Application Containerization And Orchestration Lab

Submitted By – Chitwan Singh
SAP ID – 500097009
Enrolment no. – R2142211291
Batch – DevOps B4

Submitted to

– Dr. Hitesh Kumar Sharma

Lab Exercise 10– Creating Deployment in Kubernetes

Below is a lab exercise that demonstrates how to create and manage a Deployment in
Kubernetes.
Step 1: Create a Deployment Configuration File

Create a file named deployment.yaml with the following configuration:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: apache-deployment
  labels:
    app: web
spec:
  replicas: 10
  selector:
    matchLabels:
      app: web
  template:
    metadata:
      labels:
        app: web
    spec:
      containers:
      - name: httpd
        image: httpd
```

Step 2: Apply the Deployment Configuration
Apply the configuration to create the Deployment:
kubectl apply -f deployment.yaml

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl apply -f deployment.yaml
deployment.apps/apache-deployment created
```

Step 3: View the Deployment and Pods
View the created Deployment and the associated Pods:
kubectl get deployments

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl get deployments
NAME                 READY    UP-TO-DATE    AVAILABLE    AGE
apache-deployment    2/10     10            2            24s
```

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl get deployments
NAME                 READY    UP-TO-DATE    AVAILABLE    AGE
apache-deployment    10/10    10            10           3m19s
```

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl get all
NAME                                       READY    STATUS     RESTARTS    AGE
pod/apache-deployment-788fbf66b5-4sbvp     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-8h64h     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-8hkml     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-9n829     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-ccfpv     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-jql5b     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-nd86q     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-qdsvq     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-tpz8m     1/1      Running    0           4m5s
pod/apache-deployment-788fbf66b5-ts2rj     1/1      Running    0           4m5s

NAME                 TYPE         CLUSTER-IP    EXTERNAL-IP    PORT(S)     AGE
service/kubernetes   ClusterIP    10.96.0.1     <none>         443/TCP     18d

NAME                                 READY    UP-TO-DATE    AVAILABLE    AGE
deployment.apps/apache-deployment    10/10    10            10           4m5s

NAME                                              DESIRED    CURRENT    READY    AGE
replicaset.apps/apache-deployment-788fbf66b5      10         10         10       4m5s
```

kubectl get pods

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl get pods
NAME                                   READY    STATUS     RESTARTS    AGE
apache-deployment-788fbf66b5-4sbvp     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-8h64h     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-8hkml     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-9n829     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-ccfpv     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-jql5b     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-nd86q     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-qdsvq     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-tpz8m     1/1      Running    0           4m27s
apache-deployment-788fbf66b5-ts2rj     1/1      Running    0           4m27s
```

Step 4: Delete the Deployment

Delete the Deployment:
kubectl delete deployment my-deployment

```
C:\Users\Vidyarthi\Desktop\ACO EXPERIMENT>kubectl delete deployment apache-deployment
deployment.apps "apache-deployment" deleted
```

Conclusion
This exercise demonstrated how to create, manage, and update a Deployment in
Kubernetes. You learned how to scale the Deployment, update the image, and perform a
rolling update to the Deployment. Experiment further with different configurations and
update strategies to deepen your understanding of managing Deployments in Kubernetes