

Lab Exercise 11- Deployments with Rolling Update and Recreate Strategies

NAME : JIYA TYAGI

SAP ID: 500119743

BATCH 2 DEVOPS

Understand how to use the rolling update and recreate strategies for deploying applications using Kubernetes Deployments.

Step 1: Create a Deployment with Rolling Update Strategy

Create a YAML file for the deployment:

Create a file named **nginx-deployment-rolling.yaml** with the following content:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment-rolling
spec:
  replicas: 10
  minReadySeconds: 10
  selector:
    matchLabels:
      app: web
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxUnavailable: 1
```

```
maxSurge: 5
template:
  metadata:
    labels:
      app: web
  spec:
    containers:
      - name: nginx
        image: hkshitesh/kubedemo:1.0
    ports:
      - containerPort: 80
```

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment-rolling
spec:
  replicas: 5
  selector:
    matchLabels:
      app: web
  strategy:
    type: RollingUpdate
  template:
    metadata:
      labels:
        app: web
    spec:
      containers:
        - name: nginx
          image: nginx:1.19
          ports:
            - containerPort: 80
```

Ln 21, Col 28 | 353 character | Plain text | 100% | Windows (CF | UTF-8

Apply the deployment:

```
kubectl apply -f nginx-deployment-rolling.yaml ; watch "kubectl get rs -o wide"
PS C:\Users\dimpl\k8s-lab> kubectl apply -f nginx-deployment-rolling.yaml
deployment.apps/nginx-deployment-rolling created
```

Verify the deployment:

```
kubectl get deployments
```

```
kubectl get pods -l app=web
```

```
deployment.apps/nginx-deployment-rolling created
PS C:\Users\dimpl\k8s-lab> kubectl get deployments
NAME                      READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment-rolling   0/5     5           0           10s
PS C:\Users\dimpl\k8s-lab> kubectl get pods -l app=web
NAME                      READY   STATUS
                           RESTARTS   AGE
my-pod                    1/1     Running
                           0          30m
nginx-deployment-rolling-5dcbb77f77-2vw26   0/1     ContainerCreating
                                             0          19s
nginx-deployment-rolling-5dcbb77f77-4vqtn    0/1     ContainerCreating
                                             0          19s
nginx-deployment-rolling-5dcbb77f77-57c9j    0/1     ContainerCreating
                                             0          19s
nginx-deployment-rolling-5dcbb77f77-9d46w    0/1     ContainerCreating
                                             0          19s
nginx-deployment-rolling-5dcbb77f77-xjrcx     0/1     ContainerCreating
```

Update the deployment to a new image:

```
kubectl set image deployment/nginx-deployment-rolling nginx= hkshitesh/kubedemo:2.0
```

Monitor the rolling update:

```
kubectl rollout status deployment nginx-deployment-rolling
```

Verify the updated pods:

```
kubectl get pods -l app=web -o wide
```

Step 2: Create a Deployment with Recreate Strategy

Create a YAML file for the deployment:

Create a file named **nginx-deployment-recreate.yaml** with the following content:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment-recreate
spec:
  replicas: 10
  selector:
    matchLabels:
      app: web
  strategy:
    type: Recreate
  template:
    metadata:
      labels:
        app: web
    spec:
      containers:
        - name: nginx
          image: nginx: hkshitesh/kubedemo:1.0
      ports:
        - containerPort: 80
```

Apply the deployment:

```
kubectl apply -f nginx-deployment-recreate.yaml ; watch "kubectl get rs -o wide"
```

Verify the deployment:

```
kubectl get deployments  
kubectl get pods -l app=nginx-recreate  
  
PS C:\Users\dimpl\k8s-lab> notepad nginx-deployment-rolling.yaml  
  
PS C:\Users\dimpl\k8s-lab> kubectl apply -f nginx-deployment-rolling.yaml  
deployment.apps/nginx-deployment-rolling created  
PS C:\Users\dimpl\k8s-lab> kubectl get deployments  
NAME READY UP-TO-DATE AVAILABLE AGE  
nginx-deployment-rolling 0/5 5 0 10s  
PS C:\Users\dimpl\k8s-lab> kubectl get pods -l app=web  
NAME READY STATUS  
RESTARTS AGE  
my-pod 1/1 Running  
0 30m  
nginx-deployment-rolling-5dcbb777f77-2vw26 0/1 ContainerCreating  
0 19s  
nginx-deployment-rolling-5dcbb777f77-4vqtn 0/1 ContainerCreating  
0 19s  
nginx-deployment-rolling-5dcbb777f77-57c9j 0/1 ContainerCreating  
0 19s  
nginx-deployment-rolling-5dcbb777f77-9d46w 0/1 ContainerCreating  
0 19s  
nginx-deployment-rolling-5dcbb777f77-xjrcx 0/1 ContainerCreating  
0 19s
```

Update the deployment to a new image:

```
kubectl set image deployment/nginx-deployment-recreate nginx=nginx:1.21.1  
PS C:\Users\dimpl\k8s-lab> kubectl set image deployment/nginx-deployment-rolling nginx=nginx:latest  
deployment.apps/nginx-deployment-rolling image updated
```

Monitor the update:

```
kubectl rollout status deployment nginx-deployment-recreate
```

```
PS C:\Users\dimpl\k8s-lab> kubectl rollout status deployment nginx-deployment-rolling
Waiting for deployment "nginx-deployment-rolling" rollout to finish: 1 old replicas are pending termination...
deployment "nginx-deployment-rolling" successfully rolled out
```

Verify the updated pods:

```
kubectl get pods -l app=nginx-recreate -o wide
          NAME              READY   STATUS    RESTARTS   AGE
  nginx-deployment-recreate-96466949-9c9b4   1/1     Running   0          37s
  nginx-deployment-recreate-96466949-c968g   1/1     Running   0          37s
  nginx-deployment-recreate-96466949-ghzm5   1/1     Running   0          36s
  nginx-deployment-recreate-96466949-hqbmb   1/1     Running   0          37s
  nginx-deployment-recreate-96466949-w6s8t   1/1     Running   0          37s
```

Step 3: Clean Up

Delete the deployments:

```
kubectl delete deployment nginx-deployment-rolling
kubectl delete deployment nginx-deployment-recreate
PS C:\Users\dimpl\k8s-lab> kubectl delete deployment nginx-deployment-rolling
deployment.apps "nginx-deployment-rolling" deleted from default namespace
PS C:\Users\dimpl\k8s-lab> kubectl delete deployment nginx-deployment-recreate
deployment.apps "nginx-deployment-recreate" deleted from default namespace
PS C:\Users\dimpl\k8s-lab>
```

Verify that all resources are cleaned up:

```
kubectl get deployments  
kubectl get pods -l app=nginx  
kubectl get pods -l app=nginx-recreate
```

```
namespace  
PS C:\Users\dimpl\k8s-lab> kubectl get deployments  
No resources found in default namespace.  
PS C:\Users\dimpl\k8s-lab>
```