

第

8

节

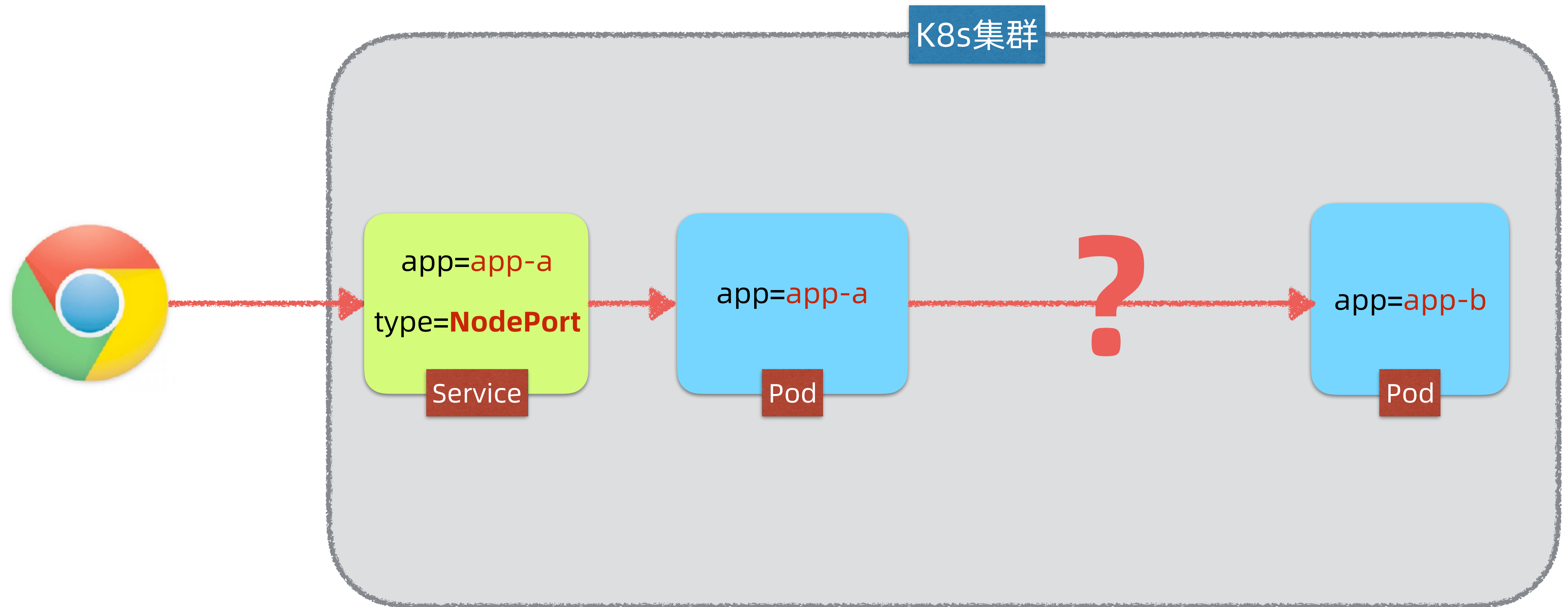
K8s内部反向代理 ~ ClusterIP Service

本课内容

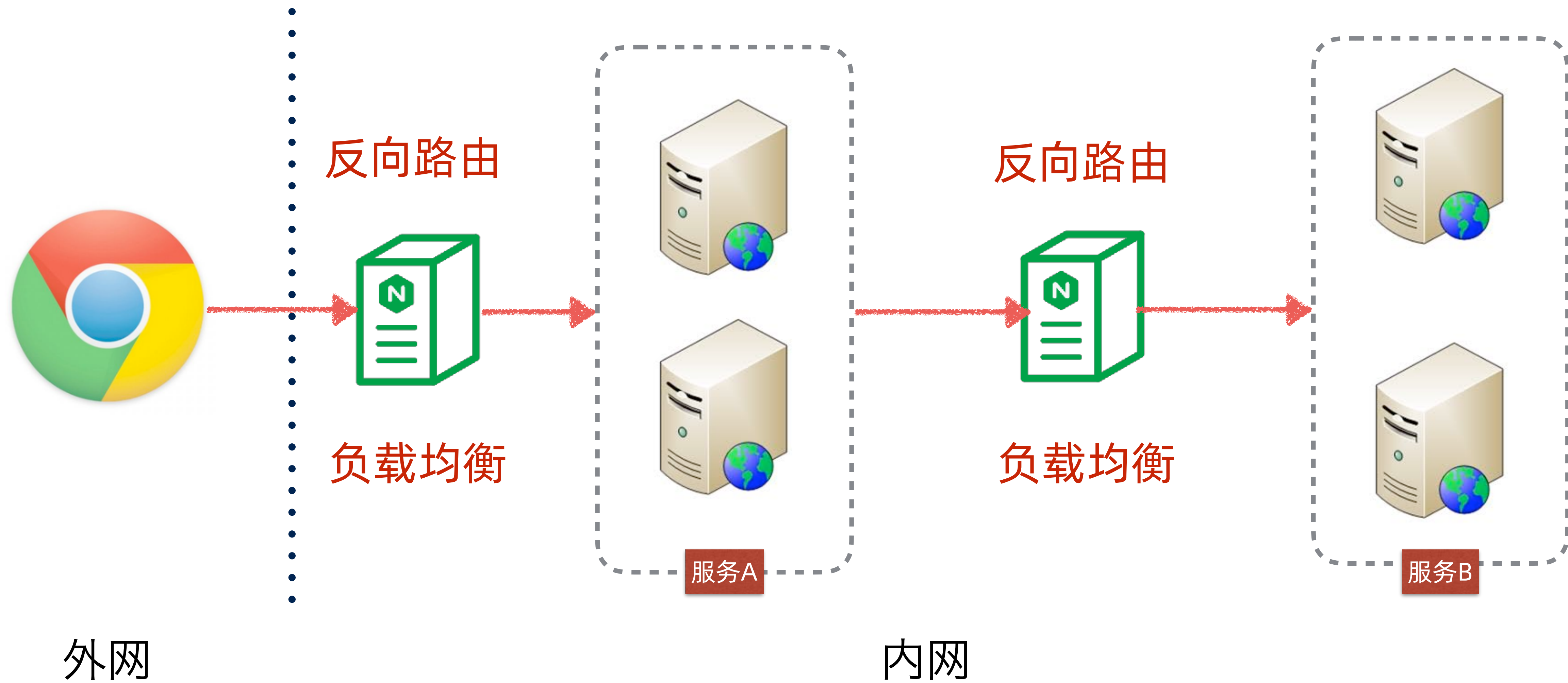
- K8s内部反向代理ClusterIP Service原理
- 演示Petclinic通过ClusterIP Service访问内部MySQL Pod



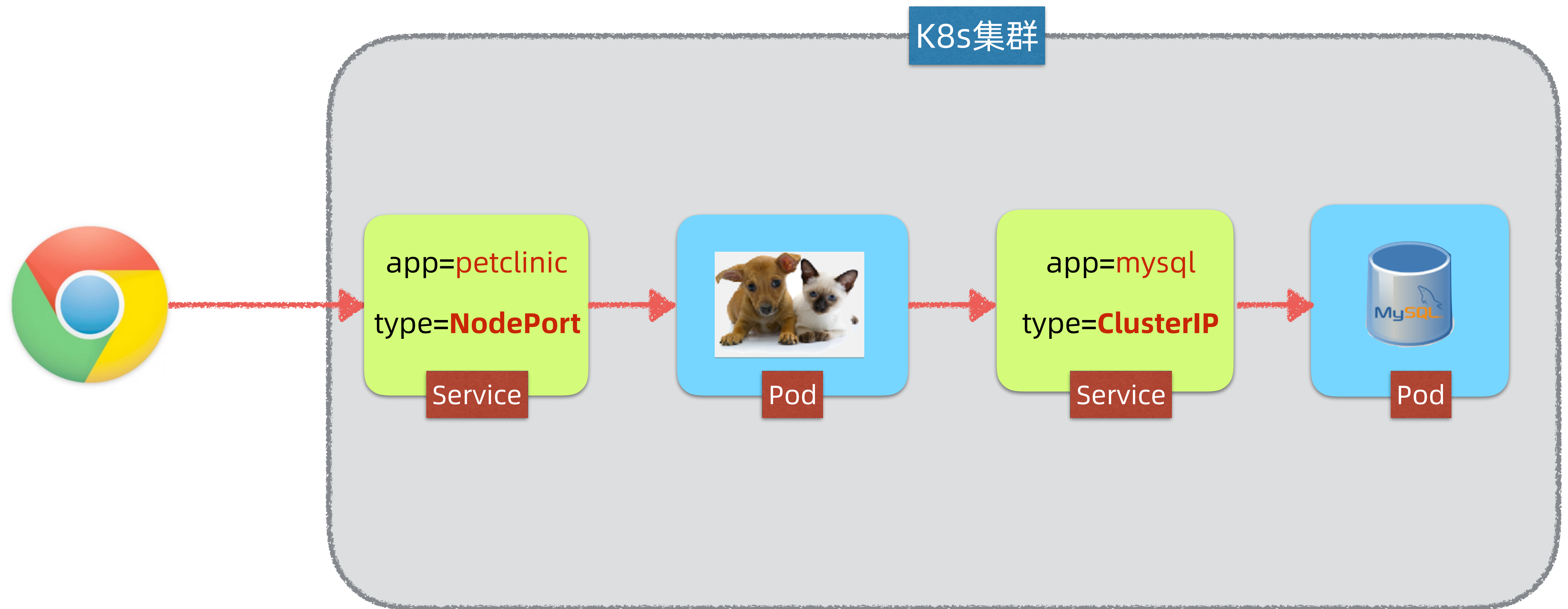
内部服务之间如何相互访问？



传统内部反向代理



K8s内部反向代理



Mysql Pod

```
1  apiVersion: v1
2  kind: Pod
3  metadata:
4    name: mysql
5    labels:
6      app: mysql
7  spec:
8    containers:
9      - name: mysql
10        image: mysql:5.7
11        env:
12          - name: MYSQL_ROOT_PASSWORD
13            value: petclinic
14          - name: MYSQL_DATABASE
15            value: petclinic
```


Mysql Service

```
1  apiVersion: v1
2  kind: Service
3  metadata:
4    | name: mysql
5  spec:
6    | selector:
7    |   app: mysql
8    | ports:
9    |   - name: tcp
10     |     port: 3306
11     |     targetPort: 3306
12     | type: ClusterIP
```

PetClinic Deployment

spring-petclinic-mono项目源码

<https://github.com/spring2go/spring-petclinic-mono>

```
1  apiVersion: apps/v1
2  kind: Deployment
3  metadata:
4    name: petclinic
5  spec:
6    selector:
7      matchLabels:
8        app: petclinic
9    replicas: 1
10   template:
11     metadata:
12       labels:
13         app: petclinic
14     spec:
15       containers:
16         - name: petclinic
17           image: spring2go/spring-petclinic:1.0.0.RELEASE
18           env:
19             - name: SPRING_PROFILES_ACTIVE
20               value: mysql
21             - name: DATASOURCE_URL
22               value: jdbc:mysql://mysql/petclinic
23             - name: DATASOURCE_USERNAME
24               value: root
25             - name: DATASOURCE_PASSWORD
26               value: petclinic
27             - name: DATASOURCE_INIT_MODE
28               value: always
```


PetClinic Service

```
1  apiVersion: v1
2  kind: Service
3  metadata:
4    | name: petclinic
5  spec:
6    ports:
7      - name: http
8        | port: 8080
9          targetPort: 8080
10         nodePort: 31080
11    selector:
12      | app: petclinic
13    type: NodePort
```

运行mysql pod和服务

```
1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/08 (zsh)
→ 08 git:(master) ✕ clear
→ 08 git:(master) ✕ ls
mysql-pod.yml          petclinic-deployment.yml
mysql-service.yml      petclinic-service.yml
→ 08 git:(master) ✕ kubectl get all
NAME                                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
service/kubernetes               ClusterIP           10.96.0.1       <none>           443/TCP          4d1h
→ 08 git:(master) ✕ kubectl apply -f mysql-pod.yml
pod/mysql created
→ 08 git:(master) ✕ kubectl apply -f mysql-service.yml
service/mysql created
→ 08 git:(master) ✕ kubectl get all
NAME            READY   STATUS    RESTARTS   AGE
pod/mysql       1/1     Running   0          13s

NAME                                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
service/kubernetes               ClusterIP           10.96.0.1       <none>           443/TCP          4d1h
service/mysql                    ClusterIP           10.110.31.213   <none>           3306/TCP          5s
→ 08 git:(master) ✕
```

运行petclinic deployment和服务

```
1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/08 (zsh)
deployment.apps/petclinic created
→ 08 git:(master) x kubectl apply -f petclinic-service.yml
service/petclinic created
→ 08 git:(master) x kubectl get all
```

NAME	READY	STATUS	RESTARTS	AGE
pod/mysql	1/1	Running	0	2m13s
pod/petclinic-54f4b68c7f-gncsz	1/1	Running	0	14s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	4d1h
service/mysql	ClusterIP	10.110.31.213	<none>	3306/TCP	2m5s
service/petclinic	NodePort	10.105.95.117	<none>	8080:31080/TCP	6s

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/petclinic	1/1	1	1	14s

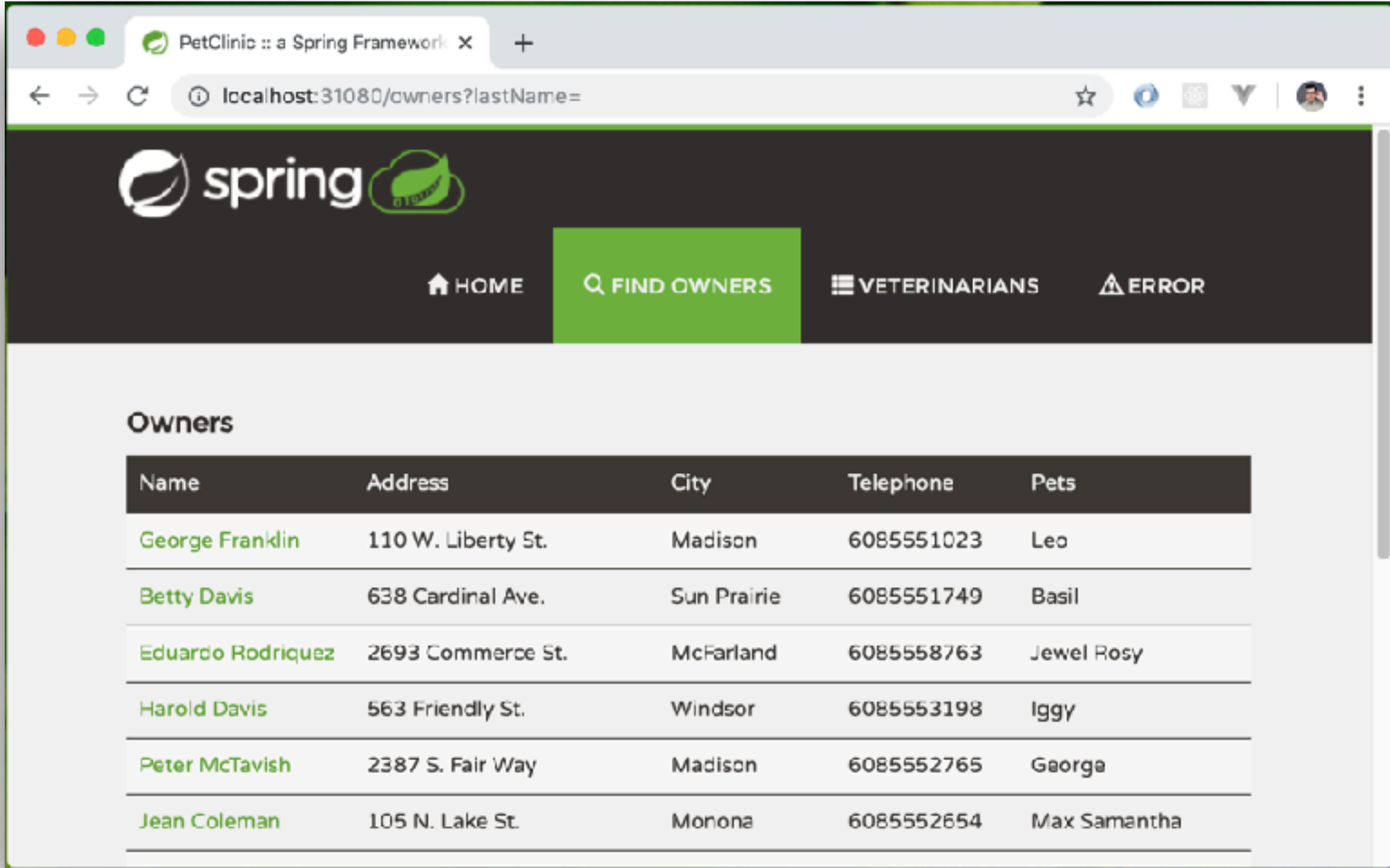
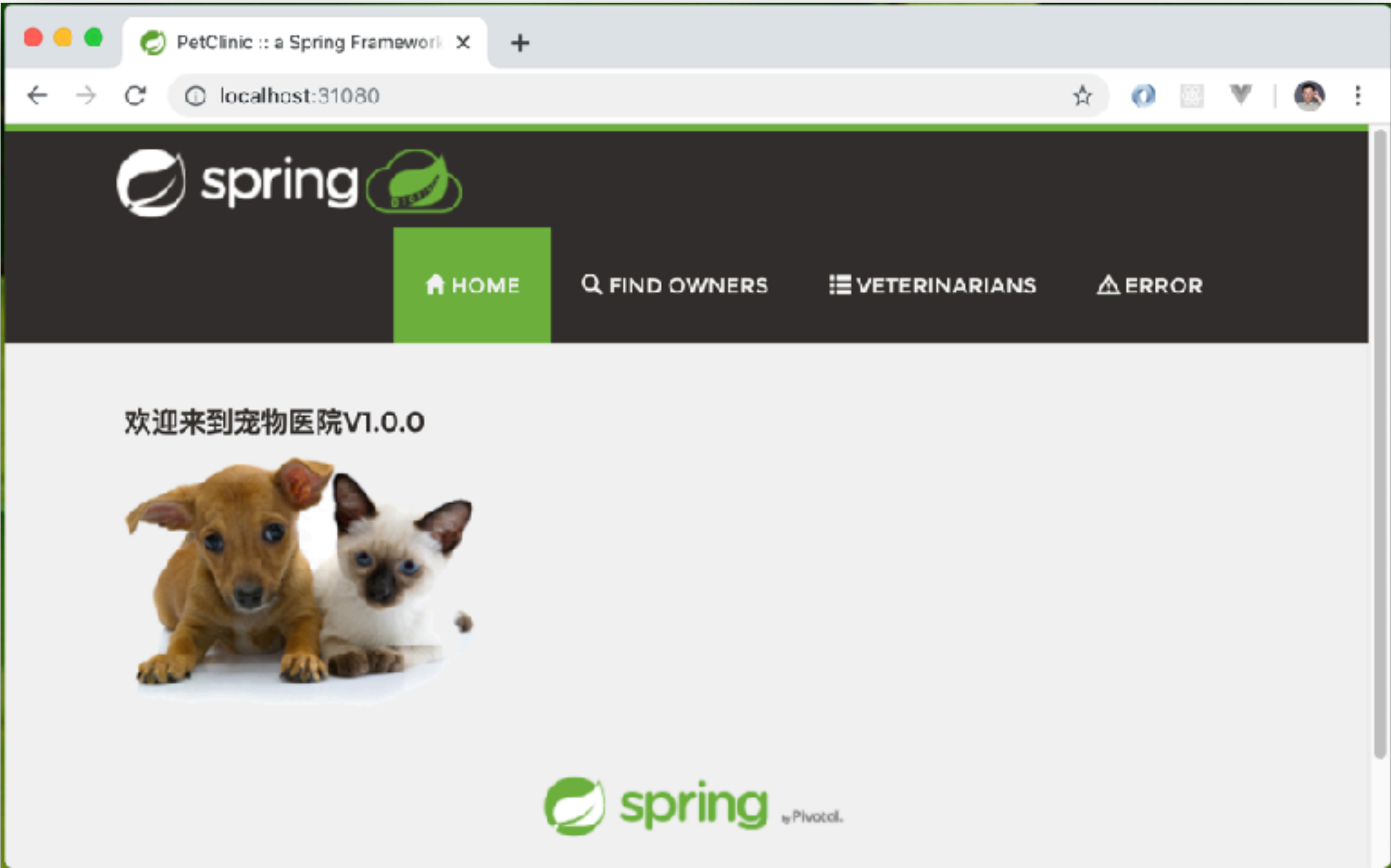
NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/petclinic-54f4b68c7f	1	1	1	14s

```
→ 08 git:(master) x
```


校验PetClinic应用正常启动

```
1. william@jskill: ~/csdn/k8s-msa-in-action/ch05/08 (zsh)
nfo [name: default]
2019-12-11 14:50:14.806 INFO 1 --- [main] org.hibernate.Version : HHH000412: Hibernate Core {5.4.6.Final}
2019-12-11 14:50:15.102 INFO 1 --- [main] o.hibernate.annotations.common.Version : HCANN000001: Hibernate Commons Annotations {5.1.0.Final}
2019-12-11 14:50:15.296 INFO 1 --- [main] org.hibernate.dialect.Dialect : HHH000400: Using dialect: org.hibernate.dialect.MySQL57Dialect
2019-12-11 14:50:16.744 INFO 1 --- [main] o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
2019-12-11 14:50:16.753 INFO 1 --- [main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2019-12-11 14:50:17.622 WARN 1 --- [main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database queries may be performed during view rendering. Explicitly configure spring.jpa.open-in-view to disable this warning
2019-12-11 14:50:17.809 INFO 1 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2019-12-11 14:50:19.073 INFO 1 --- [main] o.s.b.a.e.web.EndpointLinksResolver : Exposing 13 endpoint(s) beneath base path '/manage'
2019-12-11 14:50:19.153 INFO 1 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2019-12-11 14:50:19.155 INFO 1 --- [main] c.s.s.petclinic.PetClinicApplication : Started PetClinicApplication in 10.094 seconds (JVM running for 11.138)
→ 08 git:(master) x
```

校验PetClinic应用



本课小结



- ClusterIP Service是K8s提供的一种内部反向代理机制
- 复习Service的三种类型
 - ClusterIP ~ 内部服务访问
 - NodePort ~ 对外暴露服务
 - LoadBalancer ~ 对外暴露服务(公有云)
- Deployment/Pod发布规范中可以添加环境变量，给Pod传递启动参数
- 有状态服务一般只能部署1个Pod实例