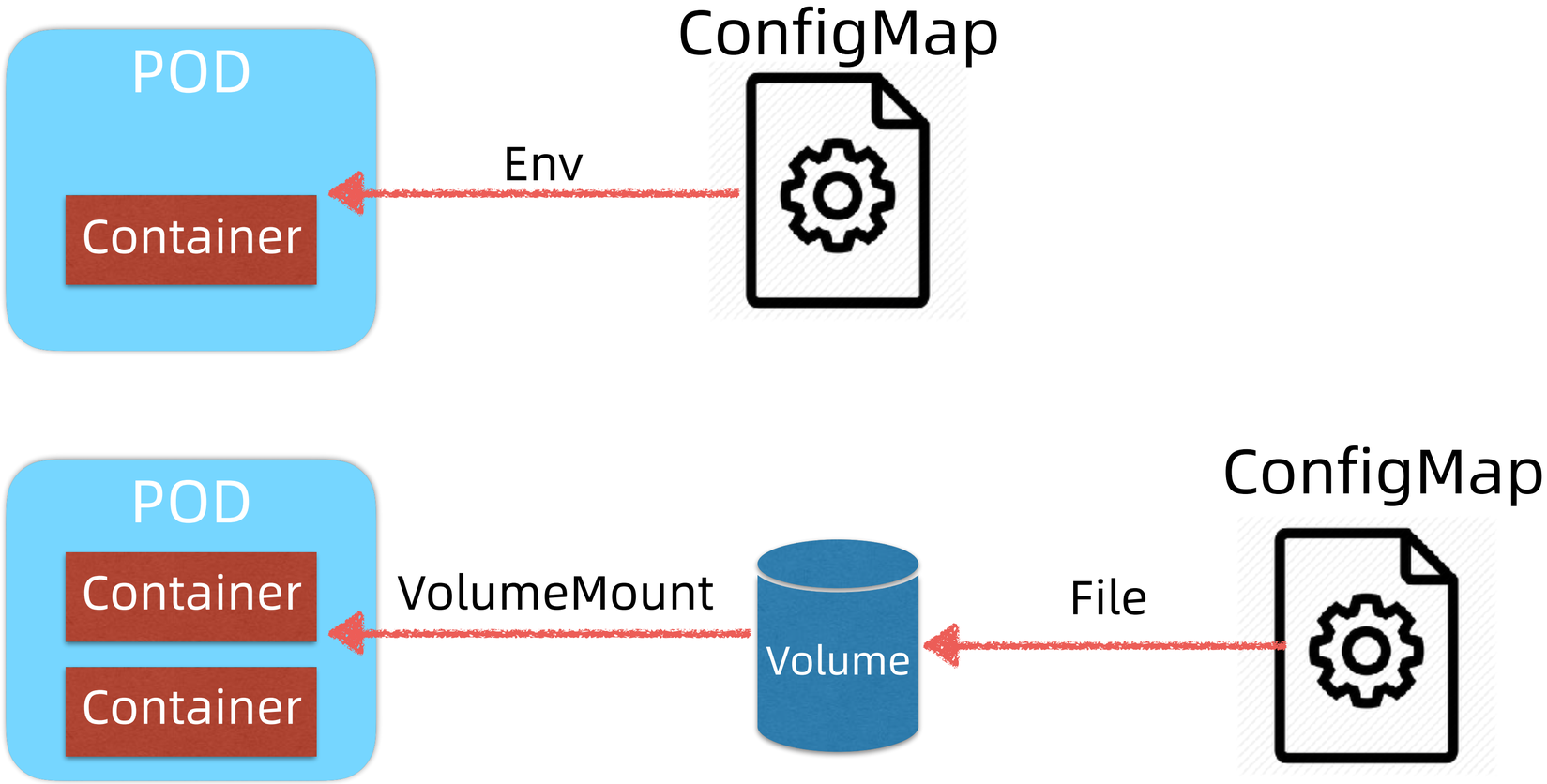
第 10 节

K8s配置抽象ConfigMap

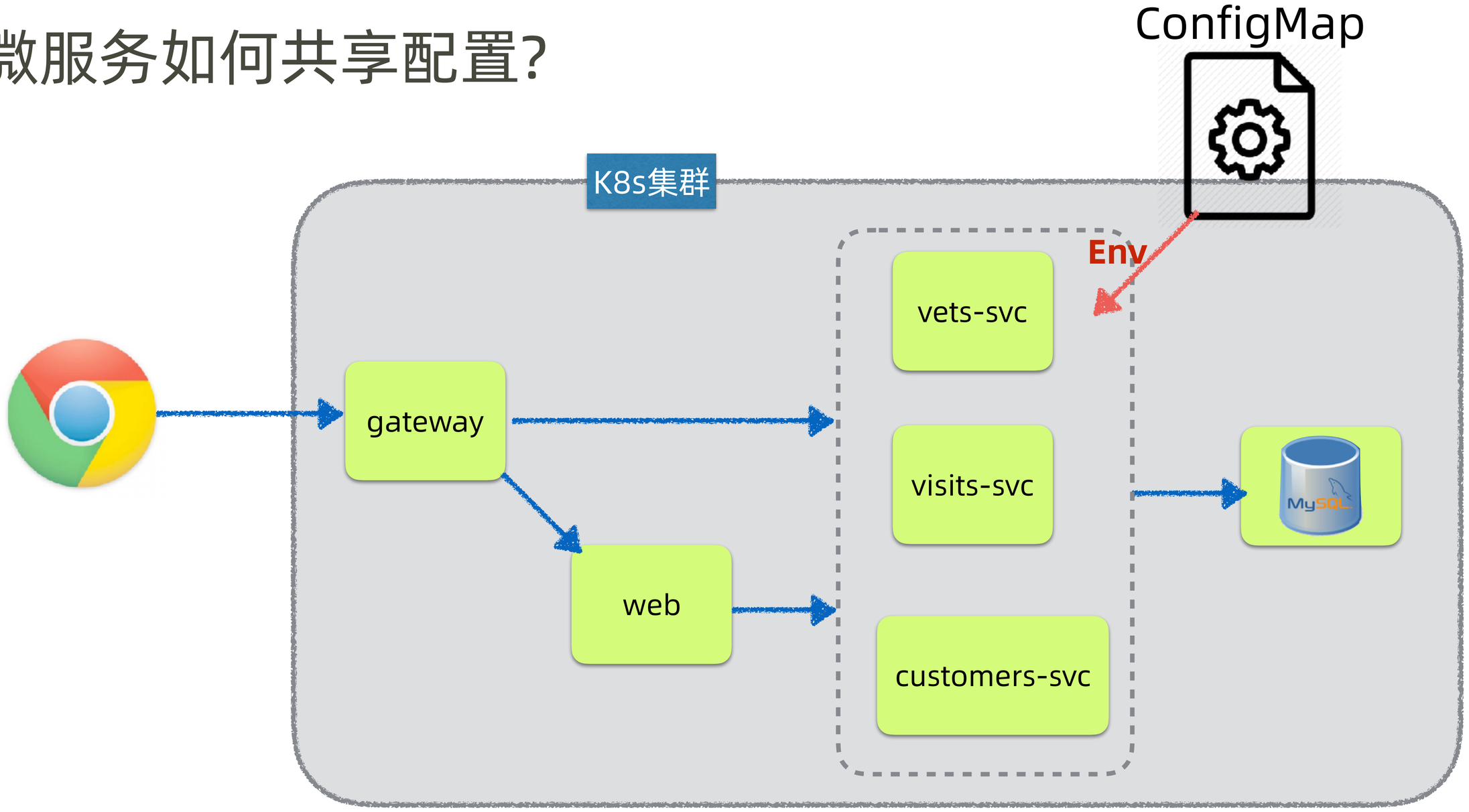
本课内容

- K8s配置抽象ConfigMap的原理
- Petclinic + ConfigMap演示
- ConfigMap配置更新传播

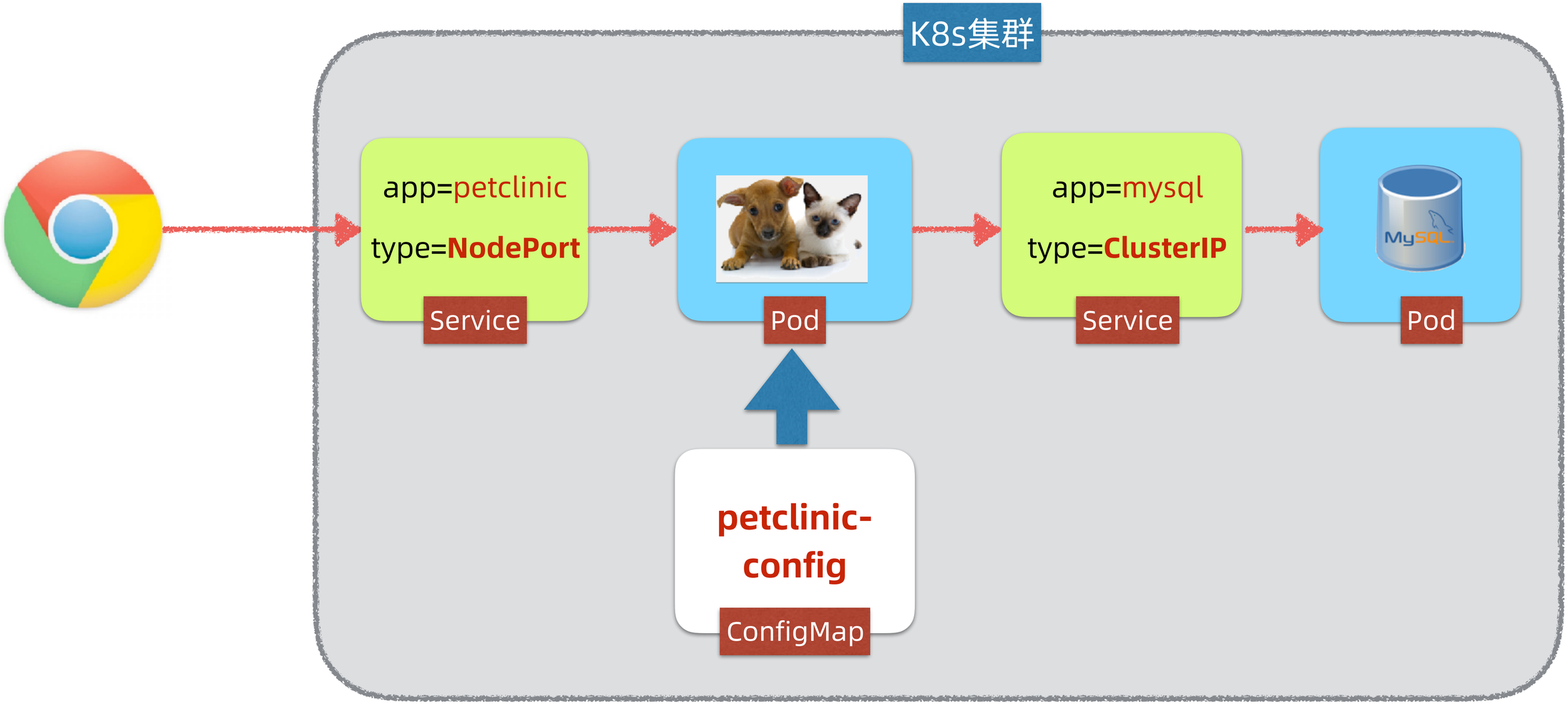
K8s配置抽象ConfigMap



微服务如何共享配置?


ConfigMap
K8s集群
Env
vets-svc
gateway
visits-svc
MySQL
web
customers-svc

演示部署架构


K8s集群
app=petclinic
type=NodePort
Service
Pod
app=mysql
type=ClusterIP
Service
MySQL
Pod
petclinic-config
ConfigMap

Env -> ConfigMap

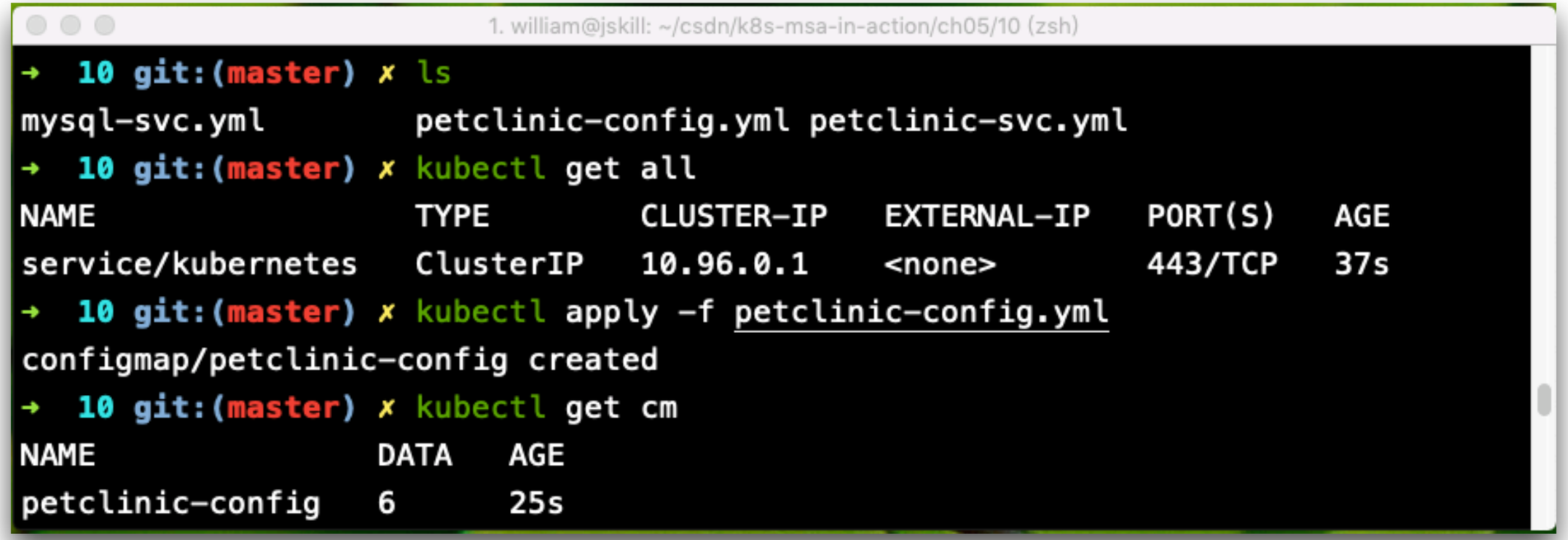
```yaml
spec:
  containers:
    - name: petclinic
      image: spring2go/spring-petclinic:1.0.1.RELEASE
      env:
        - name: SPRING_PROFILES_ACTIVE
          value: mysql
        - name: DATASOURCE_URL
          value: jdbc:mysql://mysql/petclinic
        - name: DATASOURCE_USERNAME
          value: root
        - name: DATASOURCE_PASSWORD
          value: petclinic
        - name: DATASOURCE_INIT_MODE
          value: always
```

```yaml
apiVersion: v1
kind: ConfigMap
metadata:
  name: petclinic-config
data:
  SPRING_PROFILES_ACTIVE: mysql
  DATASOURCE_URL: jdbc:mysql://mysql/petclinic
  DATASOURCE_USERNAME: root
  DATASOURCE_PASSWORD: petclinic
  DATASOURCE_INIT_MODE: always
  TEST_CONFIG: test_config_v1
```

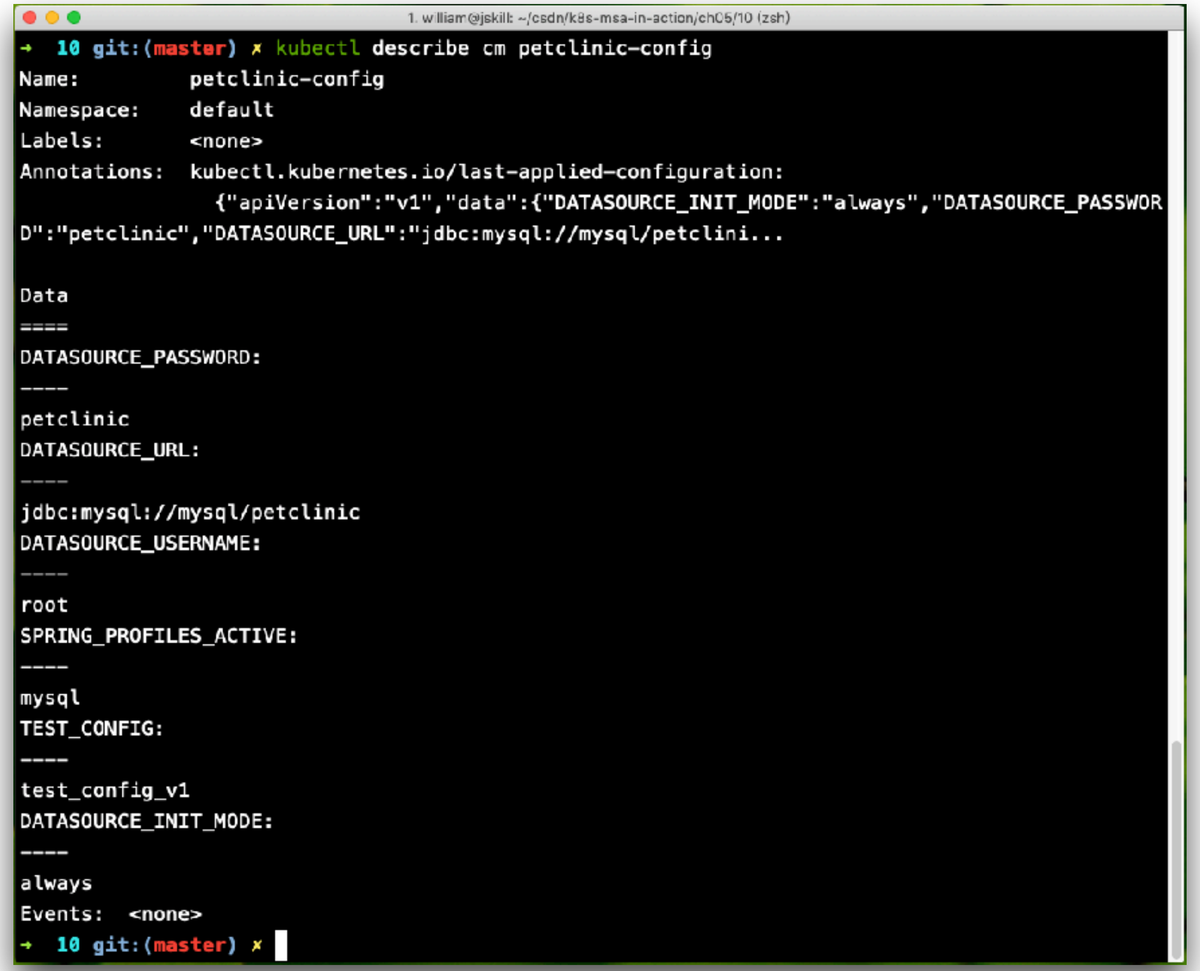
Petclinic Deployment

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: petclinic
spec:
  selector:
    matchLabels:
      app: petclinic
  replicas: 1
  template:
    metadata:
      labels:
        app: petclinic
    spec:
      containers:
        - name: petclinic
          image: spring2go/spring-petclinic:1.0.1.RELEASE
          envFrom:
            - configMapRef:
                name: petclinic-config
```

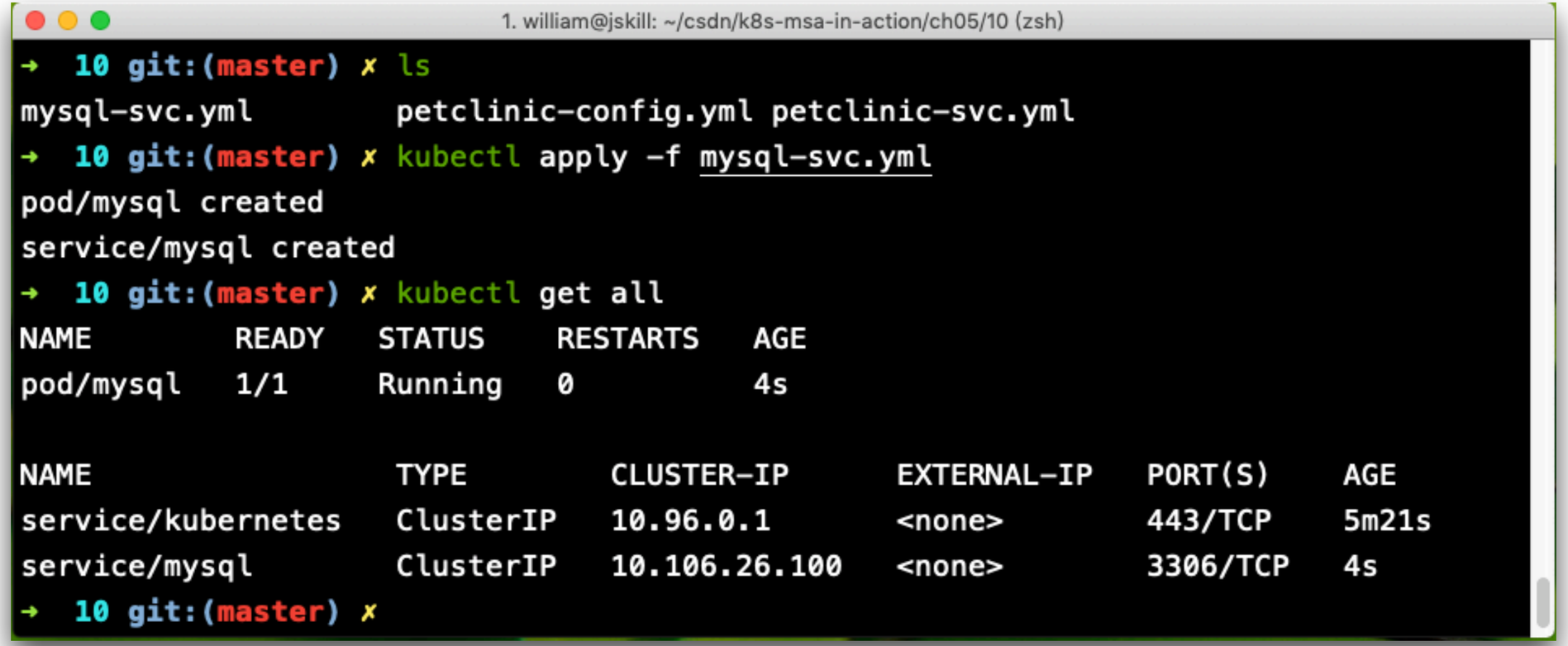
发布petclinic-config.yml



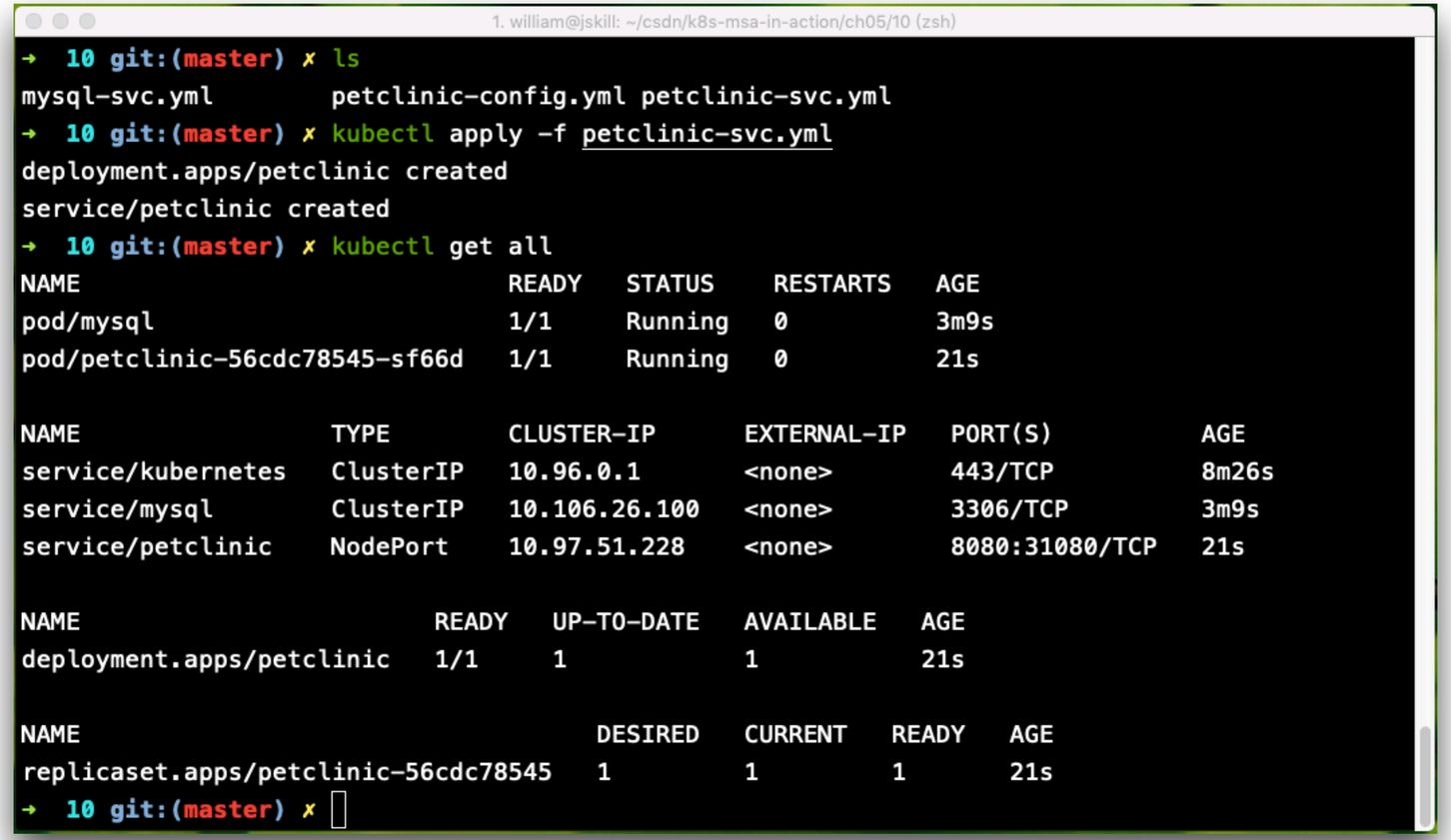
查看petclinic config详情



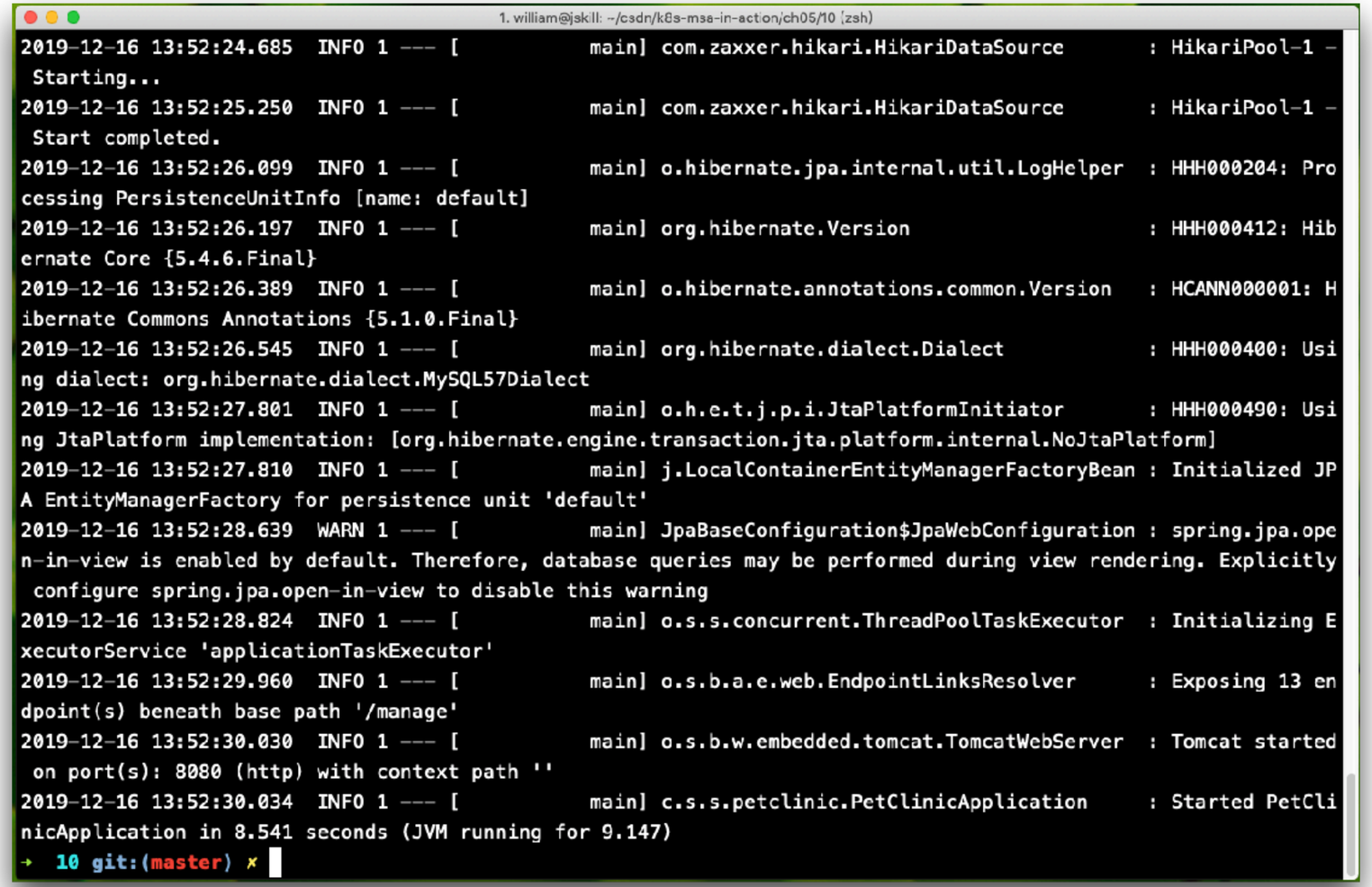
发布Mysql Service/Pod



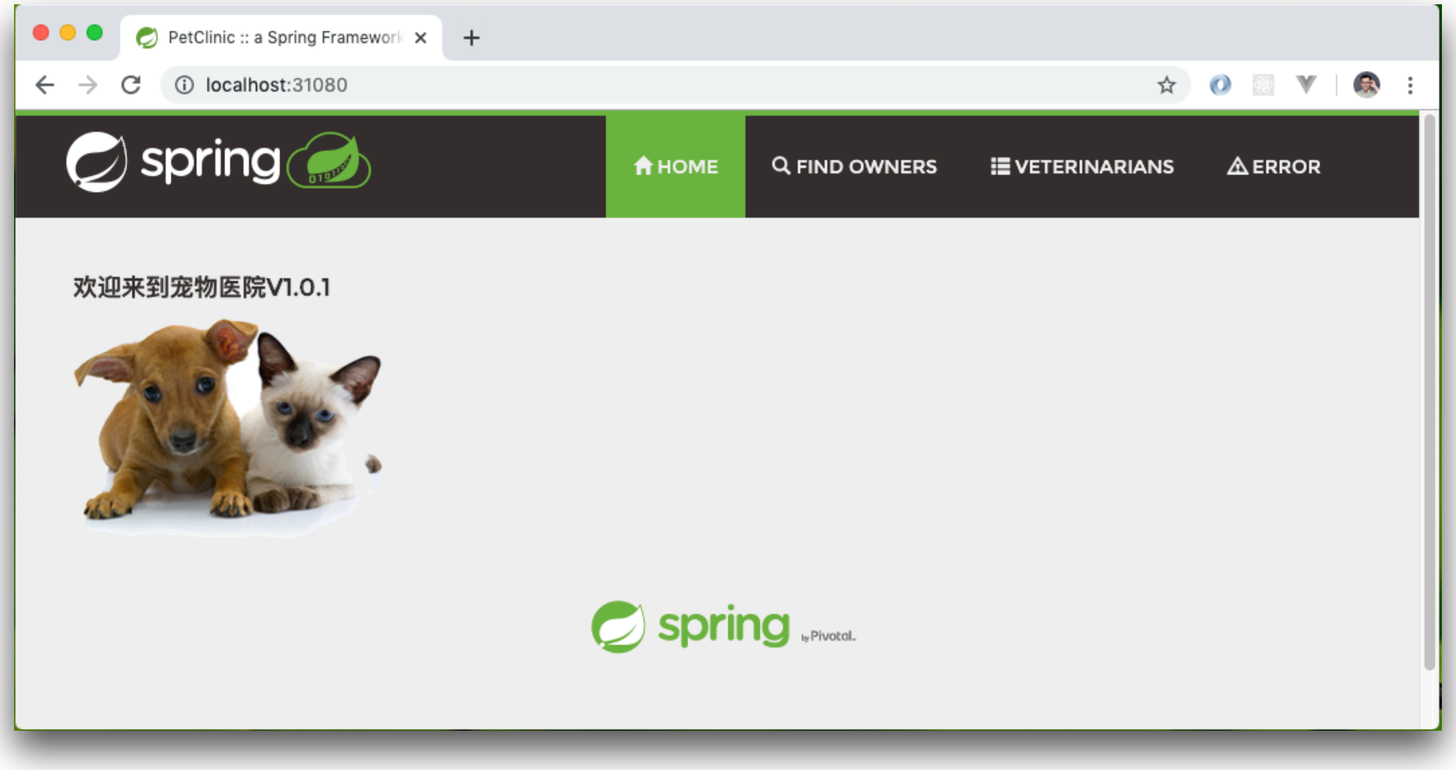
发布Petclinic Service/Pod



校验Petclinic Pod启动日志



校验PetClinic应用



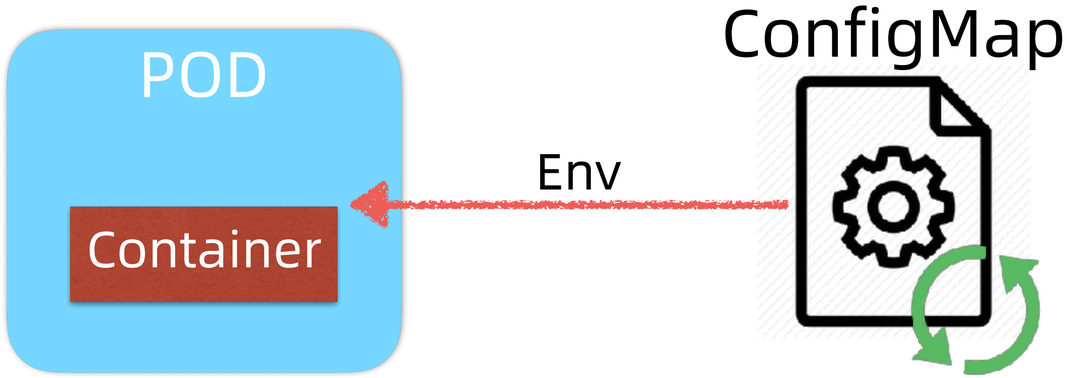
查询Petclinic Pod环境变量

```
1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/10 (zsh)
➜  10 git:(master) ✗ kubectl exec petclinic-56cdc78545-sf66d printenv

PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/lib/jvm/jav
a-1.8-openjdk/jre/bin:/usr/lib/jvm/java-1.8-openjdk/bin
HOSTNAME=petclinic-56cdc78545-sf66d
DATASOURCE_PASSWORD=petclinic
DATASOURCE_URL=jdbc:mysql://mysql/petclinic
DATASOURCE_USERNAME=root
SPRING_PROFILES_ACTIVE=mysql
TEST_CONFIG=test_config_v1
DATASOURCE_INIT_MODE=always
PETCLINIC_PORT_8080_TCP_PROTO=tcp
PETCLINIC_PORT_8080_TCP_PORT=8080
KUBERNETES_SERVICE_PORT_HTTPS=443
MYSQL_SERVICE_HOST=10.106.26.100
MYSQL_SERVICE_PORT=3306
MYSQL_SERVICE_PORT_TCP=3306
PETCLINIC_SERVICE_PORT=8080
PETCLINIC_PORT_8080_TCP=tcp://10.97.51.228:8080
KUBERNETES_PORT_443_TCP=tcp://10.96.0.1:443
KUBERNETES_PORT_443_TCP_ADDR=10.96.0.1
MYSQL_PORT_3306_TCP_PROTO=tcp
PETCLINIC_SERVICE_PORT_HTTP=8080
KUBERNETES_SERVICE_HOST=10.96.0.1
KUBERNETES_SERVICE_PORT=443
KUBERNETES_PORT=tcp://10.96.0.1:443
MYSQL_PORT=tcp://10.106.26.100:3306
MYSQL_PORT_3306_TCP_ADDR=10.106.26.100
```

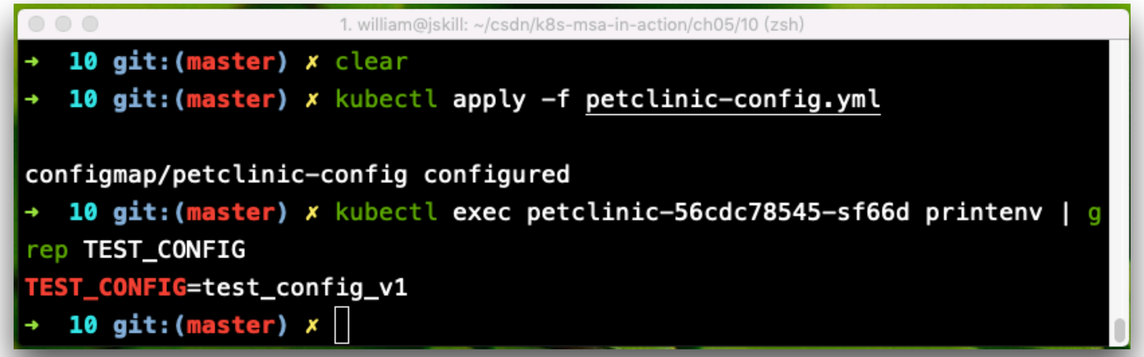
```
1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/10 (zsh)
JAVA_ALPINE_VERSION=8.212.04-r0
HOME=/root
➜  10 git:(master) ✗ kubectl exec petclinic-56cdc78545-sf66d printenv
| grep TEST_CONFIG
TEST_CONFIG=test_config_v1
➜  10 git:(master) ✗
```

ConfigMap变更传播



修改petclinic config

```yaml
apiVersion: v1
kind: ConfigMap
metadata:
  name: petclinic-config
data:
  SPRING_PROFILES_ACTIVE: mysql
  DATASOURCE_URL: jdbc:mysql://mysql/petclinic
  DATASOURCE_USERNAME: root
  DATASOURCE_PASSWORD: petclinic
  DATASOURCE_INIT_MODE: always
  TEST_CONFIG: test_config_v2
```

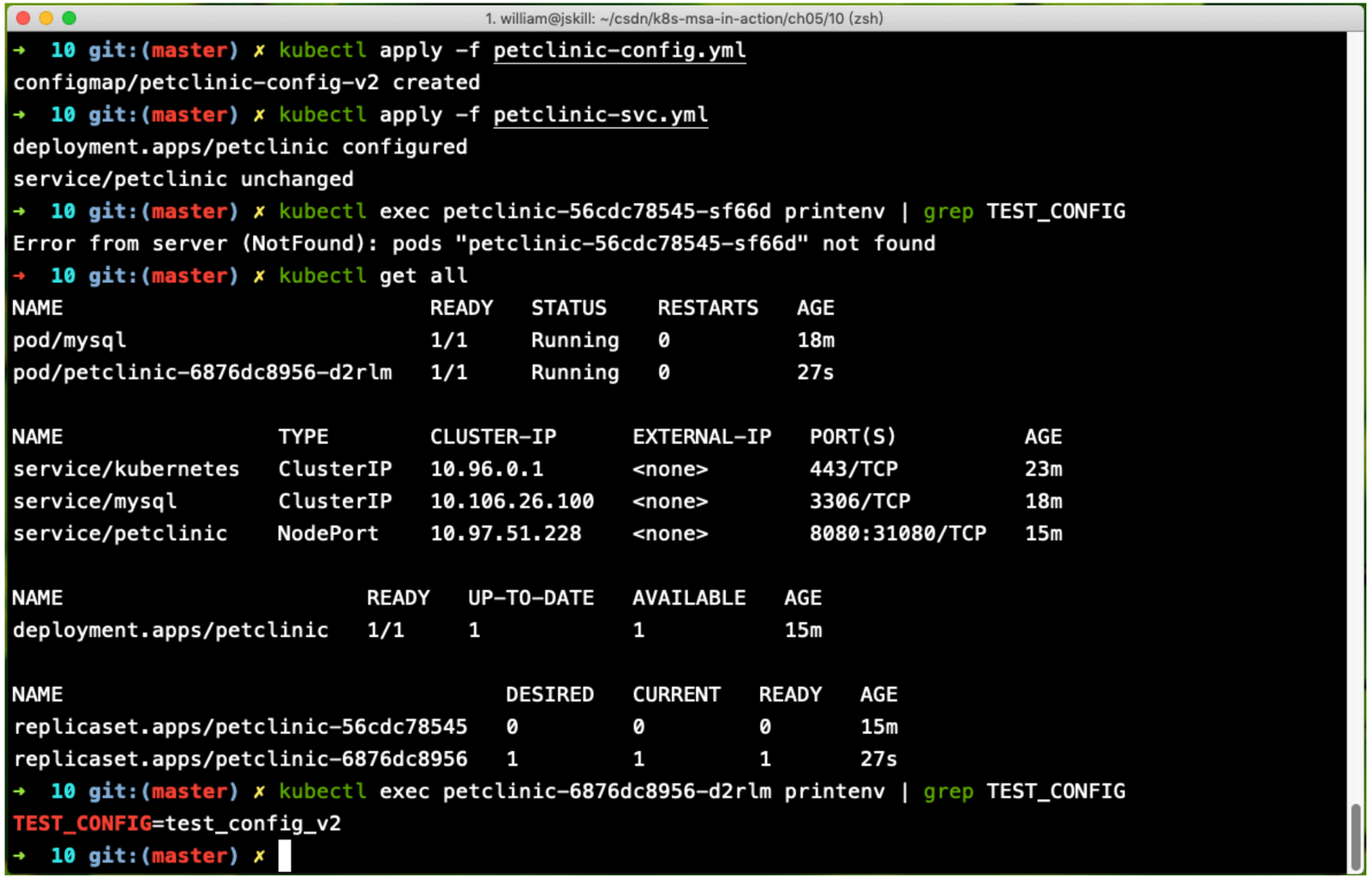


再次修改petclinic config和petclinic deployment

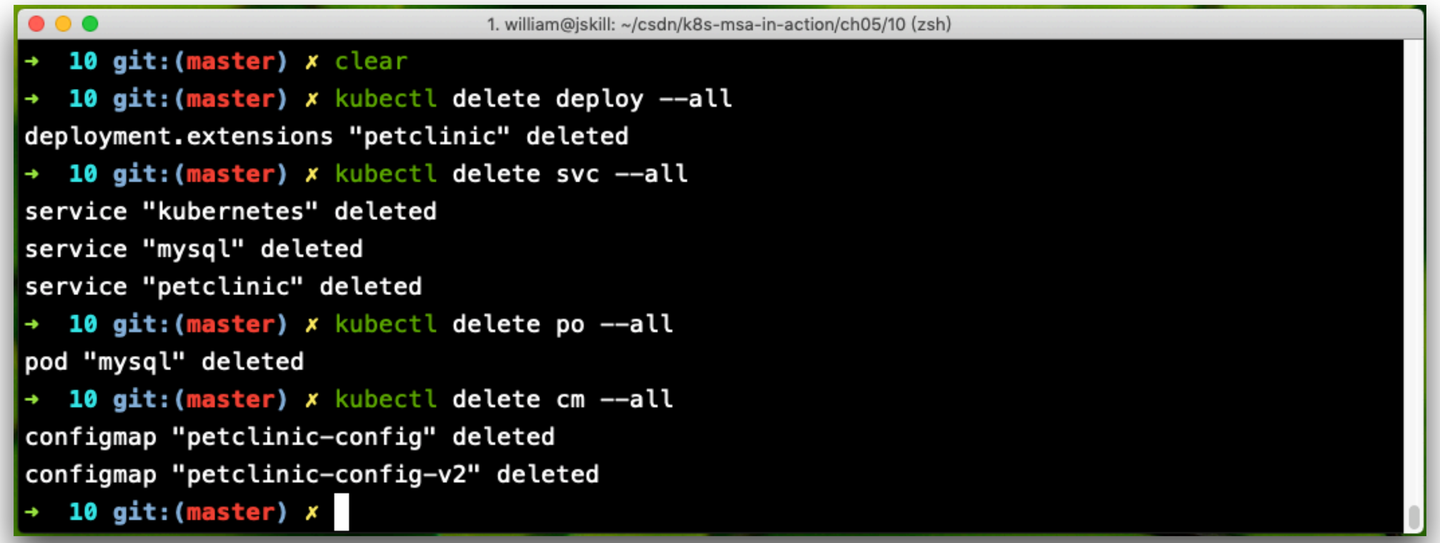
```yaml
apiVersion: v1
kind: ConfigMap
metadata:
  name: petclinic-config-v2
data:
  SPRING_PROFILES_ACTIVE: mysql
  DATASOURCE_URL: jdbc:mysql://mysql/petclinic
  DATASOURCE_USERNAME: root
  DATASOURCE_PASSWORD: petclinic
  DATASOURCE_INIT_MODE: always
  TEST_CONFIG: test_config_v2
```

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: petclinic
spec:
  selector:
    matchLabels:
      app: petclinic
  replicas: 1
  template:
    metadata:
      labels:
        app: petclinic
    spec:
      containers:
        - name: petclinic
          image: spring2go/spring-petclinic:1.0.1.RELEASE
          envFrom:
            - configMapRef:
                name: petclinic-config-v2
```

Petclinic Pod环境变量更新



环境清理


1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/10 (zsh)
→ 10 git:(master) ✗ clear
→ 10 git:(master) ✗ kubectl delete deploy --all
deployment.extensions "petclinic" deleted
→ 10 git:(master) ✗ kubectl delete svc --all
service "kubernetes" deleted
service "mysql" deleted
service "petclinic" deleted
→ 10 git:(master) ✗ kubectl delete po --all
pod "mysql" deleted
→ 10 git:(master) ✗ kubectl delete cm --all
configmap "petclinic-config" deleted
configmap "petclinic-config-v2" deleted
→ 10 git:(master) ✗

本课小结

- ConfigMap是K8s提供的一种配置管理抽象，便于在微服务间共享配置。
- ConfigMap可以绑定到Pod的环境变量(Env)中，配置更新传播：
  - 需重启Pod
  - 建议更新ConfigMap的name和引用
- ConfigMap也可绑定到Pod的持久卷(Volume)，支持配置热更新