

Day3 Kubernetes pod调度原理分析

1 打卡任务

作业：

1、通过命令行，使用nginx镜像创建一个pod并手动调度到集群中的一个节点。

Pod的名称为<cce7days-你的华为云id>

将所用命令、创建的Pod完整yaml截图上传

2、通过命令行，创建两个deployment。（选做）

需要集群中有2个节点

第1个deployment名称为<cce7days-app1-你的华为云id>，使用nginx镜像，拥有2个pod，并配置该deployment自身的pod之间在节点级别反亲和

第2个deployment名称为<cce7days-app2-你的华为云id>，使用nginx镜像，拥有2个pod，并配置该deployment的pod与第1个deployment的pod在节点级别亲和

将所用命令、创建的deployment完整yaml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集群并通过kubectl连接集群

3 通过命令行，使用 nginx 镜像创建一个 pod 并手动调度到集群中的一个节点。

1、登录day2集群配置了kubectl命令行的node节点

2、Pod yaml文件如下所示，重点关注红色字段，需要依据自己的环境配置：

```
apiVersion: v1
```

```
kind: Pod

metadata:

  name: cce7days-huaweicloud

  labels:

    app: nginx

spec:

  affinity:

    nodeAffinity:

      requiredDuringSchedulingIgnoredDuringExecution:

        nodeSelectorTerms:

          - matchExpressions:

              - key: kubernetes.io/hostname

                operator: In

              values:

                - 192.168.1.79 #有EIP的node节点的私网IP地址

    containers:

      - image: 100.125.0.198:20202/xxxx/fc-tank:v1.1 #容器镜像地址

        imagePullPolicy: IfNotPresent

        name: container-0

        resources: {}

      dnsPolicy: ClusterFirst

      imagePullSecrets:

        - name: default-secret

      restartPolicy: Always

      schedulerName: default-scheduler

      securityContext: {}
```

3、创建命令如下：

```
kubectrl create -f pod.yaml
```

4、查看pod是否调度到对应节点：

kubectl get pods -owide

```
[root@cce-21days-cluster-51437 ~]# kubectl get pods -owide
NAME                READY   STATUS    RESTARTS   AGE   IP            NODE
cce21days-huaweicloud 1/1     Running   0          6m    172.16.0.39   192.168.1.219
[root@cce-21days-cluster-51437 ~]#
```

4 通过命令行，创建一个 deployment，拥有 2 个 pod，其自身的 pod 之间在节点级别反亲和

yaml文件如下，创建方式同步骤2：

```
kind: Deployment
apiVersion: apps/v1
metadata:
  name: cce7days-app1-huaweicloud
  namespace: default
spec:
  replicas: 2
  selector:
    matchLabels:
      app: cce7days-app1-huaweicloud
  template:
    metadata:
      labels:
        app: cce7days-app1-huaweicloud
    spec:
      containers:
        - name: container-0
          image: '100.125.0.198:20202/xxxx/fc-tank:v1.1'
          imagePullPolicy: IfNotPresent
      restartPolicy: Always
```

```

dnsPolicy: ClusterFirst

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:

  podAntiAffinity:

    requiredDuringSchedulingIgnoredDuringExecution:

      - labelSelector:

        matchExpressions:

          - key: app

            operator: In

            values:

              - cce7days-app1-huaweicloud

        topologyKey: kubernetes.io/hostname

    schedulerName: default-scheduler

```

查看结果如下，两个pod分别部署在两个node节点上：

```

[root@cce-21days-cluster-51437 ~]# kubectl get pods -owide
NAME                                READY   STATUS    RESTARTS   AGE   IP            NODE
cce21days-app1-huaweicloud-78f5c8769c-cq6bc  1/1     Running   0          10m   172.16.0.43   192.168.1.219
cce21days-app1-huaweicloud-78f5c8769c-dxgkf  1/1     Running   0          10m   172.16.0.14   192.168.1.109
[root@cce-21days-cluster-51437 ~]#

```

5 通过命令行，创建一个 deployment，拥有 2 个 pod，并配置该 deployment 的 pod 与第 1 个 deployment 的 pod 在节点级别亲和

yaml文件如下，创建方式同步骤2：

```

apiVersion: apps/v1

kind: Deployment

metadata:

  labels:

```

```
    appgroup: "
name: cce7days-app2-huaweicloud
namespace: default
spec:
  replicas: 2
  selector:
    matchLabels:
      app: cce7days-app2-huaweicloud
  template:
    metadata:
      labels:
        app: cce7days-app2-huaweicloud
    spec:
      containers:
        - image: '100.125.0.198:20202/xxxx/fc-tank:v1.1'
          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:
        podAffinity:
          requiredDuringSchedulingIgnoredDuringExecution:
            - labelSelector:
                matchExpressions:
                  - key: app
                    operator: In
                    values:
                      - cce7days-app1-huaweicloud
```

topologyKey: kubernetes.io/hostname

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-appl-huaweicloud-78f5c8769c-cq6bc  1/1      Running   0          35m    172.16.0.43    192.168.1.219
cce21days-appl-huaweicloud-78f5c8769c-dxgkf  1/1      Running   0          35m    172.16.0.14    192.168.1.109
cce21days-app2-huaweicloud-7cbf8497c8-h9q2w  1/1      Running   0          8s     172.16.0.45    192.168.1.219
cce21days-app2-huaweicloud-7cbf8497c8-hpswm  1/1      Running   0          8s     172.16.0.6     192.168.1.109
[root@cce-21days-cluster-51437 21-days-class]#
```

6 打卡截图

作业1截图

```
[root@cce-21days-cluster-51437 ~]# kubectl get pods -owide
NAME                                READY    STATUS    RESTARTS   AGE    IP             NODE
cce21days-huaweicloud              1/1      Running   0          6m     172.16.0.39    192.168.1.219
[root@cce-21days-cluster-51437 ~]#
```

作业2截图

```
[root@cce-21days-cluster-51437 ~]# kubectl get pods -owide
NAME                                READY    STATUS    RESTARTS   AGE    IP             NODE
cce21days-appl-huaweicloud-78f5c8769c-cq6bc  1/1      Running   0          10m    172.16.0.43    192.168.1.219
cce21days-appl-huaweicloud-78f5c8769c-dxgkf  1/1      Running   0          10m    172.16.0.14    192.168.1.109
[root@cce-21days-cluster-51437 ~]#
```

作业3截图（选做）

```
[root@cce-21days-cluster-51437 21-days-class]# kubectl get pods -owide
NAME                                READY    STATUS    RESTARTS   AGE    IP             NODE
cce21days-appl-huaweicloud-78f5c8769c-cq6bc  1/1      Running   0          35m    172.16.0.43    192.168.1.219
cce21days-appl-huaweicloud-78f5c8769c-dxgkf  1/1      Running   0          35m    172.16.0.14    192.168.1.109
cce21days-app2-huaweicloud-7cbf8497c8-h9q2w  1/1      Running   0          8s     172.16.0.45    192.168.1.219
cce21days-app2-huaweicloud-7cbf8497c8-hpswm  1/1      Running   0          8s     172.16.0.6     192.168.1.109
[root@cce-21days-cluster-51437 21-days-class]#
```