

Lab06 – Performing Rolling Updates and Scaling a Deployment

In this exercise, you will create a Deployment with multiple replicas. After inspecting the Deployment, you will update its Pod template. Furthermore, you will use the rollout history to roll back to a previous revision.

1. Create a Deployment named `nginx` with 3 replicas. The Pods should use the `nginx:1.23.0` image and the name `nginx`. The Deployment uses the label `tier=backend`. The Pod template should use the label `app=v1`.

```
brahim@Training:~/lab06-deployment$ vim nginx-deployment.yaml
brahim@Training:~/lab06-deployment$ cat nginx-deployment.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx
  labels:
    tier: backend
spec:
  replicas: 3
  selector:
    matchLabels:
      app: v1
  template:
    metadata:
      labels:
        app: v1
    spec:
      containers:
      - image: nginx:1.23.0
        name: nginx
brahim@Training:~/lab06-deployment$ kubectl apply -f nginx-deployment.yaml
deployment.apps/nginx created
brahim@Training:~/lab06-deployment$
```

2. List the Deployment and ensure that the correct number of replicas is running.

```
brahim@Training:~/lab06-deployment$ kubectl get deploy
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
nginx     3/3     3            3           2m51s
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl get pod
NAME                                READY   STATUS    RESTARTS   AGE
nginx-f4999bd8b-5m5x2              1/1     Running   0          2m54s
nginx-f4999bd8b-7m46x              1/1     Running   0          2m54s
nginx-f4999bd8b-wqpgc              1/1     Running   0          2m54s
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$
```

3. Update the image to `nginx:1.23.4`

```
brahim@Training:~/lab06-deployment$ kubectl set image deployment/nginx nginx=nginx:1.23.4
deployment.apps/nginx image updated
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$
```

4. Verify that the change has been rolled out to all replicas.

```
brahim@Training:~/lab06-deployment$ kubectl get deployment -owide
NAME      READY   UP-TO-DATE   AVAILABLE   AGE     CONTAINERS   IMAGES              SELECTOR
nginx     3/3     1            3           4m31s   nginx        nginx:1.23.4       app=v1
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$
```

5. Scale the Deployment to 5 replicas. You should find 5 Pods controlled by the Deployment.

```
brahim@Training:~/lab06-deployment$ kubectl scale deploy/nginx --replicas=5
deployment.apps/nginx scaled
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl get deploy
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
nginx     4/5     5            4           5m35s
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl get pod
NAME                                READY   STATUS              RESTARTS   AGE
nginx-6ddcdff7cd-bzht4              0/1     ContainerCreating   0          21s
nginx-6ddcdff7cd-lkbbb              1/1     Running             0          19s
nginx-6ddcdff7cd-sdrq2              1/1     Running             0          111s
nginx-6ddcdff7cd-srr2w              1/1     Running             0          21s
nginx-6ddcdff7cd-vczq2              0/1     ContainerCreating   0          56s
nginx-f4999bd8b-5m5x2              1/1     Running             0          5m43s
brahim@Training:~/lab06-deployment$
```

6. Roll back the deployment. You will see the new revision. Inspecting the revision should show the image `nginx:1.23.0`.

```
brahim@Training:~/lab06-deployment$ kubectl rollout history deploy/nginx
deployment.apps/nginx
REVISION  CHANGE-CAUSE
1         <none>
2         <none>

brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl rollout undo deploy/nginx
deployment.apps/nginx rolled back
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl get deploy -owide
NAME      READY   UP-TO-DATE   AVAILABLE   AGE     CONTAINERS   IMAGES              SELECTOR
nginx     5/5     5            5           7m3s    nginx        nginx:1.23.0       app=v1
brahim@Training:~/lab06-deployment$
brahim@Training:~/lab06-deployment$ kubectl rollout history deploy nginx
deployment.apps/nginx
REVISION  CHANGE-CAUSE
2         <none>
3         <none>
brahim@Training:~/lab06-deployment$
```