectl apply -f service.yaml -n cluster

episode-04

- [node1 SCD-A3-K8S]$ cd episode-04
- [node1 episode-04]$ cd manifests
- [node1 manifests]$ kubectl apply -f deployment.yaml -n cluster
- deployment.apps/episode4-deployment created
- [node1 manifests]$ kubectl apply -f service.yaml -n cluster
- service/episode4-service created

episode-05

- [node1 SCD-A3-K8S]$ cd episode-05
- [node1 episode-05]$ cd manifests
- [node1 manifests]$ kubectl apply -f deployment.yaml -n cluster
- deployment.apps/episode5-deployment created
- [node1 manifests]$ kubectl apply -f service.yaml -n cluster
- service/episode5-service created

```
service/episode5-service created
[node1 manifests]$ kubectl get deployments -n cluster
NAME                    READY   UP-TO-DATE   AVAILABLE   AGE
episode1-deployment     0/2     2            0           4m2s
episode2-deployment     0/2     2            0           3m14s
episode3-deployment     0/2     2            0           2m25s
episode4-deployment     0/2     2            0           109s
episode5-deployment     0/2     2            0           72s
[node1 manifests]$
```

Kubectl get pods -n cluster

```
[node1 manifests]$ kubectl get pods -n cluster
NAME                                    READY   STATUS    RESTARTS   AGE
episode1-deployment-7bb757c6bb-5hqvg    0/2     Pending   0          5m32s
episode1-deployment-7bb757c6bb-scf56    0/2     Pending   0          5m32s
episode2-deployment-5cb57785-l2g7p      0/2     Pending   0          4m44s
episode2-deployment-5cb57785-s7zwf      0/2     Pending   0          4m44s
episode3-deployment-dc5457944-4sv97     0/2     Pending   0          3m55s
episode3-deployment-dc5457944-cwvbl     0/2     Pending   0          3m55s
episode4-deployment-74978c6c47-7bwtp    0/2     Pending   0          3m19s
episode4-deployment-74978c6c47-j4v82    0/2     Pending   0          3m19s
episode5-deployment-7f97479c46-78s5r    0/2     Pending   0          2m42s
episode5-deployment-7f97479c46-8vj4p    0/2     Pending   0          2m42s
[node1 manifests]$
```

Kubectl get service -n cluster

```
[node1 manifests]$ kubectl get service -n cluster
NAME              TYPE           CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
episode1-service  LoadBalancer   10.108.110.26    <pending>     80:30751/TCP   6m46s
episode2-service  LoadBalancer   10.97.180.23     <pending>     81:31433/TCP   6m6s
episode3-service  LoadBalancer   10.101.103.222   <pending>     82:31258/TCP   5m15s
episode4-service  LoadBalancer   10.105.86.116    <pending>     83:31772/TCP   4m42s
episode5-service  LoadBalancer   10.100.41.188    <pending>     84:31779/TCP   4m3s
[node1 manifests]$
```

- kubectl expose deployment episode1-deployment --type=NodePort --port=3000 --target-port=5000 -n cluster

- kubectl expose deployment episode2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster

- kubectl expose deployment episode3-deployment --type=NodePort --port=3002 --target-port=5002 -n cluster

- kubectl expose deployment episode4-deployment --type=NodePort --port=3003 --target-port=5003 -n cluster

- kubectl expose deployment episode5-deployment --type=NodePort --port=3004 --target-port=5004 -n cluster

```
[node1 manifests]$ kubectl expose deployment episode2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
service/episode2-deployment exposed
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3000 --target-port=5000 -n cluster
service/episode1-deployment exposed
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3002 --target-port=5002 -n cluster
Error from server (AlreadyExists): services "episode1-deployment" already exists
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3000 --target-port=5000 -n cluster
Error from server (AlreadyExists): services "episode1-deployment" already exists
[node1 manifests]$ kubectl expose deployment episod21-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (NotFound): deployments.apps "episod21-deployment" not found
[node1 manifests]$ cd ..
[node1 episode-05]$ cd ..
[node1 SCD-A3-K8S]$ kubectl expose deployment episod2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (NotFound): deployments.apps "episod2-deployment" not found
[node1 SCD-A3-K8S]$ kubectl expose deployment episode2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (AlreadyExists): services "episode2-deployment" already exists
[node1 SCD-A3-K8S]$ kubectl expose deployment episode3-deployment --type=NodePort --port=3002 --target-port=5002 -n cluster
service/episode3-deployment exposed
[node1 SCD-A3-K8S]$ kubectl expose deployment episode4-deployment --type=NodePort --port=3003 --target-port=5003 -n cluster
service/episode4-deployment exposed
[node1 SCD-A3-K8S]$ kubectl expose deployment episode5-deployment --type=NodePort --port=3004 --target-port=5004 -n cluster
service/episode5-deployment exposed
```

- Kubectl get service -n cluster

```
[node1 SCD-A3-K8S]$ kubectl get services -n cluster
NAME                  TYPE           CLUSTER-IP       EXTERNAL-IP    PORT(S)          AGE
episode1-deployment   NodePort       10.105.142.101   <none>         3000:32715/TCP   5m35s
episode1-service      LoadBalancer   10.108.110.26    <pending>      80:30751/TCP     40m
episode2-deployment   NodePort       10.111.225.194   <none>         3001:31024/TCP   6m5s
episode2-service      LoadBalancer   10.97.180.23     <pending>      81:31433/TCP     39m
episode3-deployment   NodePort       10.111.158.212   <none>         3002:32193/TCP   2m29s
episode3-service      LoadBalancer   10.101.103.222   <pending>      82:31258/TCP     38m
episode4-deployment   NodePort       10.108.238.199   <none>         3003:32435/TCP   2m3s
episode4-service      LoadBalancer   10.105.86.116    <pending>      83:31772/TCP     38m
episode5-deployment   NodePort       10.106.215.136   <none>         3004:31397/TCP   101s
episode5-service      LoadBalancer   10.100.41.188    <pending>      84:31779/TCP     37m
[node1 SCD-A3-K8S]$ ^[[2a
```