UNIVERSITY OF PETROLEUM & ENERGY STUDIES

Dehradun

APPLICATION CONTAINERIZATION

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Experiment-7

Start containers using Kubectl

Step-1: Launch Cluster

```
minikube start --wait=false
```

```
kubectl get nodes
```

```
Terminal
Your Interactive Bash Terminal. A safe place to learn and execute commands.

$
$ minikube start --wait=false
* minikube v1.8.1 on Ubuntu 18.04
* Using the none driver based on user configuration
* Running on localhost (CPUs=2, Memory=2460MB, Disk=145651MB) ...
* OS release is Ubuntu 18.04.4 LTS
* Preparing Kubernetes v1.17.3 on Docker 19.03.6 ...
  - kubelet.resolv-conf=/run/systemd/resolve/resolv.conf
* Launching Kubernetes ...
* Enabling addons: default-storageclass, storage-provisioner
* Configuring local host environment ...
* Done! kubectl is now configured to use "minikube"
$ kubectl get nodes
NAME       STATUS     ROLES    AGE   VERSION
minikube   NotReady   master   12s   v1.17.3
$
```

Step-2: Kubectl run

```
kubectl run http --image=katacoda/docker-http-server:latest --replicas=1
```

```
kubectl get deployments
```

```
kubectl describe deployment http
```

```
$ kubectl run http --image=katacoda/docker-http-server:latest --replicas=1
kubectl run --generator=deployment/apps.v1 is DEPRECATED and will be removed in a future version. Use kubectl run --generator=run-pod/v1
r kubectl create instead.
deployment.apps/http created
$ kubectl get deployments
NAME   READY   UP-TO-DATE   AVAILABLE   AGE
http   1/1     1            1           9s
$ kubectl describe deployment http
Name:                   http
Namespace:              default
CreationTimestamp:      Thu, 08 Apr 2021 10:44:03 +0000
Labels:                 run=http
Annotations:            deployment.kubernetes.io/revision: 1
Selector:               run=http
Replicas:               1 desired | 1 updated | 1 total | 1 available | 0 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  run=http
  Containers:
   http:
    Image:        katacoda/docker-http-server:latest
    Port:         <none>
    Host Port:    <none>
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    NewReplicaSetAvailable
OldReplicaSets:  <none>
NewReplicaSet:   http-774bb756bb (1/1 replicas created)
```

Step-3: Kubectl Expose

```
kubectl expose deployment http --external-ip="172.17.0.40" --port=8000 --target-port=80
```

```
curl http://172.17.0.40:8000
```

```
$ kubectl expose deployment http --external-ip="172.17.0.40" --port=8000 --target-port=80
service/http exposed
$ curl http://172.17.0.40:8000
<h1>This request was processed by host: http-774bb756bb-n7lvl</h1>
$
```

Step-4: Kubectl Expose

```
kubectl run httpexposed --image=katacoda/docker-http-server:latest --replicas=1 --port=80 --hostport=8001
```

```
curl http://172.17.0.40:8001
```

```
docker ps | grep httpexposed
```

```
$ kubectl run httpexposed --image=katacoda/docker-http-server:latest --replicas=1 --port=80 --hostport=8001
kubectl run --generator=deployment/apps.v1 is DEPRECATED and will be removed in a future version. Use kubectl run --generator=run-pod/v1 o
r kubectl create instead.
deployment.apps/httpexposed created
$ curl http://172.17.0.40:8001
<h1>This request was processed by host: httpexposed-68cb8c8d4-mszxl</h1>
$ kubectl get svc
NAME         TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)    AGE
http         ClusterIP   10.108.109.172   172.17.0.40   8000/TCP   30s
kubernetes   ClusterIP   10.96.0.1        <none>        443/TCP    2m54s
$ docker ps | grep httpexposed
8bb8f0d8178e        katacoda/docker-http-server   "/app"                   12 seconds ago      Up 11 seconds
 k8s_httpexposed_httpexposed-68cb8c8d4-mszxl_default_5e7f547e-3c2c-4771-b8ec-5564cb03dd7c_0
7cd5b3a54420        k8s.gcr.io/pause:3.1          "/pause"                 14 seconds ago      Up 13 seconds       0.0.0.0:8001->80/tcp
 k8s_POD_httpexposed-68cb8c8d4-mszxl_default_5e7f547e-3c2c-4771-b8ec-5564cb03dd7c_0
$
```

Step-5: Scale Containers

```
kubectl scale --replicas=3 deployment http
```

```
kubectl get pods
```

```
curl http://172.17.0.40:8000
```

```
$ kubectl scale --replicas=3 deployment http
deployment.apps/http scaled
$ kubectl get pods
NAME                         READY   STATUS    RESTARTS   AGE
http-774bb756bb-jssqx        1/1     Running   0          11s
http-774bb756bb-n7lvl        1/1     Running   0          2m37s
http-774bb756bb-pqslq        1/1     Running   0          11s
httpexposed-68cb8c8d4-mszxl  1/1     Running   0          82s
$ curl http://172.17.0.40:8000
<h1>This request was processed by host: http-774bb756bb-pqslq</h1>
$
```