UNIVERSITY OF PETROLEUM & ENERGY STUDIES

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Lab Exercise 9– Creating Replica set 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:

```
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
```

Welcome | replicaset.yaml

C: > Users > ABC > OneDrive > Desktop > ACO > replicaset.yaml

```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

```

service.yaml | pod.yaml | replicaset.yaml

pod.yaml

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: my-nginx-pod
  labels:
    app: lbnginx
spec:
  containers:
  - name: nginx-container
    image: nginx
```

service.yaml ● | pod.yaml ● | replicaset.yaml

service.yaml

```yaml
apiVersion: v1
kind: Service
metadata:
  name: my-nginx-service-1
spec:
  selector:
    app: lbnginx
  ports:
  - protocol: TCP
    port: 80
    nodePort: 30003
  type: NodePort
```

Step 2: Apply the ReplicaSet Configuration

Apply the configuration to create the ReplicaSet:

kubectl apply -f replicaset.yaml

```
C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl apply -f replicaset.yaml
replicaset.apps/my-nginx-rs created

C:\Users\ABC\OneDrive\Desktop\ACO\Kube>
```

Step 3: View the ReplicaSet and Pods

View the created ReplicaSet and the associated Pods:

kubectl get replicaset

kubectl get pods

```
C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl get replicaset
NAME          DESIRED   CURRENT   READY   AGE
my-nginx-rs   3         3         0       26s

C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl get pods
NAME                READY   STATUS              RESTARTS   AGE
my-nginx-rs-7zw9t   0/1     ContainerCreating   0          34s
my-nginx-rs-l26mb   0/1     ContainerCreating   0          34s
my-nginx-rs-zzrnw   0/1     ContainerCreating   0          34s

C:\Users\ABC\OneDrive\Desktop\ACO\Kube>
```

Step 4: Scale the ReplicaSet

Scale the ReplicaSet to 5 replicas:

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

```
C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl scale replicaset my-nginx-rs --replicas=5
replicaset.apps/my-nginx-rs scaled

C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl get pods
NAME                READY   STATUS              RESTARTS   AGE
my-nginx-rs-7zw9t   0/1     ContainerCreating   0          99s
my-nginx-rs-ds6lk   0/1     ContainerCreating   0          19s
my-nginx-rs-l26mb   0/1     ContainerCreating   0          99s
my-nginx-rs-s989d   0/1     ContainerCreating   0          19s
my-nginx-rs-zzrnw   0/1     ContainerCreating   0          99s
```

Step 5: Delete the ReplicaSet

Delete the ReplicaSet:

kubectl delete replicaset my-replicaset

```
C:\Users\ABC\OneDrive\Desktop\ACO\Kube>kubectl delete replicaset my-nginx-rs
replicaset.apps "my-nginx-rs" deleted

C:\Users\ABC\OneDrive\Desktop\ACO\Kube>
```

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.