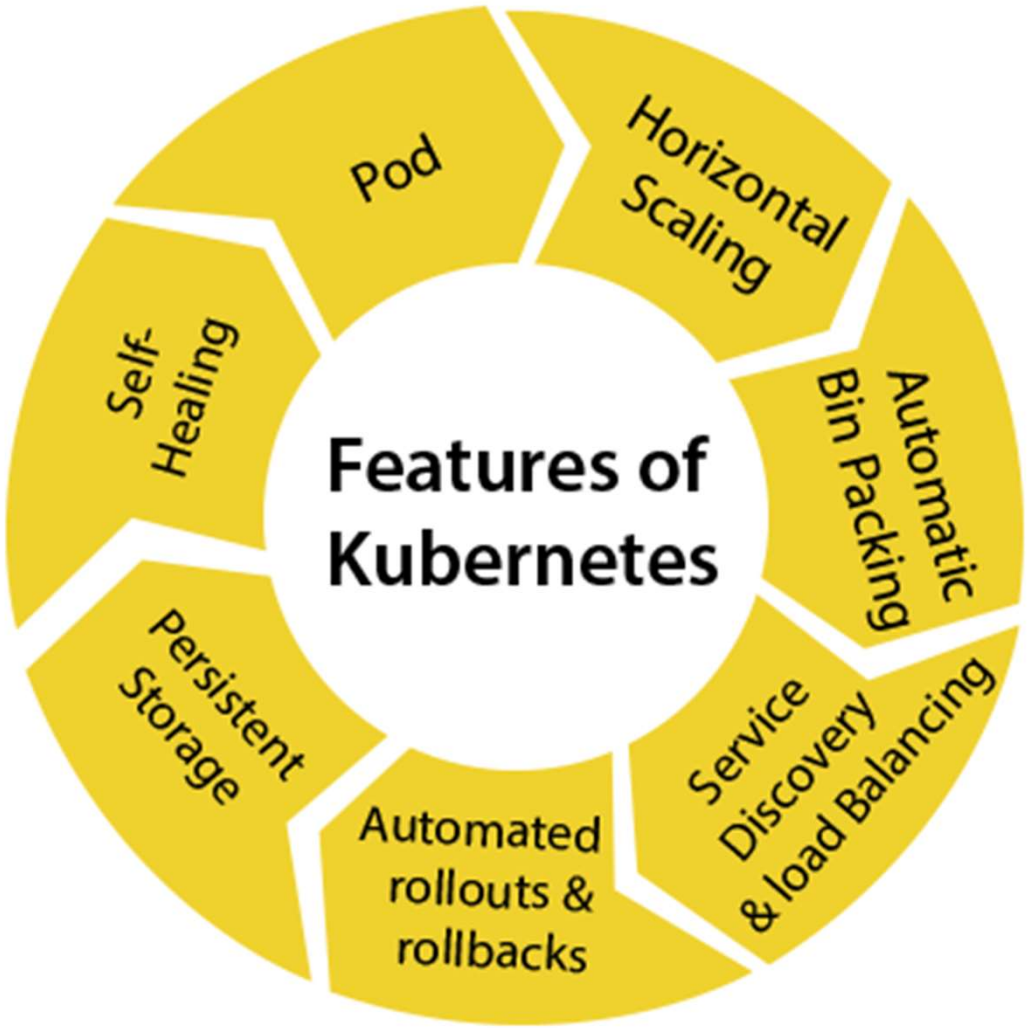
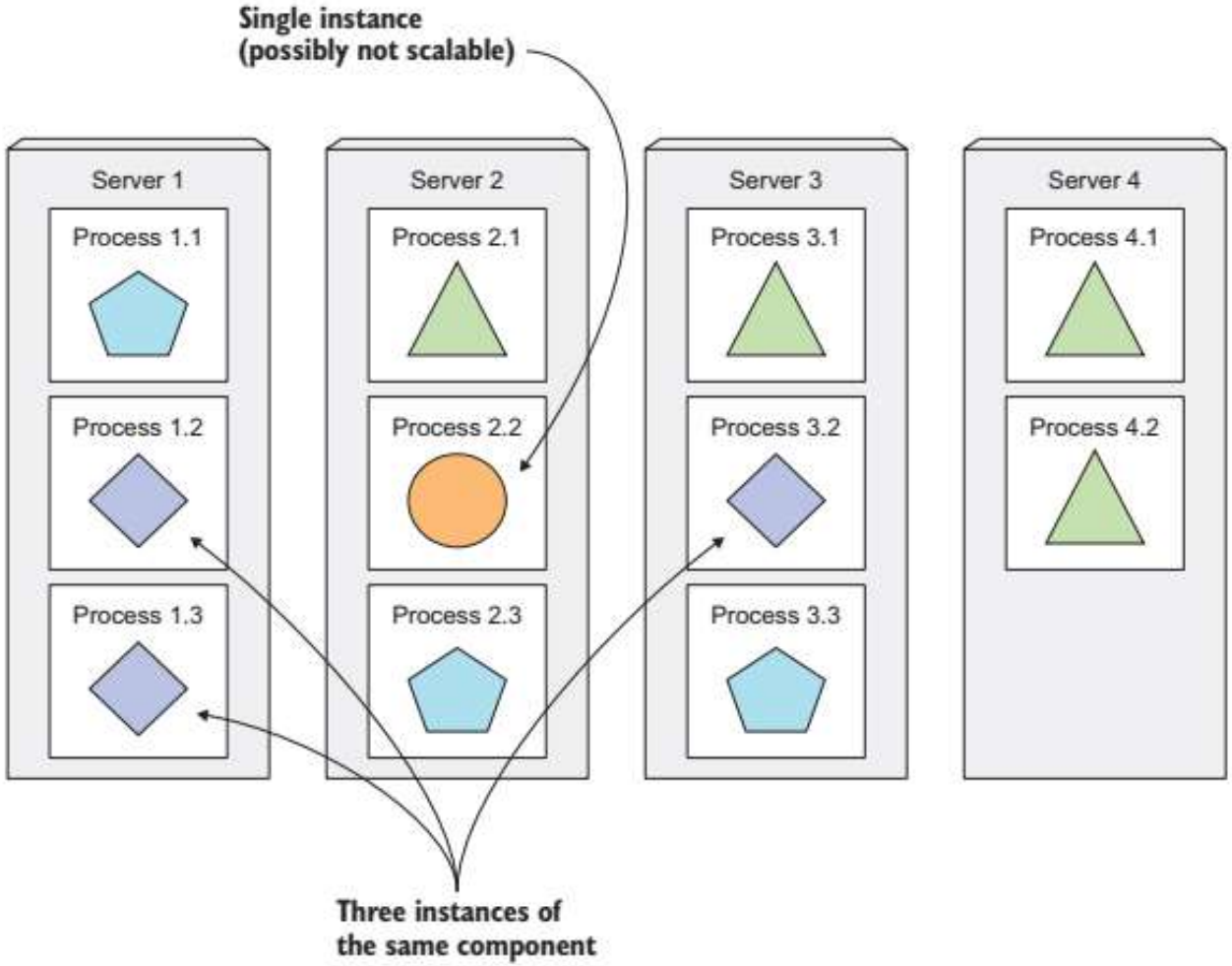
Kubernetes

Features


Features of Kubernetes
Pod
Horizontal Scaling
Automatic Bin Packing
Service Discovery & load Balancing
Automated rollouts & rollbacks
Persistent Storage
Self-Healing


Single instance
(possibly not scalable)
Server 1
Process 1.1
Process 1.2
Process 1.3
Server 2
Process 2.1
Process 2.2
Process 2.3
Server 3
Process 3.1
Process 3.2
Process 3.3
Server 4
Process 4.1
Process 4.2
Three instances of
the same component

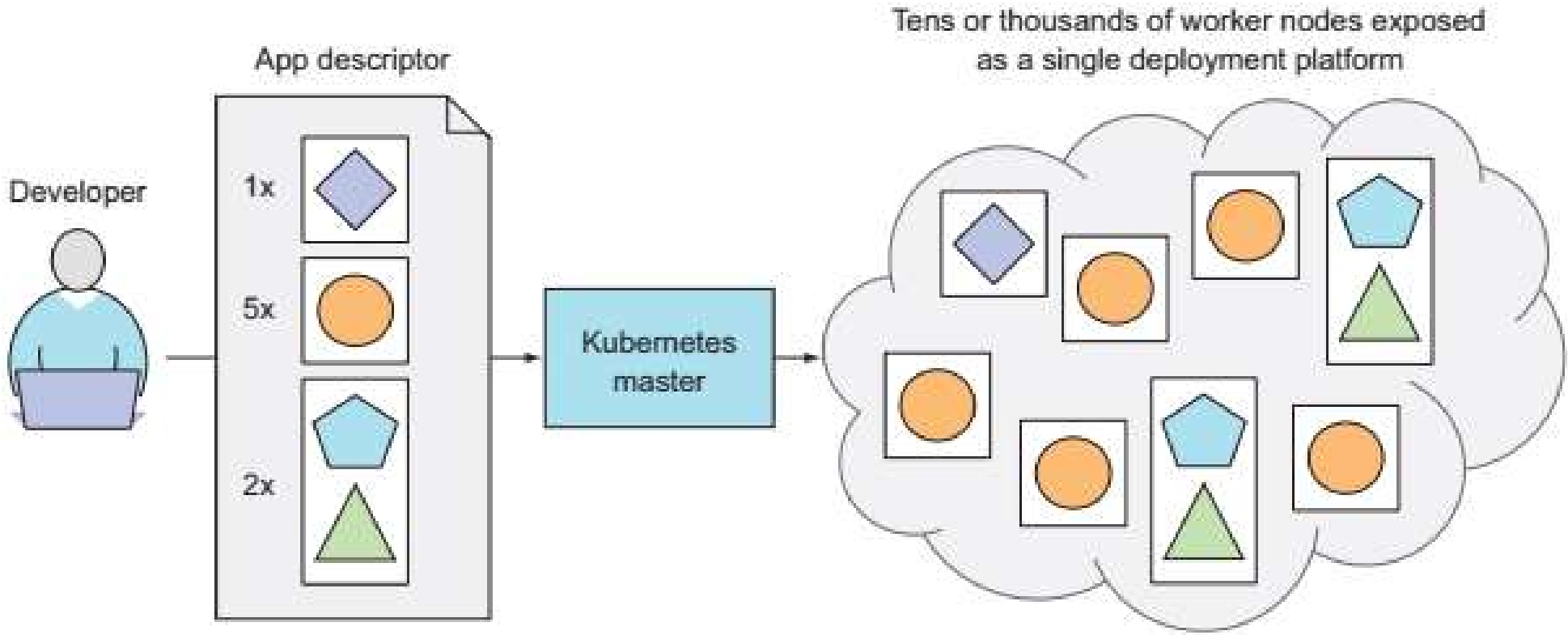


Figure 1.8 Kubernetes exposes the whole datacenter as a single deployment platform.

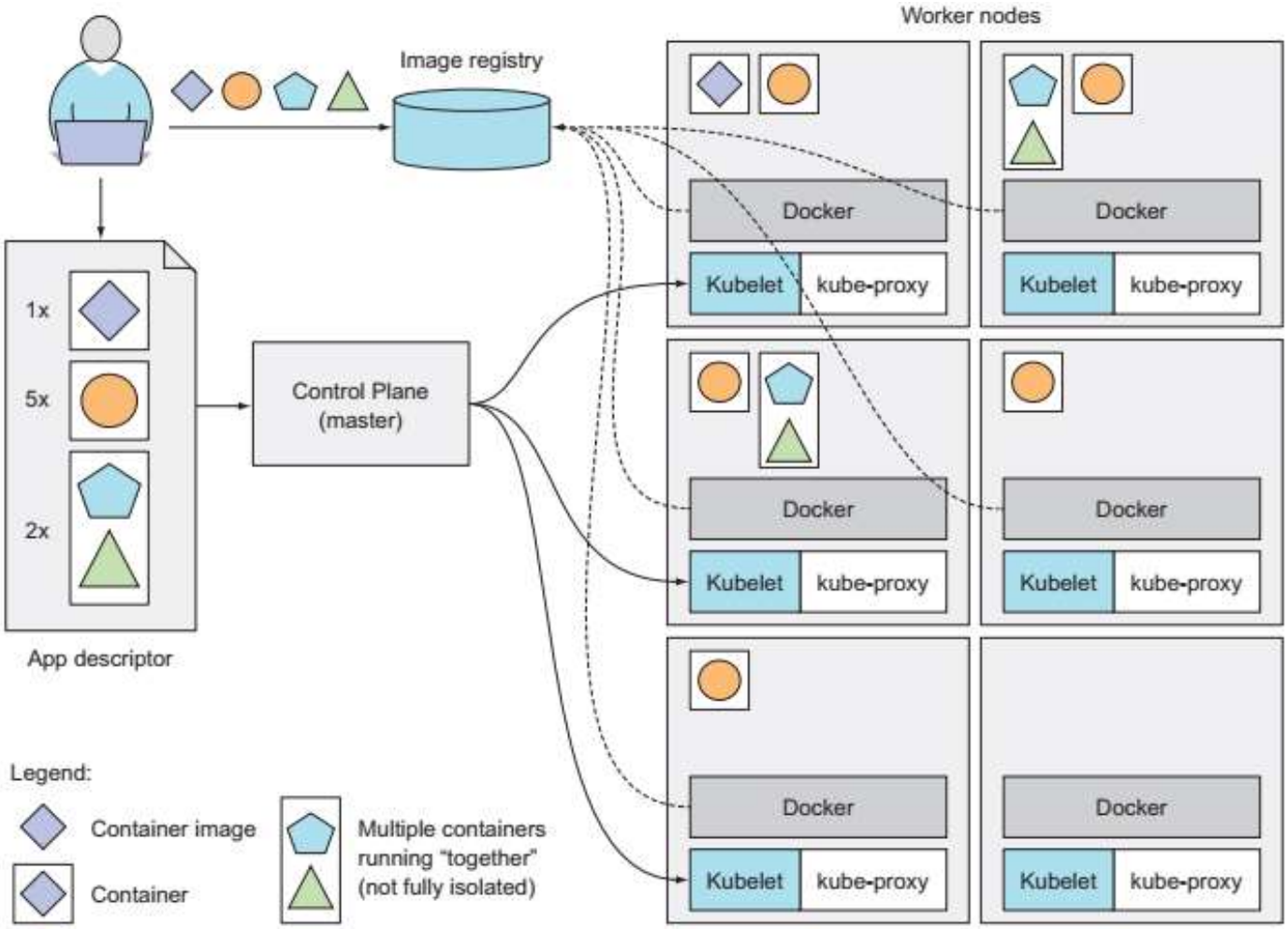


Figure 1.10 A basic overview of the Kubernetes architecture and an application running on top of it

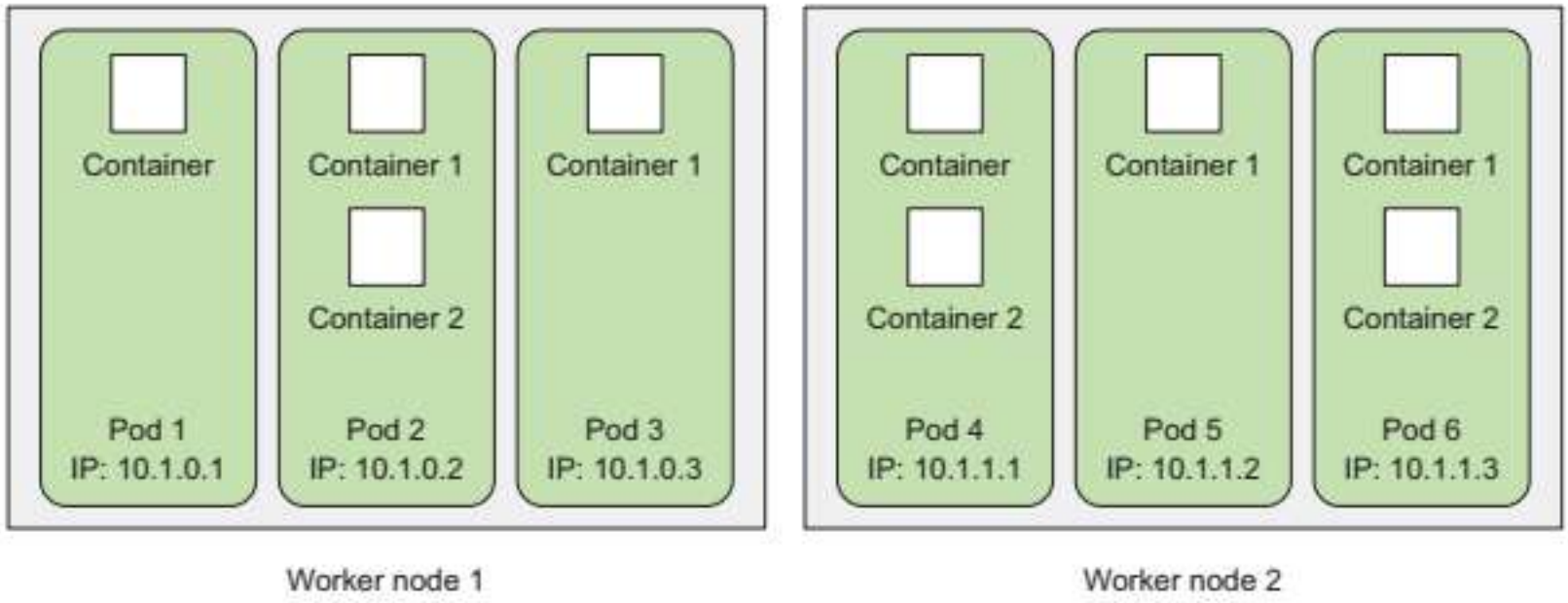


Figure 2.5 The relationship between containers, pods, and physical worker nodes

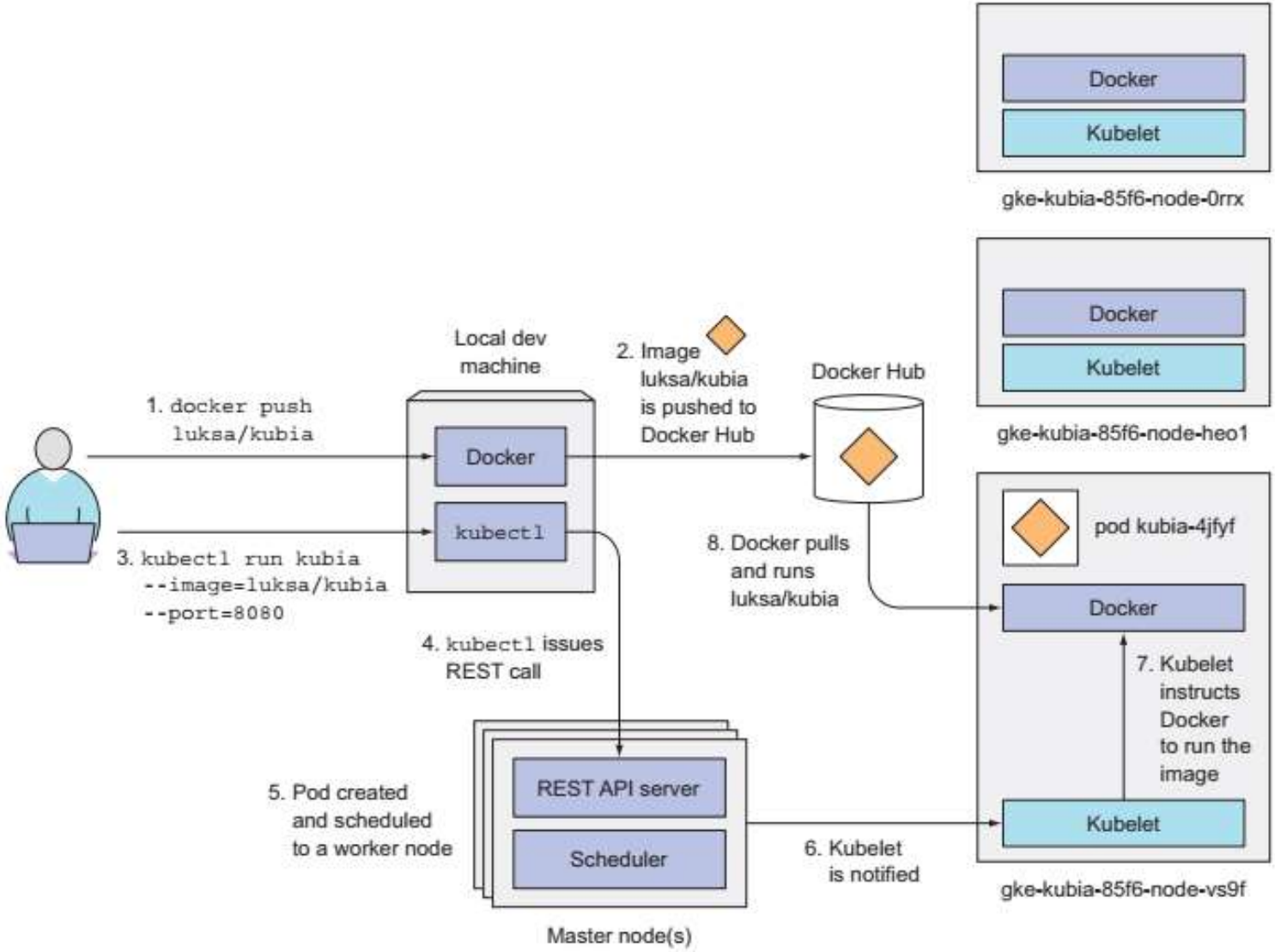
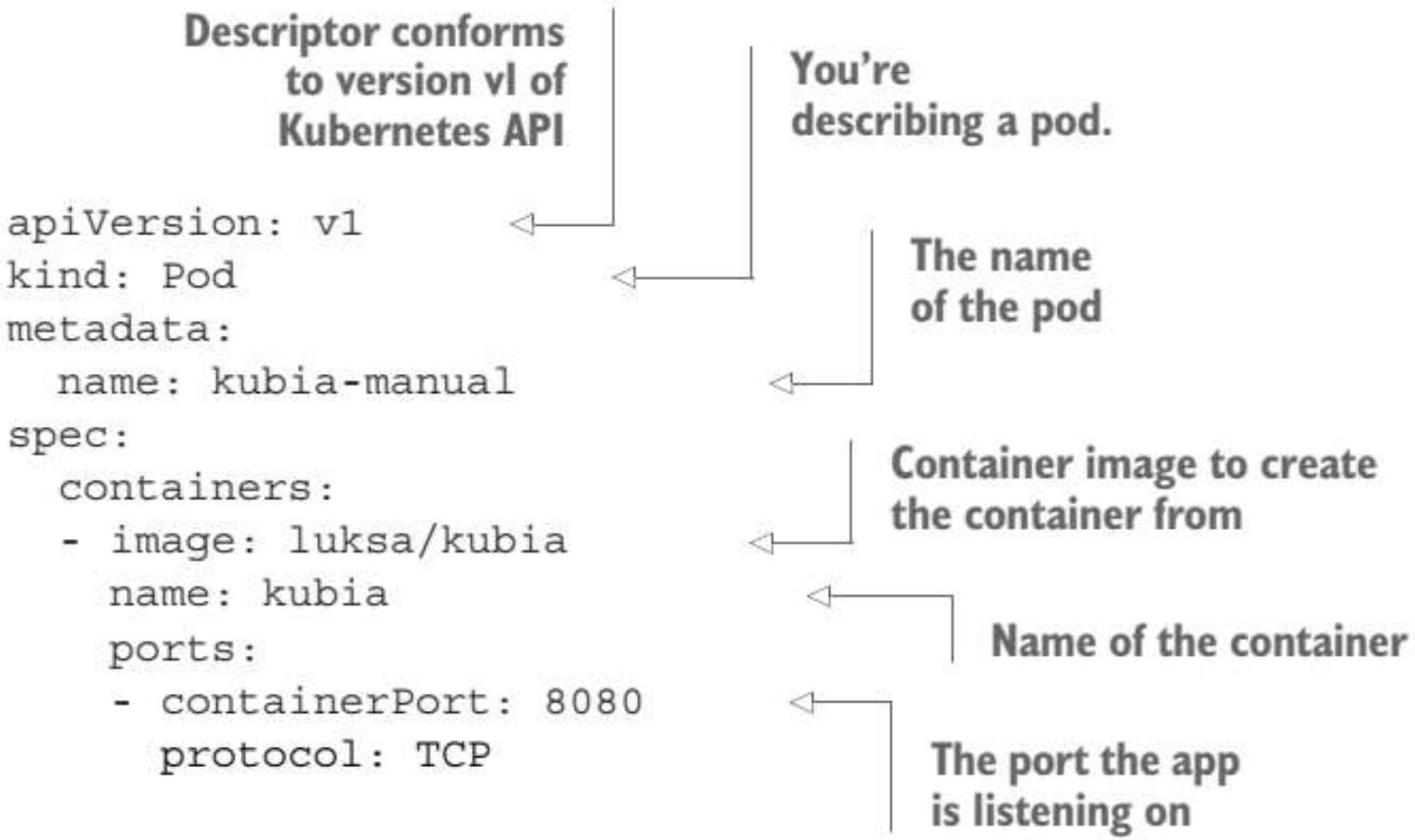


Figure 2.6 Running the `luksa/kubia` container image in Kubernetes

Listing 3.2 A basic pod manifest: kubia-manual.yaml




```
apiVersion: v1
kind: Pod
metadata:
  name: kubia-manual
spec:
  containers:
  - image: luksa/kubia
    name: kubia
    ports:
    - containerPort: 8080
      protocol: TCP
```

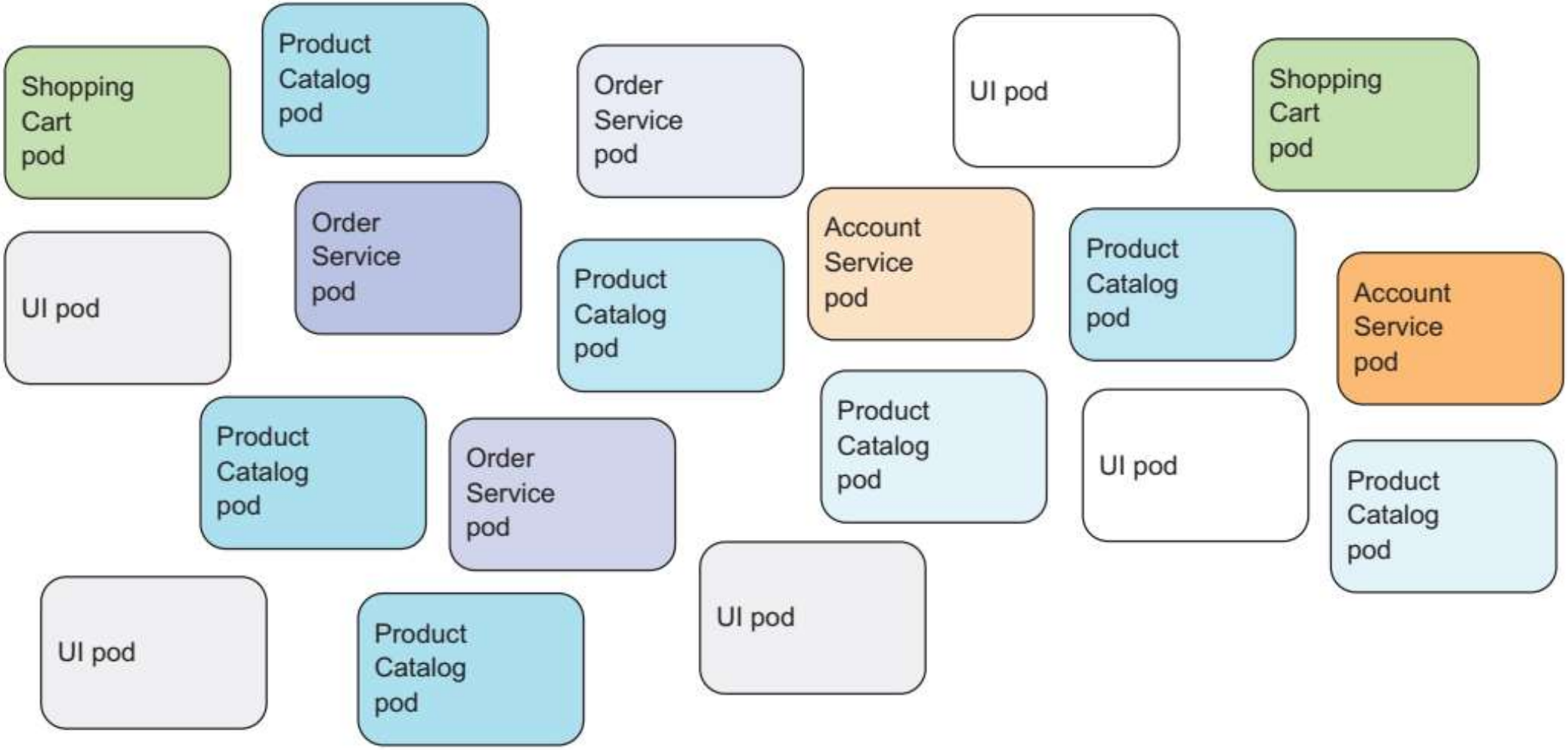


Figure 3.6 Uncategorized pods in a microservices architecture

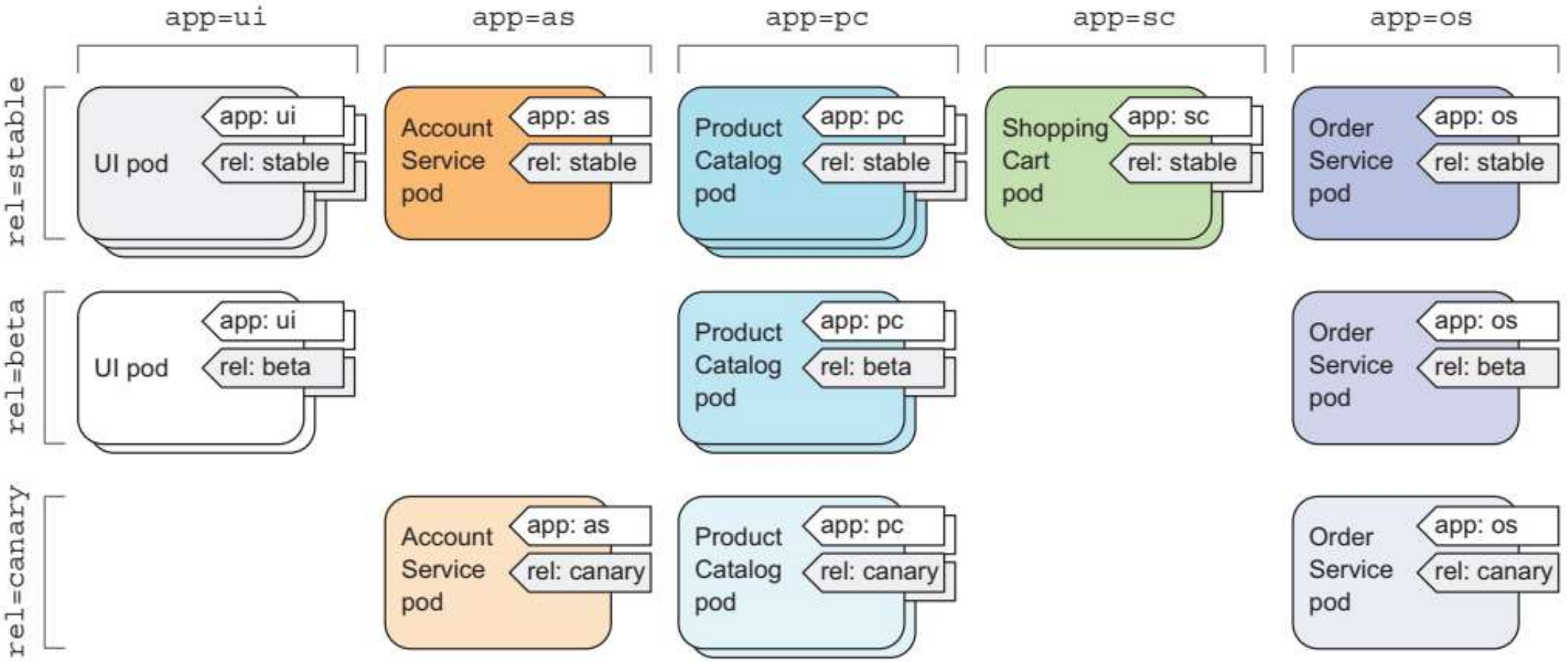


Figure 3.7 Organizing pods in a microservices architecture with pod labels

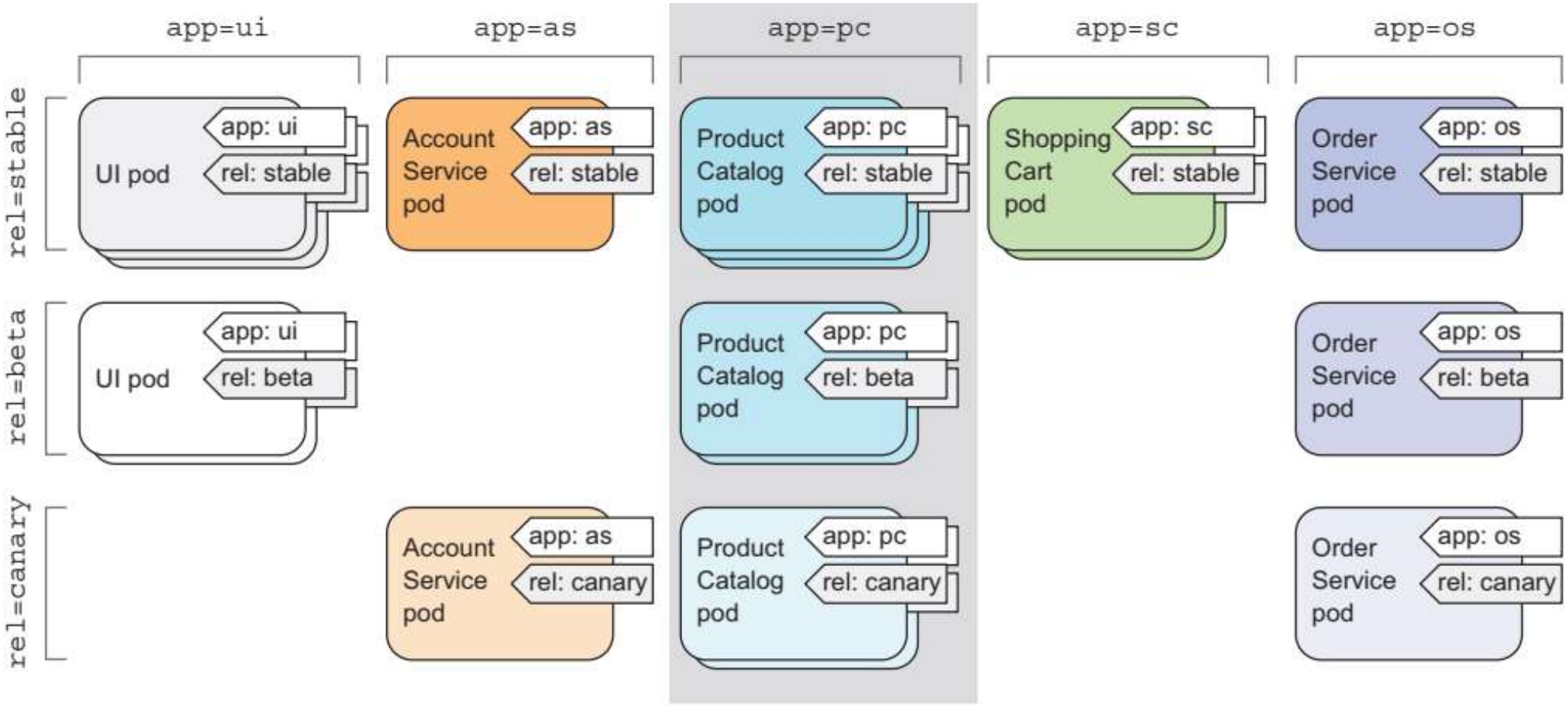


Figure 3.8 Selecting the product catalog microservice pods using the "app=pc" label selector

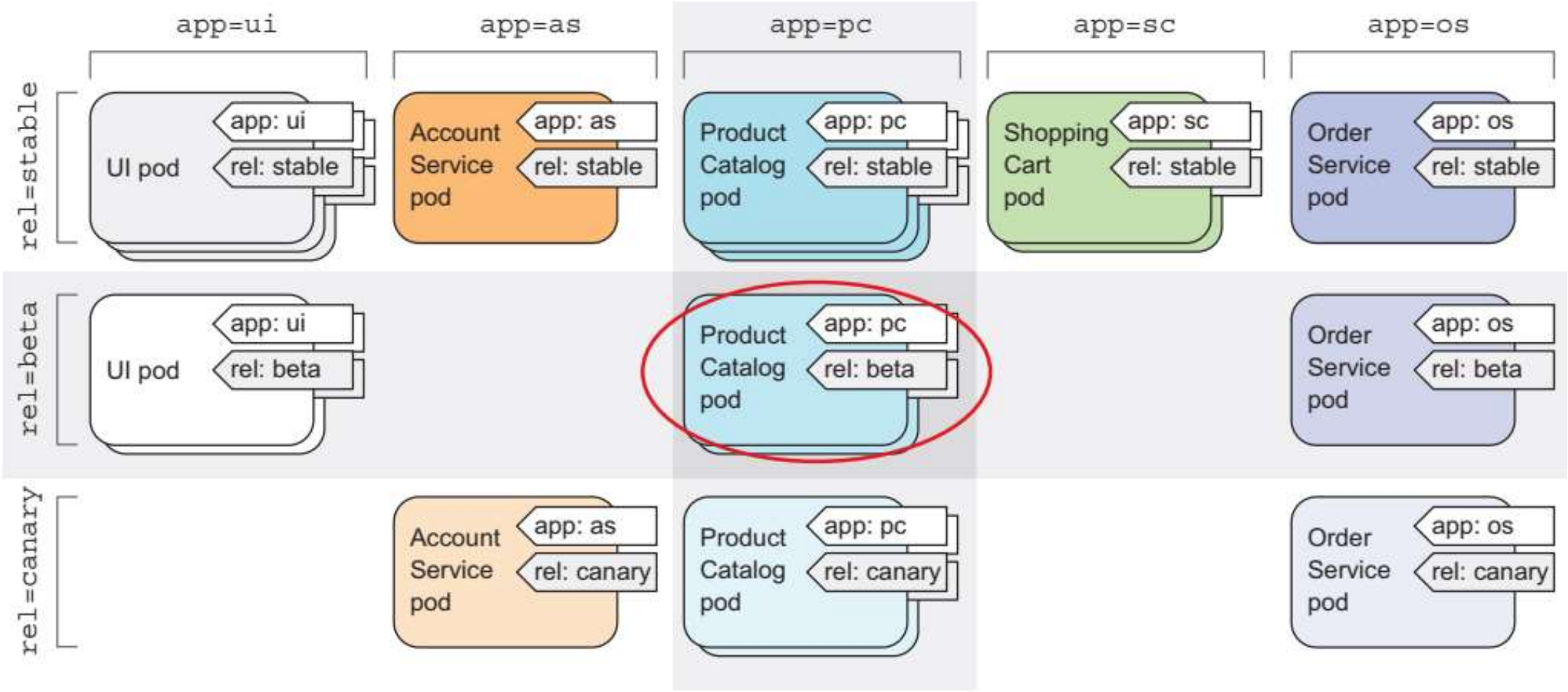


Figure 3.9 Selecting pods with multiple label selectors

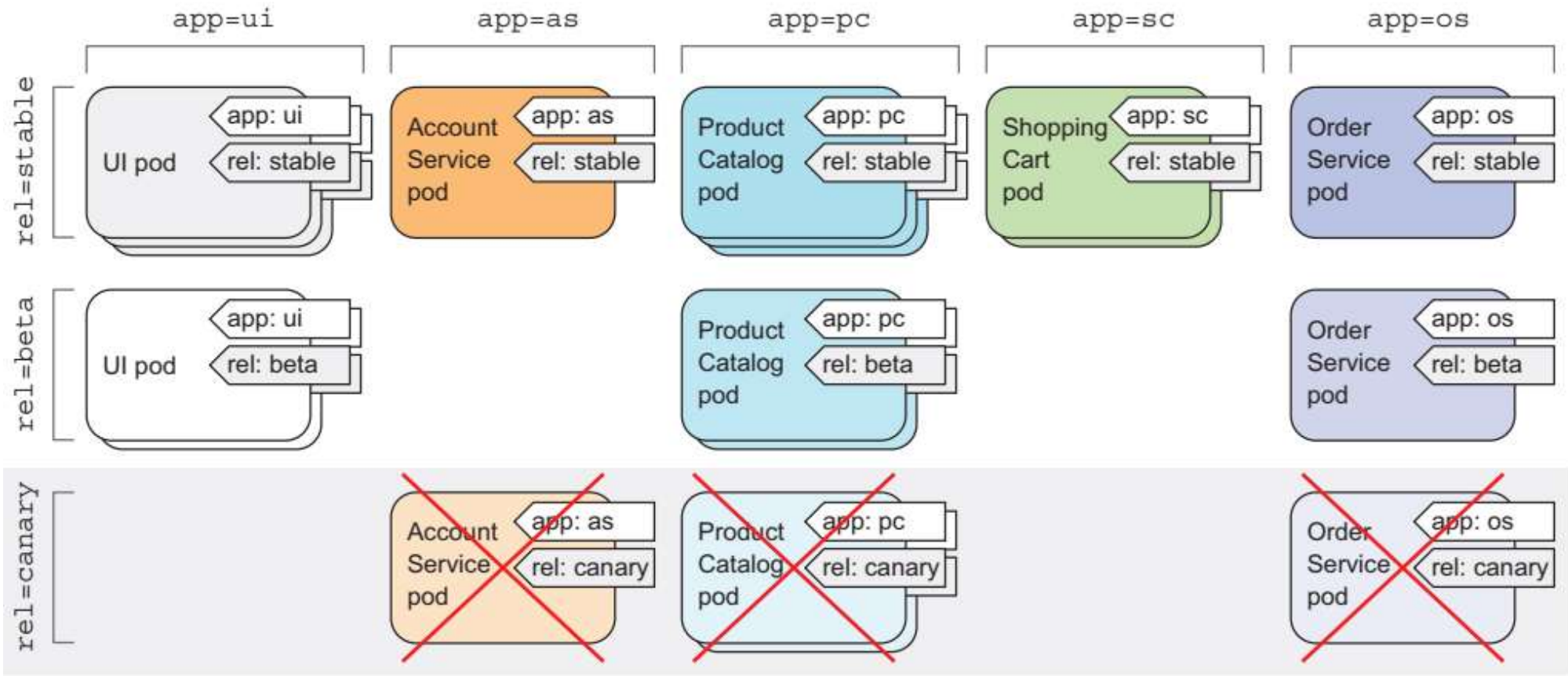


Figure 3.10 Selecting and deleting all canary pods through the `rel=canary` label selector

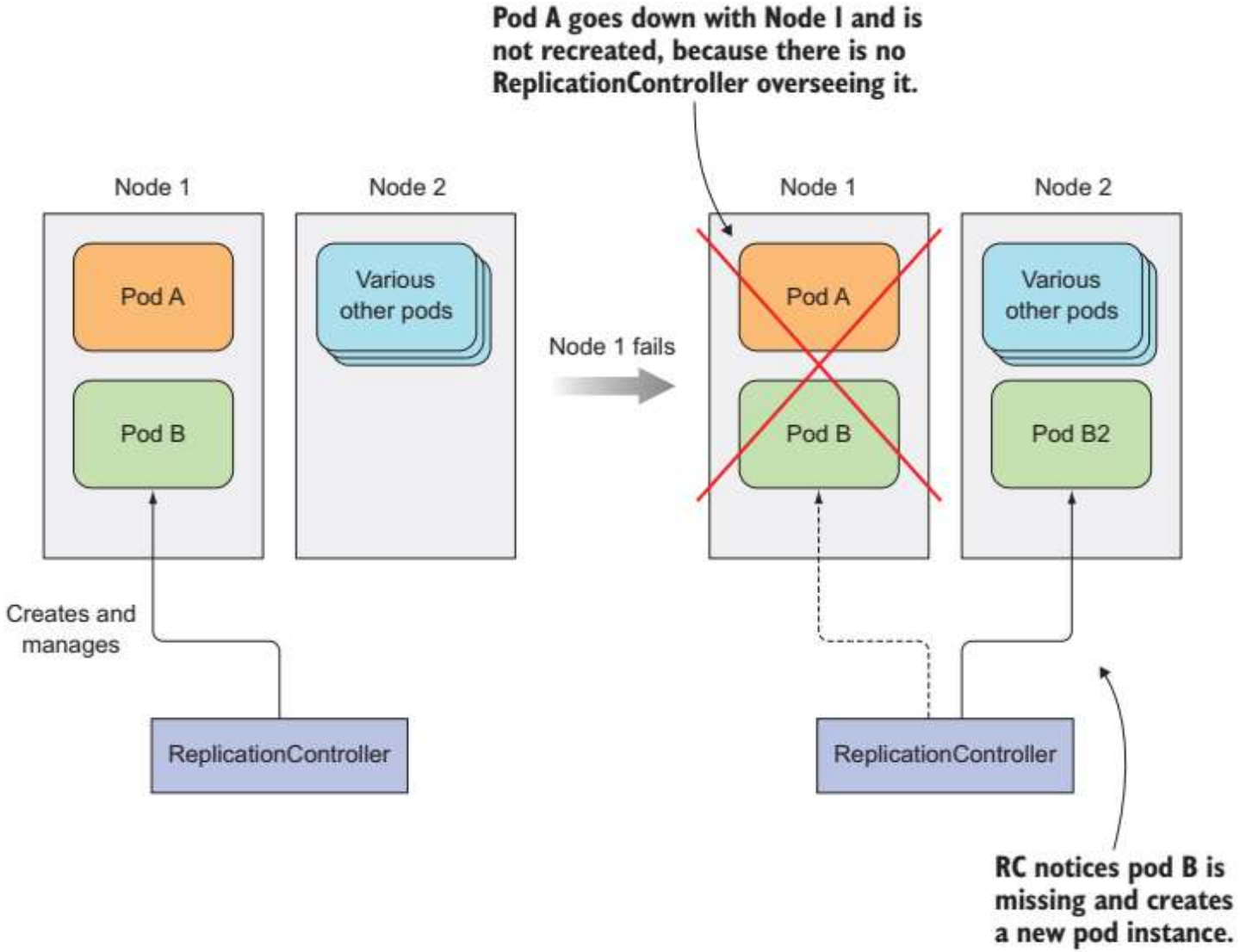


Figure 4.1 When a node fails, only pods backed by a ReplicationController are recreated.

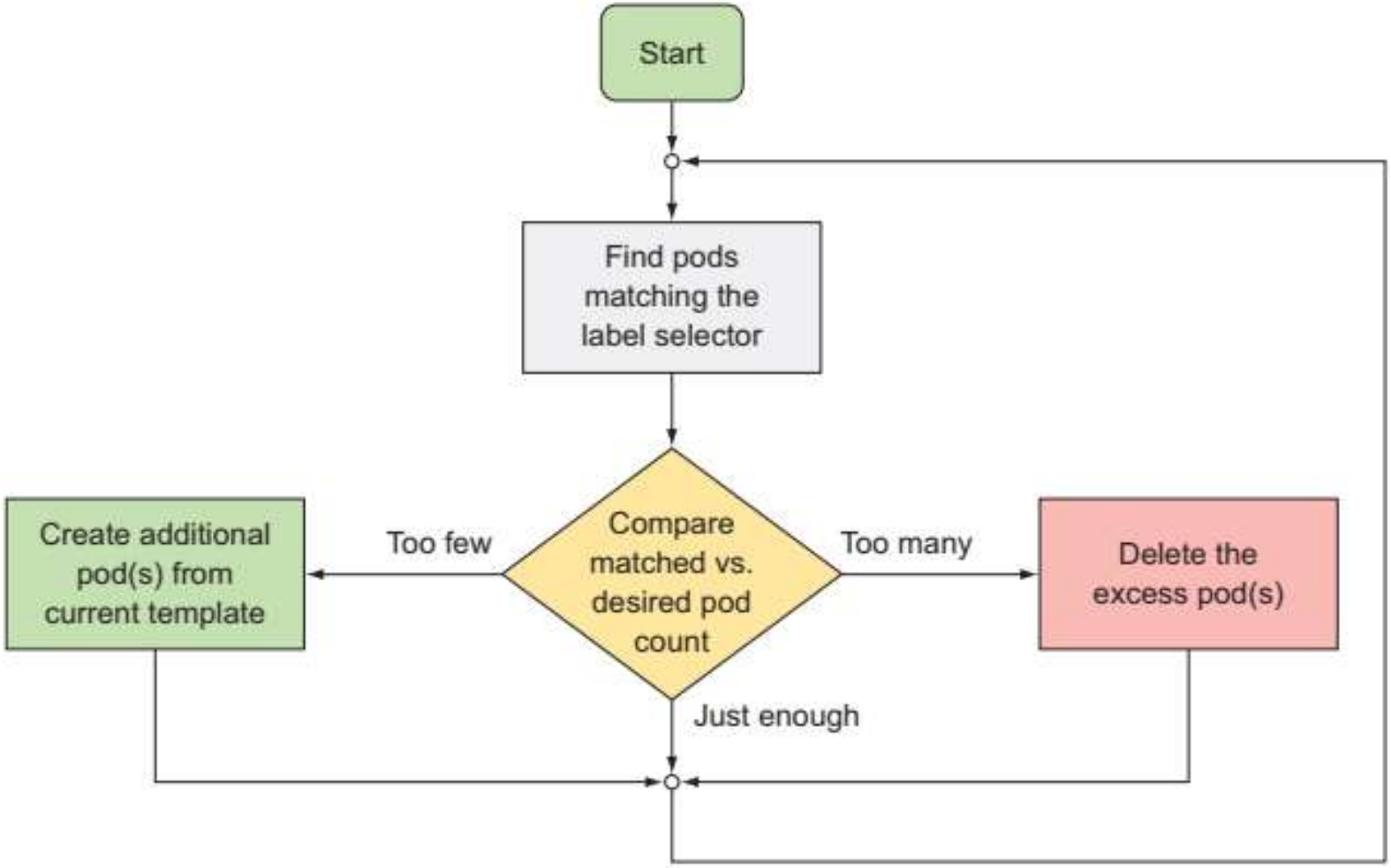
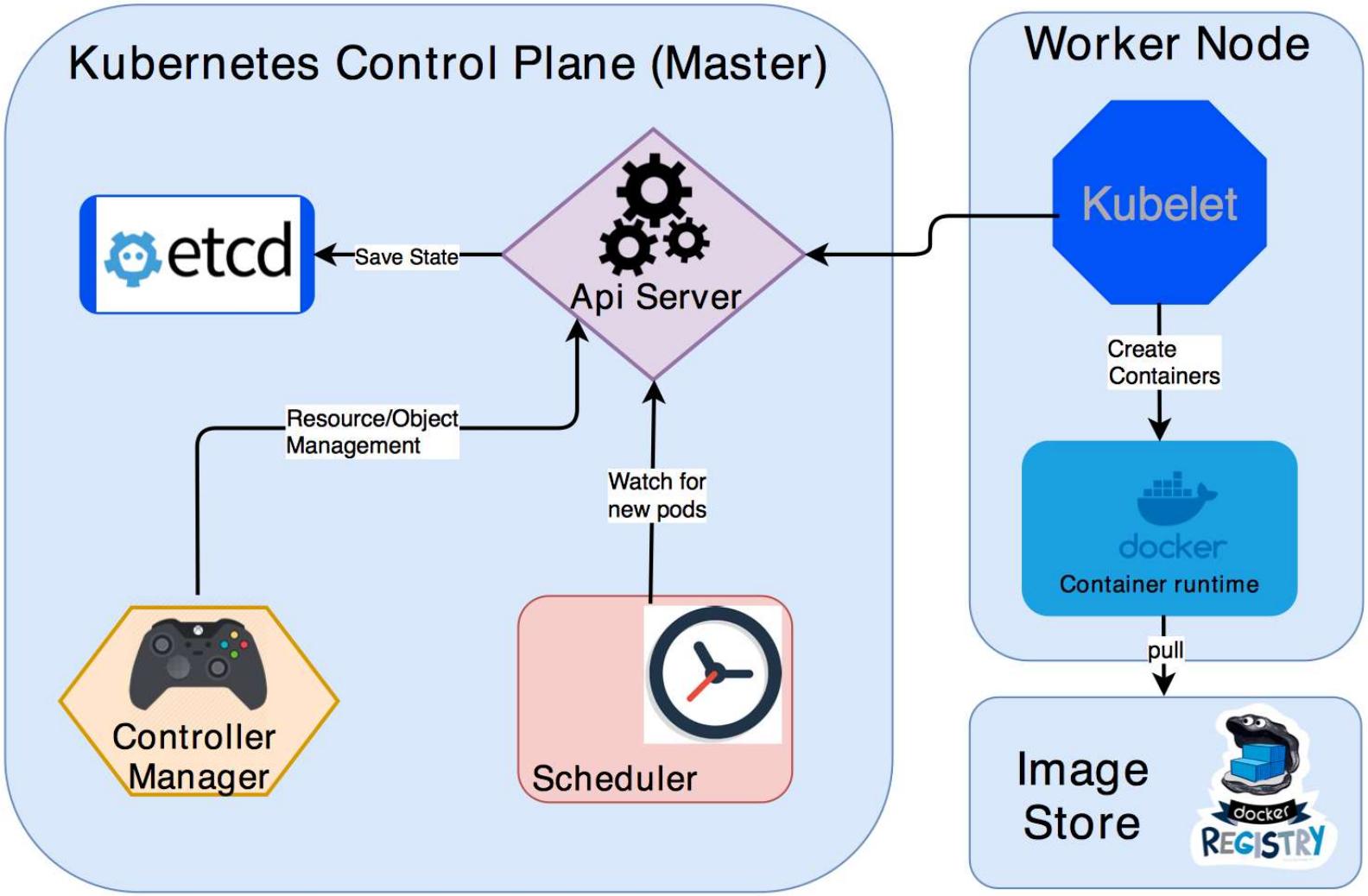


Figure 4.2 A ReplicationController's reconciliation loop

Kubernetes Architecture



Kubernetes setup

Single Server setup using Mini-kube

- Refer:
  - 5-kubernetes.sh

Thanks