Application Containerization

And

Orchestration LAB

Lab Instructor – Dr. Hitesh Kumar Sharma

Submitted By – Swati Pal

SAP ID – 500097368

Enrolment no. – R2142211342

Batch – DevOps B4

Lab Exercise 9– Creating Replicaset in Kubernetes

Below is a lab exercise that will help you understand and practice creating a Replicaset in Kubernetes:

Step 1: Create a ReplicaSet Configuration File

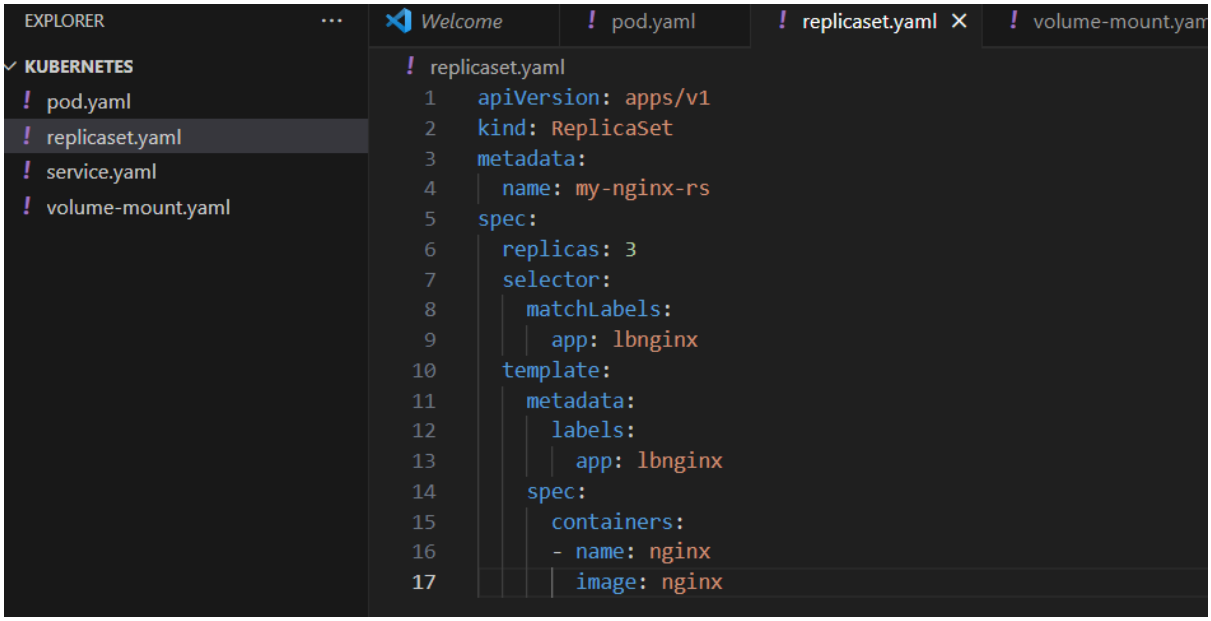
Create a file named replicaset.yaml with the following configuration:

Link of file: (Coly following code from my GitHub repo)

https://github.com/hkshitesh/ACO-LAB-2021-25/blob/main/scripts/replicaset.yaml

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
 name: my-nginx-rs
spec:
 replicas: 3
 selector:
  matchLabels:
   app: lbnginx
 template:
  metadata:
   labels:
    app: lbnginx
  spec:
   containers:
   - name: nginx
```

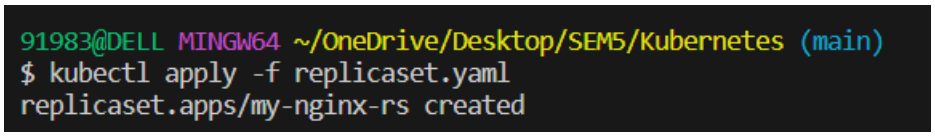
```
    image: nginx
```



Step 2: Apply the ReplicaSet Configuration

Apply the configuration to create the ReplicaSet:

```
kubectl apply -f replicaset.yaml
```



Step 3: View the ReplicaSet and Pods

View the created ReplicaSet and the associated Pods:

```
kubectl get replicaset

kubectl get pods
```

```
91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get replicaset
NAME          DESIRED   CURRENT   READY   AGE
my-nginx-rs   3         3         1       6m1s
```

```
91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get pods
NAME                READY   STATUS             RESTARTS        AGE
my-nginx-pod        1/1     Running            11 (23m ago)    15d
my-nginx-rs-2xnzh   0/1     ImagePullBackOff   0               6m30s
my-nginx-rs-p5b4k   0/1     ImagePullBackOff   0               6m30s
```

Step 4: Scale the ReplicaSet

Scale the ReplicaSet to 5 replicas:

```
kubectl scale replicaset my-nginx-rs --replicas=5
```

```
91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl scale replicaset my-nginx-rs --replicas=5
replicaset.apps/my-nginx-rs scaled

91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get pods
NAME                READY   STATUS              RESTARTS        AGE
my-nginx-pod        1/1     Running             11 (25m ago)    15d
my-nginx-rs-25h2v   0/1     ContainerCreating   0               10s
my-nginx-rs-2xnzh   0/1     ImagePullBackOff    0               7m51s
my-nginx-rs-p5b4k   0/1     ImagePullBackOff    0               7m51s
my-nginx-rs-q4nxh   0/1     ContainerCreating   0               10s
```

Step5:Delete the pod from the replicaset

```
91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get pods
NAME                READY   STATUS              RESTARTS       AGE
my-nginx-pod        1/1     Running             11 (25m ago)   15d
my-nginx-rs-25h2v   0/1     ContainerCreating   0              10s
my-nginx-rs-2xnzh   0/1     ImagePullBackOff    0              7m51s
my-nginx-rs-p5b4k   0/1     ImagePullBackOff    0              7m51s
my-nginx-rs-q4nxh   0/1     ContainerCreating   0              10s

91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl delete pod my-nginx-pod
pod "my-nginx-pod" deleted

91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get pods
NAME                READY   STATUS              RESTARTS   AGE
my-nginx-rs-25h2v   1/1     Running             0          88s
my-nginx-rs-2xnzh   0/1     ImagePullBackOff    0          9m9s
my-nginx-rs-4nhfx   0/1     ContainerCreating   0          5s
my-nginx-rs-p5b4k   1/1     Running             0          9m9s
my-nginx-rs-q4nxh   1/1     Running             0          88s
```

Step 6: Delete the ReplicaSet

Delete the ReplicaSet:

```
kubectl delete replicaset my-replicaset
```

```
91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl delete replicaset my-nginx-rs
replicaset.apps "my-nginx-rs" deleted

91983@DELL MINGW64 ~/OneDrive/Desktop/SEM5/Kubernetes (main)
$ kubectl get all
NAME                 TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   17d
```

Conclusion

This exercise demonstrated how to create, manage, and update a ReplicaSet in Kubernetes. You learned how to scale the ReplicaSet, update the image, and delete the ReplicaSet from the cluster. Experiment further with different configurations and scaling options to deepen your understanding of managing ReplicaSets in Kubernetes.