HPA

Horizontal Pod Autoscaler：Pod的水平自动伸缩器。

观察Pod的CPU、内存使用率自动扩展或缩容Pod的数量。

不适用于无法缩放的对象，比如DaemonSet。

CPU、内存

自定义指标的扩缩容。

必须定义 Requests参数，必须安装metrics-server。

kubectl autoscale deploy demo-nginx --cpu-percent=20 --min=2 --max=5

ConfigMap：

一般用ConfigMap去管理一些配置文件、或者一些大量的环境变量信息。

ConfigMap将配置和Pod分开，有一个nginx，nginx.conf -> configmap,nginx

更易于配置文件的更改和管理。

Secret：Secret更倾向于存储和共享敏感、加密的配置信息。

ConfigMap中文地址：<https://kubernetes.io/zh/docs/tasks/configure-pod-container/configure-pod-configmap/>

apiVersion: v1

kind: Pod

metadata:

name: dapi-test-pod

spec:

nodeName: k8s-master02

containers:

- name: test-container

image: busybox:1.28

imagePullPolicy: IfNotPresent

command: [ "/bin/sh", "-c", "env" ]

envFrom:

- configMapRef:

name: special-config

env:

# Define the environment variable

#- name: SPECIAL\_LEVEL\_KEY

# valueFrom:

# configMapKeyRef:

# # The ConfigMap containing the value you want to assign to SPECIAL\_LEVEL\_KEY

# name: special-config

# # Specify the key associated with the value

# key: special.how

- name: test

value: test-value

- name: mysqlHostAddress

value: 10.10.10.10

- name: mysqlPort

value: "3306" # only string

restartPolicy: Never

把ConfigMap挂载到容器中充当配置文件：

apiVersion: v1

kind: Pod

metadata:

name: dapi-test-pod

spec:

nodeName: k8s-master02

containers:

- name: test-container

image: busybox:1.28

imagePullPolicy: IfNotPresent

command: [ "/bin/sh", "-c", "sleep 3600" ]

volumeMounts:

- name: config-volume

mountPath: /mnt/1

- name: contain-filename

mountPath: /mnt/2

envFrom:

- configMapRef:

name: special-config

env:

# Define the environment variable

#- name: SPECIAL\_LEVEL\_KEY

# valueFrom:

# configMapKeyRef:

# # The ConfigMap containing the value you want to assign to SPECIAL\_LEVEL\_KEY

# name: special-config

# # Specify the key associated with the value

# key: special.how

- name: test

value: test-value

- name: mysqlHostAddress

value: 10.10.10.10

- name: mysqlPort

value: "3306" # only string

restartPolicy: Never

volumes:

- name: config-volume

configMap:

name: special-config

- name: contain-filename

configMap:

name: game-ui-cm-custom-name

Secret：

用来保存敏感信息的，比如密码、令牌或者Key，Redis、MySQL密码。

\$ \\* \\ 特殊字符单引号无需转义

Secret用途：

ImagePullSecret：Pod拉取私有镜像仓库时使用的账户密码，里面的账户信息，会传递给kubelet，然后kubelet就可以拉取有密码的仓库里面的镜像。

创建一个docker registry的secret

[root@k8s-master01 secret]# kubectl create secret docker-registry docker-secret2 --docker-server=hub.docker.com --docker-username=DOCKER\_USER --docker-password=DOCKER\_PASSWORD --docker-email=DOCKER\_EMAIL

secret/docker-secret2 created

Secret 中文文档：<https://kubernetes.io/zh/docs/concepts/configuration/secret/>

subPath解决目录覆盖的问题：

apiVersion: apps/v1

kind: Deployment

metadata:

annotations:

deployment.kubernetes.io/revision: "4"

creationTimestamp: "2020-03-16T14:36:14Z"

generation: 5

labels:

app: demo-nginx

name: demo-nginx

namespace: default

resourceVersion: "1338515"

selfLink: /apis/apps/v1/namespaces/default/deployments/demo-nginx

uid: ca0c135f-31a3-464c-b1f2-10f88e9f1c90

spec:

progressDeadlineSeconds: 600

replicas: 2

revisionHistoryLimit: 10

selector:

matchLabels:

app: demo-nginx

strategy:

rollingUpdate:

maxSurge: 25%

maxUnavailable: 1

type: RollingUpdate

template:

metadata:

creationTimestamp: null

labels:

app: demo-nginx

spec:

containers:

- command:

- sh

- -c

- sleep 3600

image: nginx

imagePullPolicy: IfNotPresent

name: nginx

ports:

- containerPort: 80

name: web

protocol: TCP

resources:

limits:

cpu: 100m

memory: 270Mi

requests:

cpu: 100m

memory: 70Mi

terminationMessagePath: /dev/termination-log

terminationMessagePolicy: File

volumeMounts:

- mountPath: /etc/nginx/nginx.conf

name: config-volume

subPath: etc/nginx/nginx.conf

dnsPolicy: ClusterFirst

restartPolicy: Always

schedulerName: default-scheduler

securityContext: {}

terminationGracePeriodSeconds: 30

volumes:

- configMap:

defaultMode: 420

items:

- key: nginx.conf

path: etc/nginx/nginx.conf

name: nginx-conf

name: config-volume

**ConfigMap和Secret如果是以subPath 的形式挂载的，那么Pod是不会感知到ConfigMap和Secret的更新的。**

**如果Pod的变量来自于ConfigMap和Secret中定义的内容，那么ConfigMap和Secret更新后，也不会更新Pod中的变量。**

**postStart：容器启动之前执行的命令**

**preStop：容器停止之前执行的命令**

**热更新ConfigMap或Secret：**

**[root@k8s-master01 ~]# kubectl create cm nginx-conf --from-file=nginx.conf --dry-run -oyaml | kubectl replace -f-**