第 5 节

K8s就绪探针和存活探针

本课内容

- K8s就绪探针和存活探针简介
  - 就绪探针Readiness Probe
  - 存活探针Liveness Probe
- 就绪探针(Readiness Probe)演示

K8s就绪和存活探针

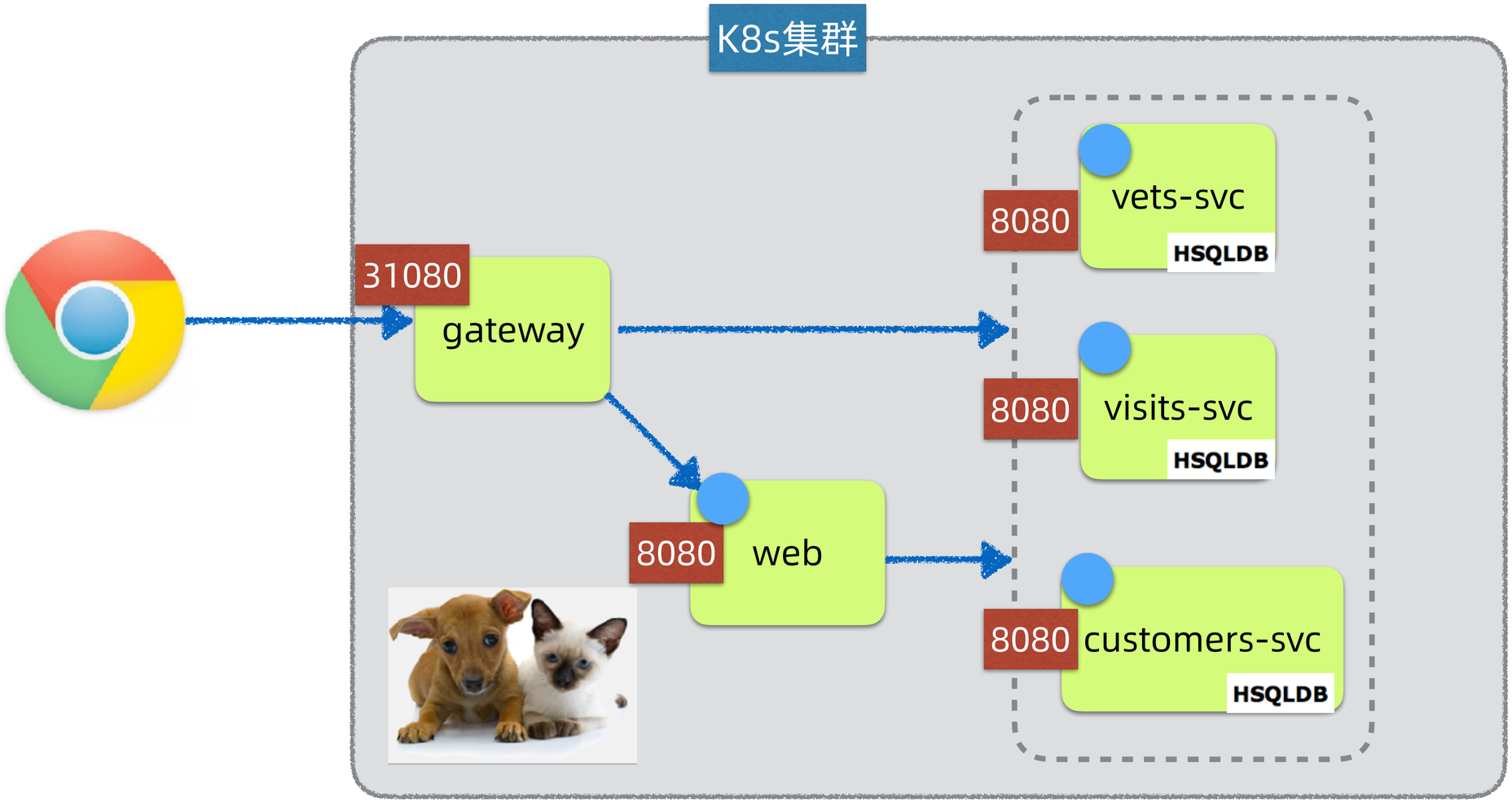
	就绪探针(Readiness Probe)	存活探针(Liveness Probe)
用途	判断Pod是否就绪	判断容器是否存活
检测期	Pod启动期	Pod运行期
失败处理	停止向Pod发送流量	Kill容器
探针类型	Http, exec, tcpSocket	Http, exec, tcpSocket

样例	readinessProbe:
	  httpGet:
	  path: /status
	  port: 8080
		livenessProbe:
		  failureThreshold: 3
		  httpGet:
		  path: /healthz
		  port: 8080

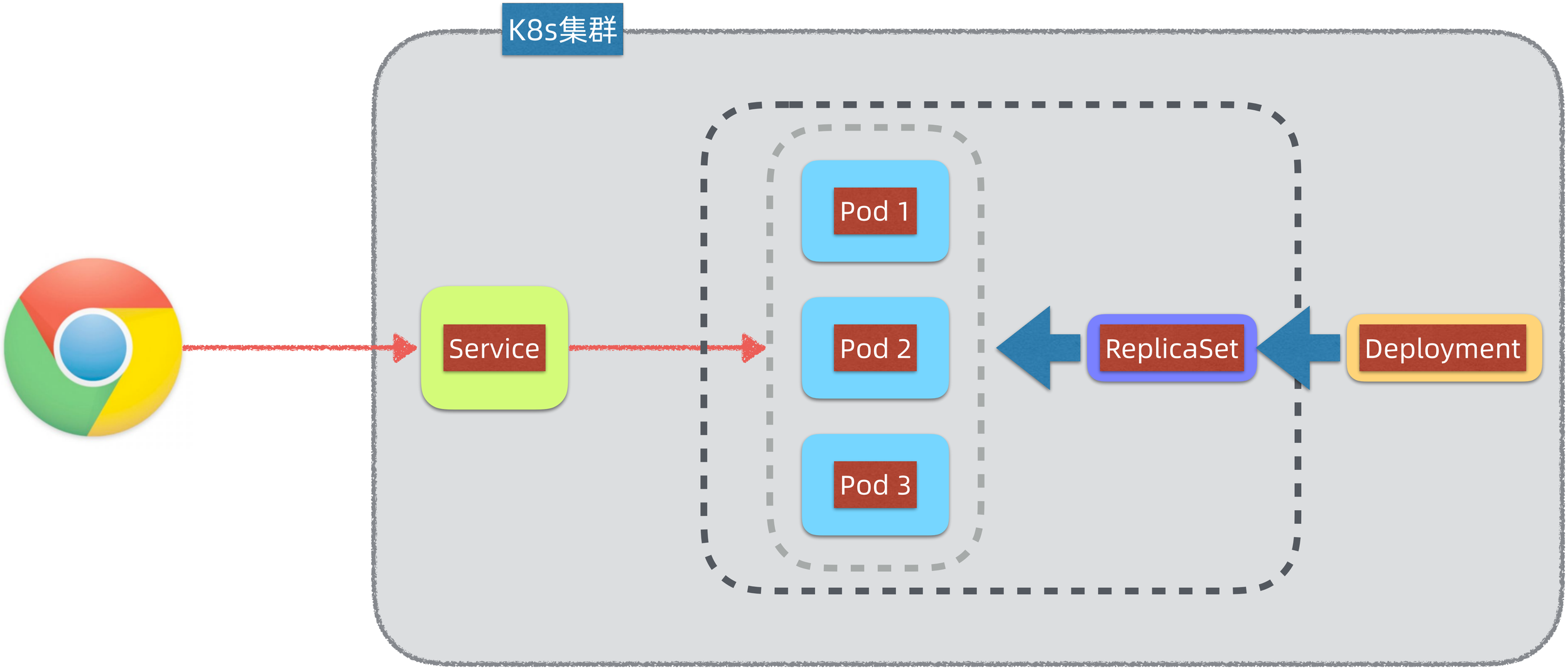
https://kubernetes.io/docs/tasks/configure-pod-container/configure-liveness-readiness-startup-probes/

Petclinic微服务

/actuator/health



K8s Service Review



Visit服务发布文件

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: visits
spec:
  selector:
    matchLabels:
      app: visits
  replicas: 1
  template:
    metadata:
      labels:
        app: visits
    spec:
      containers:
        - name: visits
          image: spring2go/spring-petclinic-visits-service:1.0.0.RELEASE
          env:
            - name: SERVER_PORT
              value: "8080"
---
apiVersion: v1
kind: Service
metadata:
  name: visits
spec:
  selector:
    app: visits
  ports:
    - name: http
      port: 8080
      targetPort: 8080
  type: ClusterIP
```

Gateway路由表

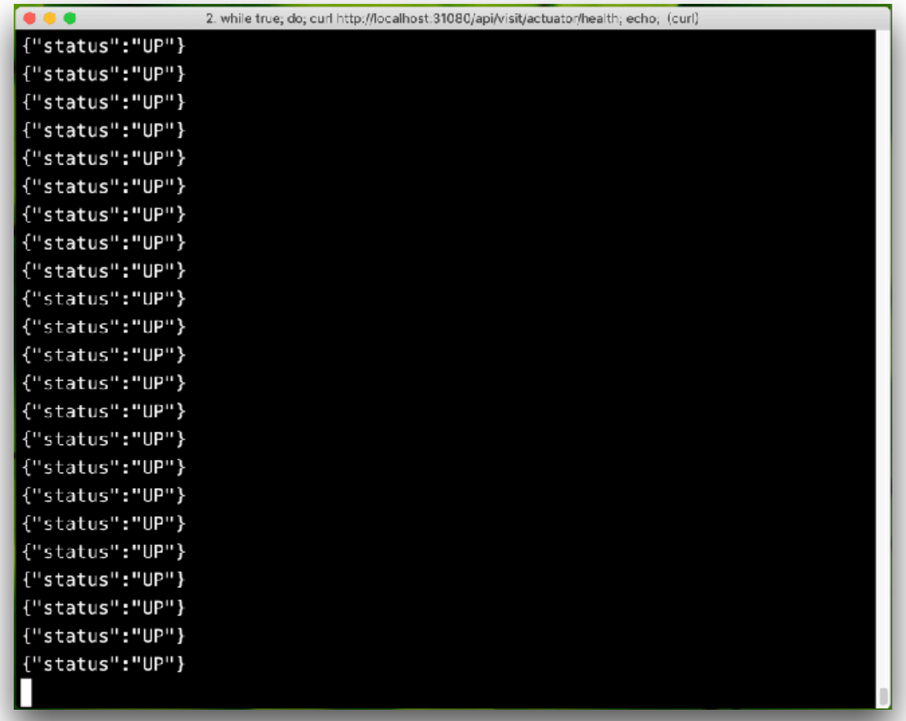
application.yml

Document 1/1 › spring: › cloud: › gateway: › routes: › Item 3/5 › filters:

```yaml
server:
  port: 8080

spring:
  cloud:
    gateway:
      routes:
        - id: api-bff
          uri: ${WEB_APP_ENDPOINT:http://localhost:8081}
          predicates:
            - Path=/api/bff/**
        - id: vets-service
          uri: ${VETS_SERVICE_ENDPOINT:http://localhost:8082}
          predicates:
            - Path=/api/vet/**
          filters:
            - StripPrefix=2
        - id: visits-service
          uri: ${VISITS_SERVICE_ENDPOINT:http://localhost:8083}
          predicates:
            - Path=/api/visit/**
          filters:
            - StripPrefix=2
        - id: customers-service
          uri: ${CUSTOMERS_SERVICE_ENDPOINT:http://localhost:8084}
          predicates:
            - Path=/api/customer/**
          filters:
            - StripPrefix=2
        - id: web-app
          uri: ${WEB_APP_ENDPOINT:http://localhost:8081}
          predicates:
            - Path=/**
```

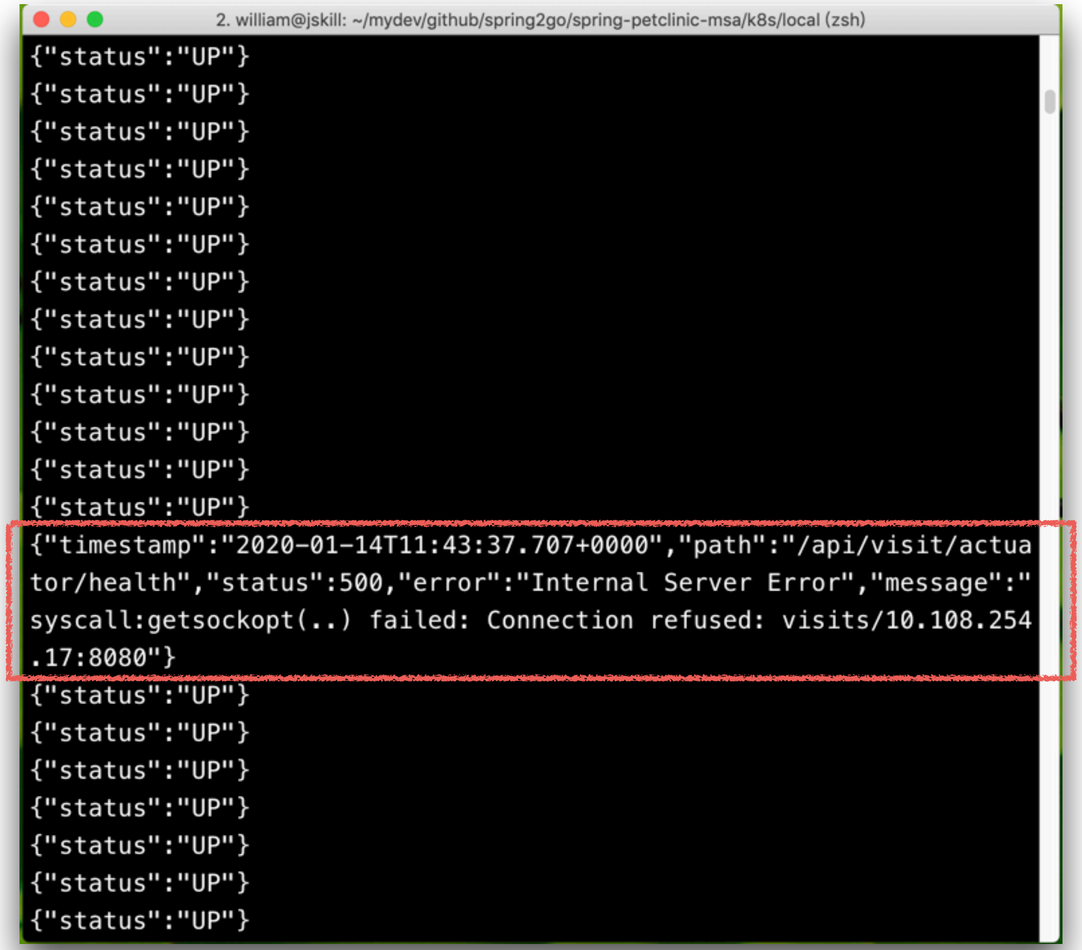
循环调用Visit服务的健康检查端点

while true; do curl http://localhost:31080/api/visit/actuator/health; echo; done



将Visit服务扩容到4个实例，观察间歇调用失败

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: visits
spec:
  selector:
    matchLabels:
      app: visits
  replicas: 4
  template:
    metadata:
      labels:
        app: visits
    spec:
      containers:
        - name: visits
          image: spring2go/spring-petclinic-visits-service:1.0.0.RELEASE
          env:
            - name: SERVER_PORT
              value: "8080"
```



为Visit服务添加就绪探针并重新发布

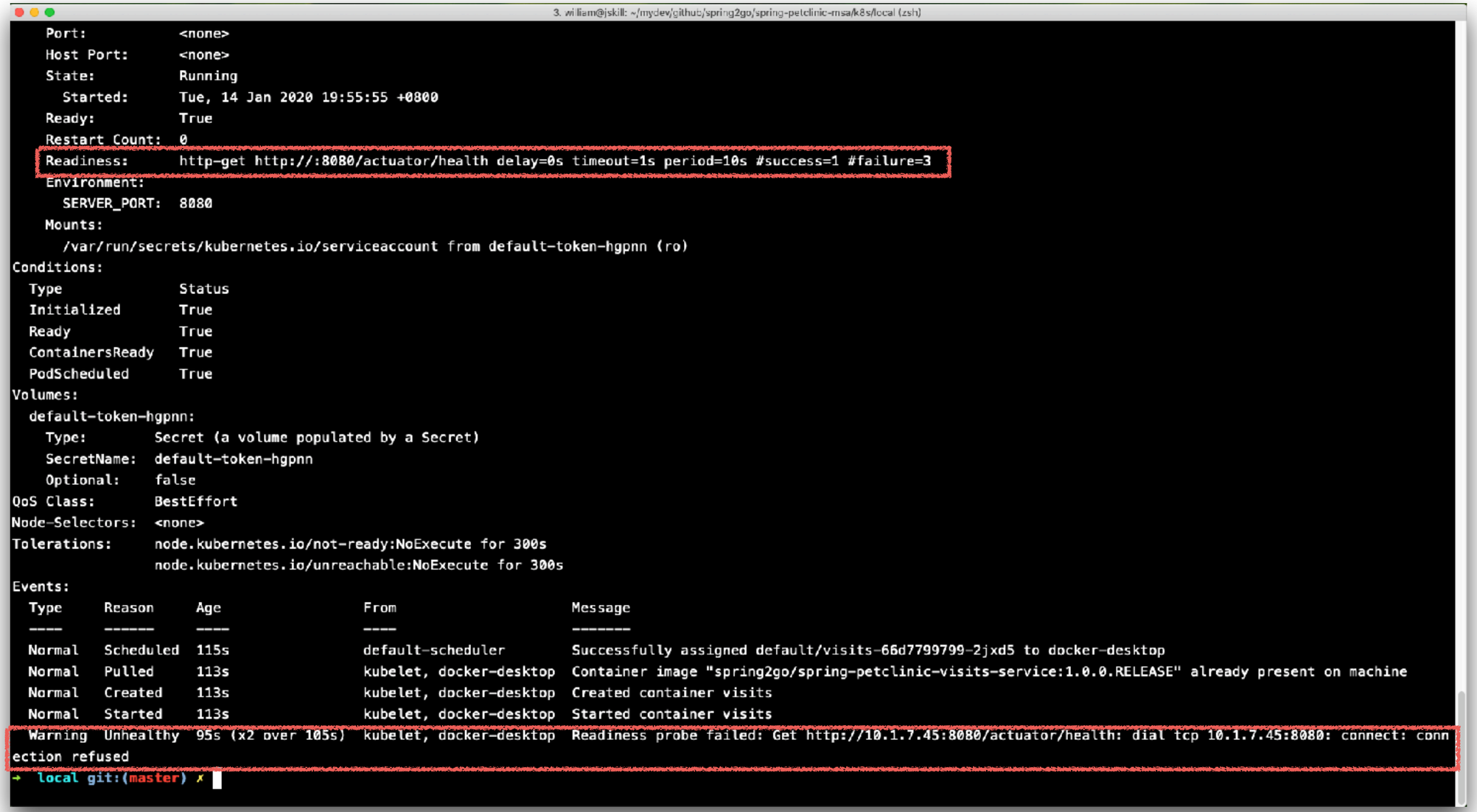
```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: visits
spec:
  selector:
    matchLabels:
      app: visits
  replicas: 1
  template:
    metadata:
      labels:
        app: visits
    spec:
      containers:
        - name: visits
          image: spring2go/spring-petclinic-visits-service:1.0.0.RELEASE
          readinessProbe:
            httpGet:
              path: /actuator/health
              port: 8080
          env:
            - name: SERVER_PORT
              value: "8080"
```

将PetClinic微服务再扩容到4个实例，观察无间歇失败

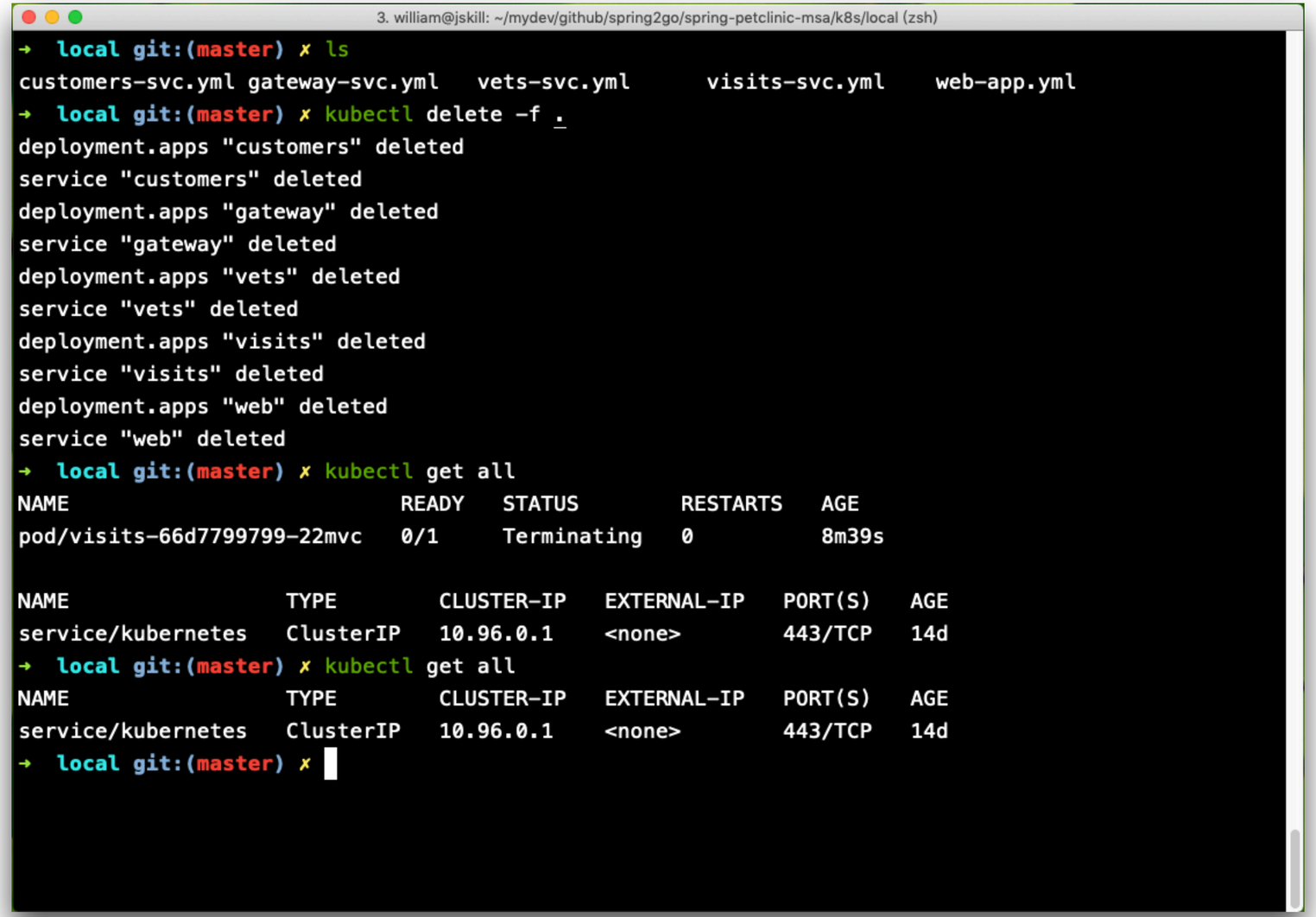
```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: visits
spec:
  selector:
    matchLabels:
      app: visits
  replicas: 4
  template:
    metadata:
      labels:
        app: visits
    spec:
      containers:
        - name: visits
          image: spring2go/spring-petclinic-visits-service:1.0.0.RELEASE
          readinessProbe:
            httpGet:
              path: /actuator/health
              port: 8080
          env:
            - name: SERVER_PORT
              value: "8080"
```

```
3. william@jskill: ~/mydev/github/spring2go/spring-petclinic-msa/k8s/local (zsh)
replicaset.apps/web-6d46d5c849         1         1         1       3m38s
➜  local git:(master) ✗ kubectl get all
NAME                                READY   STATUS    RESTARTS   AGE
pod/customers-568f485f8d-slxgs      1/1     Running   0          3m47s
pod/gateway-558d7f976c-ftqmv        1/1     Running   0          3m47s
pod/vets-8bf75546c-mhd57            1/1     Running   0          3m47s
pod/visits-66d7799799-22mvc         1/1     Running   0          3m47s
pod/visits-66d7799799-2jxd5         0/1     Running   0          17s
pod/visits-66d7799799-gx56q         0/1     Running   0          17s
pod/visits-66d7799799-zwhhk         0/1     Running   0          17s
pod/web-6d46d5c849-4hmjq            1/1     Running   0          3m47s

NAME                 TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
service/customers    ClusterIP   10.108.82.184   <none>        8080/TCP         3m47s
service/gateway      NodePort    10.103.45.6     <none>        8080:31080/TCP   3m47s
service/kubernetes   ClusterIP   10.96.0.1       <none>        443/TCP          14d
service/vets         ClusterIP   10.111.98.48    <none>        8080/TCP         3m47s
service/visits       ClusterIP   10.97.28.41     <none>        8080/TCP         3m47s
service/web          ClusterIP   10.111.138.5    <none>        8080/TCP         3m47s

NAME                               READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/customers          1/1     1            1           3m47s
deployment.apps/gateway            1/1     1            1           3m47s
deployment.apps/vets               1/1     1            1           3m47s
deployment.apps/visits             1/4     4            1           3m47s
deployment.apps/web                1/1     1            1           3m47s
```

描述Pod详情


3. william@jskill: ~/mydev/github/spring2go/spring-petclinic-msa/k8s/local (zsh)
Port: <none>
Host Port: <none>
State: Running
Started: Tue, 14 Jan 2020 19:55:55 +0800
Ready: True
Restart Count: 0
Readiness: http-get http://:8080/actuator/health delay=0s timeout=1s period=10s #success=1 #failure=3
Environment:
SERVER_PORT: 8080
Mounts:
/var/run/secrets/kubernetes.io/serviceaccount from default-token-hgpnn (ro)
Conditions:
Type Status
Initialized True
Ready True
ContainersReady True
PodScheduled True
Volumes:
default-token-hgpnn:
Type: Secret (a volume populated by a Secret)
SecretName: default-token-hgpnn
Optional: false
QoS Class: BestEffort
Node-Selectors: <none>
Tolerations: node.kubernetes.io/not-ready:NoExecute for 300s
node.kubernetes.io/unreachable:NoExecute for 300s
Events:
Type Reason Age From Message
Normal Scheduled 115s default-scheduler Successfully assigned default/visits-66d7799799-2jxd5 to docker-desktop
Normal Pulled 113s kubelet, docker-desktop Container image "spring2go/spring-petclinic-visits-service:1.0.0.RELEASE" already present on machine
Normal Created 113s kubelet, docker-desktop Created container visits
Normal Started 113s kubelet, docker-desktop Started container visits
Warning Unhealthy 95s (x2 over 105s) kubelet, docker-desktop Readiness probe failed: Get http://10.1.7.45:8080/actuator/health: dial tcp 10.1.7.45:8080: connect: connection refused
local git:(master) ✗

环境清理


3. william@jskill: ~/mydev/github/spring2go/spring-petclinic-msa/k8s/local (zsh)
➜ local git:(master) ✗ ls
customers-svc.yml gateway-svc.yml vets-svc.yml visits-svc.yml web-app.yml
➜ local git:(master) ✗ kubectl delete -f .
deployment.apps "customers" deleted
service "customers" deleted
deployment.apps "gateway" deleted
service "gateway" deleted
deployment.apps "vets" deleted
service "vets" deleted
deployment.apps "visits" deleted
service "visits" deleted
deployment.apps "web" deleted
service "web" deleted
➜ local git:(master) ✗ kubectl get all
NAME READY STATUS RESTARTS AGE
pod/visits-66d7799799-22mvc 0/1 Terminating 0 8m39s
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
service/kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 14d
➜ local git:(master) ✗ kubectl get all
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
service/kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 14d
➜ local git:(master) ✗

本课小结

- 就绪探针(Readiness Probe) ~ 检查是否就绪，流量接入依据
- 存活探针(Liveness Probe) ~ 检查是否存活，Kill容器的依据
- 类型：Http, exec, tcpSocket等