Rollout and Versioning

Revision 1

nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0

Revision 2

nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1

Rollout Command

```
> kubectl rollout status deployment/myapp-deployment

Waiting for rollout to finish: 0 of 10 updated replicas are available...
Waiting for rollout to finish: 1 of 10 updated replicas are available...
Waiting for rollout to finish: 2 of 10 updated replicas are available...
Waiting for rollout to finish: 3 of 10 updated replicas are available...
Waiting for rollout to finish: 4 of 10 updated replicas are available...
Waiting for rollout to finish: 5 of 10 updated replicas are available...
Waiting for rollout to finish: 6 of 10 updated replicas are available...
Waiting for rollout to finish: 7 of 10 updated replicas are available...
Waiting for rollout to finish: 8 of 10 updated replicas are available...
Waiting for rollout to finish: 9 of 10 updated replicas are available...
deployment "myapp-deployment" successfully rolled out
```

```
> kubectl rollout history deployment/myapp-deployment

deployments "myapp-deployment"
REVISION   CHANGE-CAUSE
1          <none>
2          kubectl apply --filename=deployment-definition.yml --record=true
```

Deployment Strategy

Recreate

nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   nginx:1.7.0   Application Down   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1   nginx:1.7.1

Rolling Update

nginx:1.7.0   nginx:1.7.1   nginx:1.7.0   nginx:1.7.1   nginx:1.7.0   nginx:1.7.1   nginx:1.7.0   nginx:1.7.1   nginx:1.7.0   nginx:1.7.1

Kubectl apply

```
deployment-definition.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
  labels:
      app: myapp
      type: front-end
spec:
   template:
     metadata:
       name: myapp-pod
       labels:
          app: myapp
          type: front-end
       spec:
         containers:
         - name: nginx-container
           image: nginx

  replicas: 3
  selector:
     matchLabels:
         type: front-end
```

Kubectl apply

```
> kubectl apply -f deployment-definition.yml
deployment "myapp-deployment" configured
```

```
> kubectl set image deployment/myapp-deployment \
                nginx=nginx:1.9.1
deployment "myapp-deployment" image is updated
```

```
deployment-definition.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
  labels:
      app: myapp
      type: front-end
spec:
   template:
     metadata:
       name: myapp-pod
       labels:
          app: myapp
          type: front-end
       spec:
         containers:
         - name: nginx-container
           image: nginx:1.7.1

  replicas: 3
  selector:
     matchLabels:
         type: front-end
```

Recreate

```
C:\Kubernetes>kubectl describe deployment myapp-deployment
Name:                   myapp-deployment
Namespace:              default
CreationTimestamp:      Sat, 03 Mar 2018 17:01:55 +0800
Labels:                 app=myapp
                        type=front-end
Annotations:            deployment.kubernetes.io/revision=2
                        kubectl.kubernetes.io/last-applied-configuration={"apiVersion":"apps/v1","kind":"Deployment","me
s\\Google...
                        kubernetes.io/change-cause=kubectl apply --filename=d:\Mumshad Files\Google Drive\Udemy\Kubernet
Selector:               type=front-end
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailable
StrategyType:           Recreate
MinReadySeconds:        0
Pod Template:
  Labels:  app=myapp
           type=front-end
  Containers:
   nginx-container:
    Image:         nginx:1.7.1
    Port:          <none>
    Environment:   <none>
    Mounts:        <none>
  Volumes:         <none>
Conditions:
  Type          Status  Reason
  ----          ------  ------
  Available     True    MinimumReplicasAvailable
  Progressing   True    NewReplicaSetAvailable
OldReplicaSets:  <none>
NewReplicaSet:   myapp-deployment-54c7d6ccc (5/5 replicas created)
Events:
  Type    Reason            Age   From                   Message
  ----    ------            ---   ----                   -------
  Normal  ScalingReplicaSet 11m   deployment-controller  Scaled up replica set myapp-deployment-6795844b58 to 5
  Normal  ScalingReplicaSet 1m    deployment-controller  Scaled down replica set myapp-deployment-6795844b58 to 0
  Normal  ScalingReplicaSet 56s   deployment-controller  Scaled up replica set myapp-deployment-54c7d6ccc to 5
```

RollingUpdate

```
C:\Kubernetes>kubectl describe deployment myapp-deployment
Name:                   myapp-deployment
Namespace:              default
CreationTimestamp:      Sat, 03 Mar 2018 17:16:53 +0800
Labels:                 app=myapp
                        type=front-end
Annotations:            deployment.kubernetes.io/revision=2
                        kubectl.kubernetes.io/last-applied-configuration={"apiVersion":"apps/v1","kind":"Deployment","metadat
Files\\Google...
                        kubernetes.io/change-cause=kubectl apply --filename=d:\Mumshad Files\Google Drive\Udemy\Kubernetes\De
Selector:               type=front-end
Replicas:               5 desired | 5 updated | 6 total | 4 available | 2 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=myapp
           type=front-end
  Containers:
   nginx-container:
    Image:         nginx
    Port:          <none>
    Environment:   <none>
    Mounts:        <none>
  Volumes:         <none>
Conditions:
  Type          Status  Reason
  ----          ------  ------
  Available     True    MinimumReplicasAvailable
  Progressing   True    ReplicaSetUpdated
OldReplicaSets:  myapp-deployment-67c749c58c (1/1 replicas created)
NewReplicaSets:  myapp-deployment-7d57dbdb8d (5/5 replicas created)
Events:
  Type    Reason            Age  From                   Message
  ----    ------            ---  ----                   -------
  Normal  ScalingReplicaSet 1m   deployment-controller  Scaled up replica set myapp-deployment-67c749c58c to 5
  Normal  ScalingReplicaSet 1s   deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 2
  Normal  ScalingReplicaSet 1s   deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 4
  Normal  ScalingReplicaSet 1s   deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 3
  Normal  ScalingReplicaSet 0s   deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 3
  Normal  ScalingReplicaSet 0s   deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 4
  Normal  ScalingReplicaSet 0s   deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 2
  Normal  ScalingReplicaSet 0s   deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 5
  Normal  ScalingReplicaSet 0s   deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 1
```
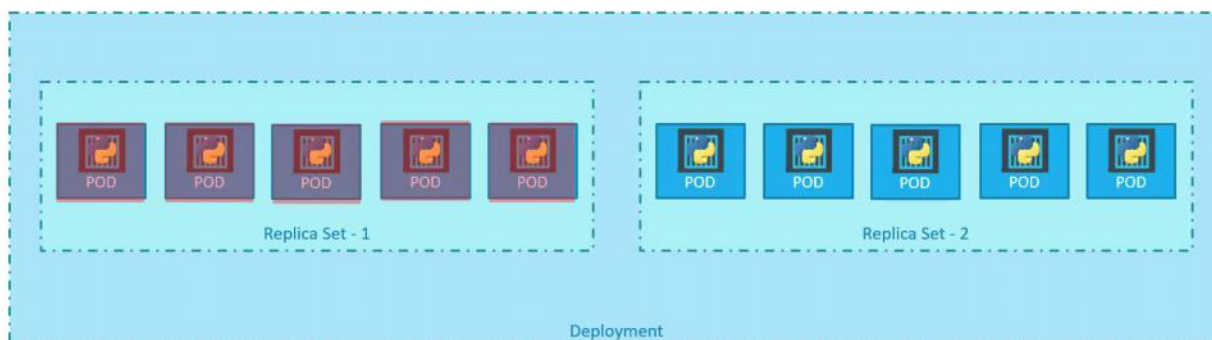
Upgrades

Replica Set - 1

Replica Set - 2

Deployment

```
> kubectl get replicasets

NAME                          DESIRED   CURRENT   READY   AGE
myapp-deployment-67c749c58c   0         0         0       22m
myapp-deployment-7d57dbdb8d   5         5         5       20m
```
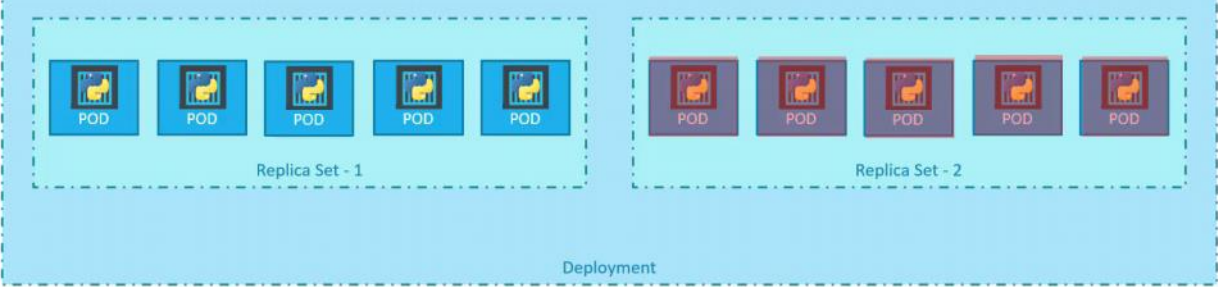
Rollback

```
> kubectl get replicasets
NAME                            DESIRED   CURRENT   READY   AGE
myapp-deployment-67c749c58c     0         0         0       22m
myapp-deployment-7d57dbdb8d     5         5         5       20m
```

```
> kubectl get replicasets
NAME                            DESIRED   CURRENT   READY   AGE
myapp-deployment-67c749c58c     5         5         5       22m
myapp-deployment-7d57dbdb8d     0         0         0       20m
```

Replica Set - 1

Replica Set - 2

Deployment

```
> kubectl rollout undo deployment/myapp-deployment
deployment "myapp-deployment" rolled back
```

Summarize Commands

Create
```
> kubectl create -f deployment-definition.yml
```

Get
```
> kubectl get deployments
```

Update
```
> kubectl apply -f deployment-definition.yml
```
```
> kubectl set image deployment/myapp-deployment nginx=nginx:1.9.1
```

Status
```
> kubectl rollout status deployment/myapp-deployment
```
```
> kubectl rollout history deployment/myapp-deployment
```

Rollback
```
> kubectl rollout undo deployment/myapp-deployment
```