Day4 Kubernetes 应用生命周期原理分析

1 打卡任务

作业：

1、通过Deployment方式，使用redis镜像创建1个Pod。通过kubectl获得redis启动日志。

打卡：将所用命令、创建的Deployment完整yaml截图上传

2、通过命令行，创建1个deployment，副本数为3，镜像为nginx:latest。然后滚动升级到nginx:1.9.1。

打卡：将所用命令、创建的Deployment完整yaml和升级历史信息截图上传

2 准备工作

1、 私有镜像仓库中已存在入门课程中的坦克大战镜像

2、 已拥有可运行的CCE集群

3 通过 Deployment 方式，使用 redis 镜像创建 1 个 Pod。通过 kubectl 获得 redis 启动日志

1、 登录day2已配置kubectl的node节点

2、 depolyment yaml文件如下所示：

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: cce7days-app3-huaweicloud
```

```
  namespace: default
spec:
  replicas: 1
  selector:
    matchLabels:
      app: cce7days-app3-huaweicloud
  template:
    metadata:
      labels:
        app: cce7days-app3-huaweicloud
    spec:
      containers:
        - image: 'redis:latest'
          name: container-0
      imagePullSecrets:
        - name: default-secret
      # 此处亲和性设置是为了将pod调度到有EIP的节点，便于下载外网镜像
      affinity:
        nodeAffinity:
          requiredDuringSchedulingIgnoredDuringExecution:
            nodeSelectorTerms:
              - matchExpressions:
                  - key: kubernetes.io/hostname
                    operator: In
                    values:
                      - 192.168.1.109
```

3、 执行以下命令创建pod，创建命令如下：

kubectl create -f day7-deployment1.yaml

4、 查看pod状态：

kubectl get pods -owide

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl get pods -owide
NAME                                          READY     STATUS    RESTARTS   AGE       IP           NODE
cce21days-app3-huaweicloud-6bbcb5ffb7-6c265   1/1       Running   0          5m        172.16.0.7   192.168.1.109
[root@cce-21days-cluster-51437 21-days-class]#
```

5、 查看启动日志：

kubectl logs -f cce7days-app3-huaweicloud-6bbcb5ffb7-6c265 -c container-0

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl logs -f cce21days-app3-huaweicloud-6bbcb5ffb7-6c265 -c container-0
1:C 29 Oct 11:27:55.496 # o000o000o000o Redis is starting o000o000o000o
1:C 29 Oct 11:27:55.505 # Redis version=4.0.11, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 29 Oct 11:27:55.505 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server /path/to
/redis.conf
1:M 29 Oct 11:27:55.506 * Running mode=standalone, port=6379.
1:M 29 Oct 11:27:55.506 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is set to the lower valu
e of 128.
1:M 29 Oct 11:27:55.506 # Server initialized
1:M 29 Oct 11:27:55.506 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create latency and memory usage
issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to your /etc/r
c.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.
1:M 29 Oct 11:27:55.506 * Ready to accept connections
```

4 通过命令行，创建 1 个 deployment，副本数为 3，镜像为 nginx:latest。然后滚动升级到 nginx:1.9.1

yaml文件如下，创建方式同步骤2：

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: cce7days-app4-huaweicloud
  namespace: default
spec:
  replicas: 3
  selector:
    matchLabels:
      app: cce7days-app4-huaweicloud
  template:
    metadata:
      labels:
        app: cce7days-app4-huaweicloud
    spec:
```

```
containers:
  - image: 'nginx:latest'
    name: container-0
imagePullSecrets:
  - name: default-secret
# 此处亲和性设置是为了将pod调度到有EIP的节点，便于下载外网镜像
affinity:
  nodeAffinity:
    requiredDuringSchedulingIgnoredDuringExecution:
      nodeSelectorTerms:
        - matchExpressions:
            - key: kubernetes.io/hostname
              operator: In
              values:
                - 192.168.1.109
```

查看结果如下：

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl get pods -owide
NAME                                          READY   STATUS    RESTARTS   AGE     IP            NODE
cce21days-app4-huaweicloud-948dcbcbc-7556t    1/1     Running   0          9s      172.16.0.10   192.168.1.109
cce21days-app4-huaweicloud-948dcbcbc-75bw7    1/1     Running   0          9s      172.16.0.9    192.168.1.109
cce21days-app4-huaweicloud-948dcbcbc-lqvmp    1/1     Running   0          9s      172.16.0.11   192.168.1.109
[root@cce-21days-cluster-51437 21-days-class]#
```

执行以下命令滚动升级镜像至ngxin:1.9.1版本：

kubectl set image deployment/cce7days-app4-huaweicloud container-0=nginx:1.9.1

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl get pods cce21days-app4-huaweicloud-6fd6c8b4c9-26dv9 -oyaml |grep image -A10
  - image: nginx:1.9.1
    imagePullPolicy: Always
    name: container-0
    resources: {}
    terminationMessagePath: /dev/termination-log
    terminationMessagePolicy: File
    volumeMounts:
    - mountPath: /var/run/secrets/kubernetes.io/serviceaccount
      name: default-token-zvv6b
      readOnly: true
  dnsPolicy: ClusterFirst
  imagePullSecrets:
  - name: default-secret
```

通过kubectl get pods -oyaml可以看到pod的镜像已经替换成nginx:1.9.1了

查询升级历史：

kubectl rollout history deploy/cce7days-app4-huaweicloud

kubectl rollout history deploy/cce7days-app4-huaweicloud --revision=2

```
[root@cce-21days-cluster-51437 ~]# kubectl rollout history deploy/cce21days-app4-huaweicloud
deployments "cce21days-app4-huaweicloud"
REVISION  CHANGE-CAUSE
1         <none>
2         <none>

[root@cce-21days-cluster-51437 ~]# kubectl rollout history deploy/cce21days-app4-huaweicloud --revision=2
deployments "cce21days-app4-huaweicloud" with revision #2
Pod Template:
  Labels:       app=cce21days-app4-huaweicloud
        pod-template-hash=2982746075
  Containers:
   container-0:
    Image:      nginx:1.9.1
    Port:       <none>
    Environment:        <none>
    Mounts:     <none>
  Volumes:      <none>

[root@cce-21days-cluster-51437 ~]#
```

5 打卡截图

作业1

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl logs -f cce21days-app3-huaweicloud-6bbcb5ffb7-6c265 -c container-0
1:C 29 Oct 11:27:55.496 # o000o000o000o Redis is starting o000o000o000o
1:C 29 Oct 11:27:55.505 # Redis version=4.0.11, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 29 Oct 11:27:55.505 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server /path/to
/redis.conf
1:M 29 Oct 11:27:55.506 * Running mode=standalone, port=6379.
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e of 128.
1:M 29 Oct 11:27:55.506 # Server initialized
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issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to your /etc/r
c.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.
1:M 29 Oct 11:27:55.506 * Ready to accept connections
```

作业2

```
[root@cce-21days-cluster-51437 ~]# kubectl rollout history deploy/cce21days-app4-huaweicloud
deployments "cce21days-app4-huaweicloud"
REVISION  CHANGE-CAUSE
1         <none>
2         <none>

[root@cce-21days-cluster-51437 ~]# kubectl rollout history deploy/cce21days-app4-huaweicloud --revision=2
deployments "cce21days-app4-huaweicloud" with revision #2
Pod Template:
  Labels:       app=cce21days-app4-huaweicloud
        pod-template-hash=2982746075
  Containers:
   container-0:
    Image:      nginx:1.9.1
    Port:       <none>
    Environment:        <none>
    Mounts:     <none>
  Volumes:      <none>

[root@cce-21days-cluster-51437 ~]#
```