



Foundation of Internet Platform Development & Operation

Review of Homework I

2019-10-15



上海交通大学
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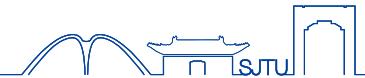
Homework II - CPU



- Core Frequency
- CPU Multiplier
- FSB (Front side bus)



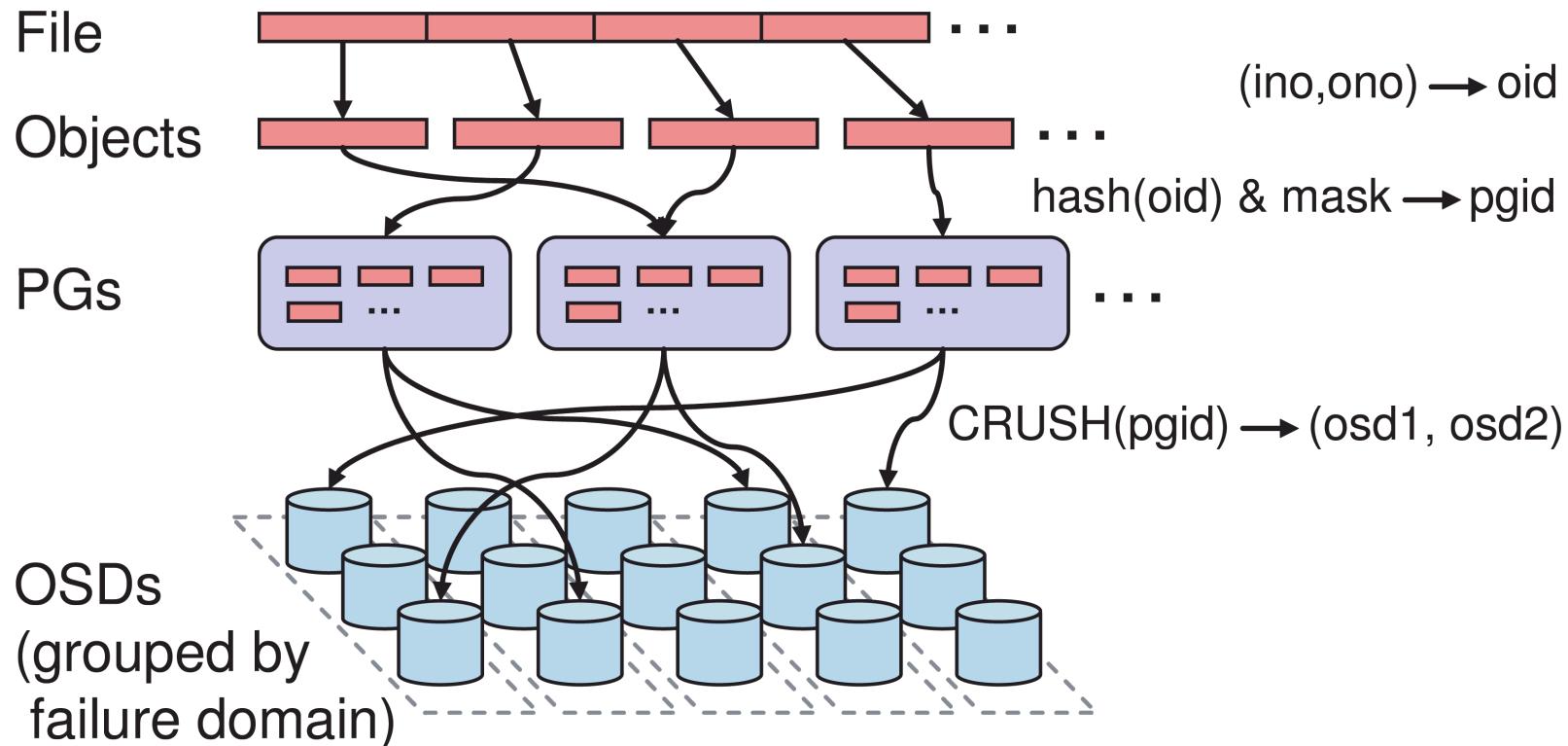
Homework II – Memory



- DDR2 , DDR3 , DDR4
 - DDR3-1600 (PC3-12800)
 - DDR2-1066 (PC2-8500)

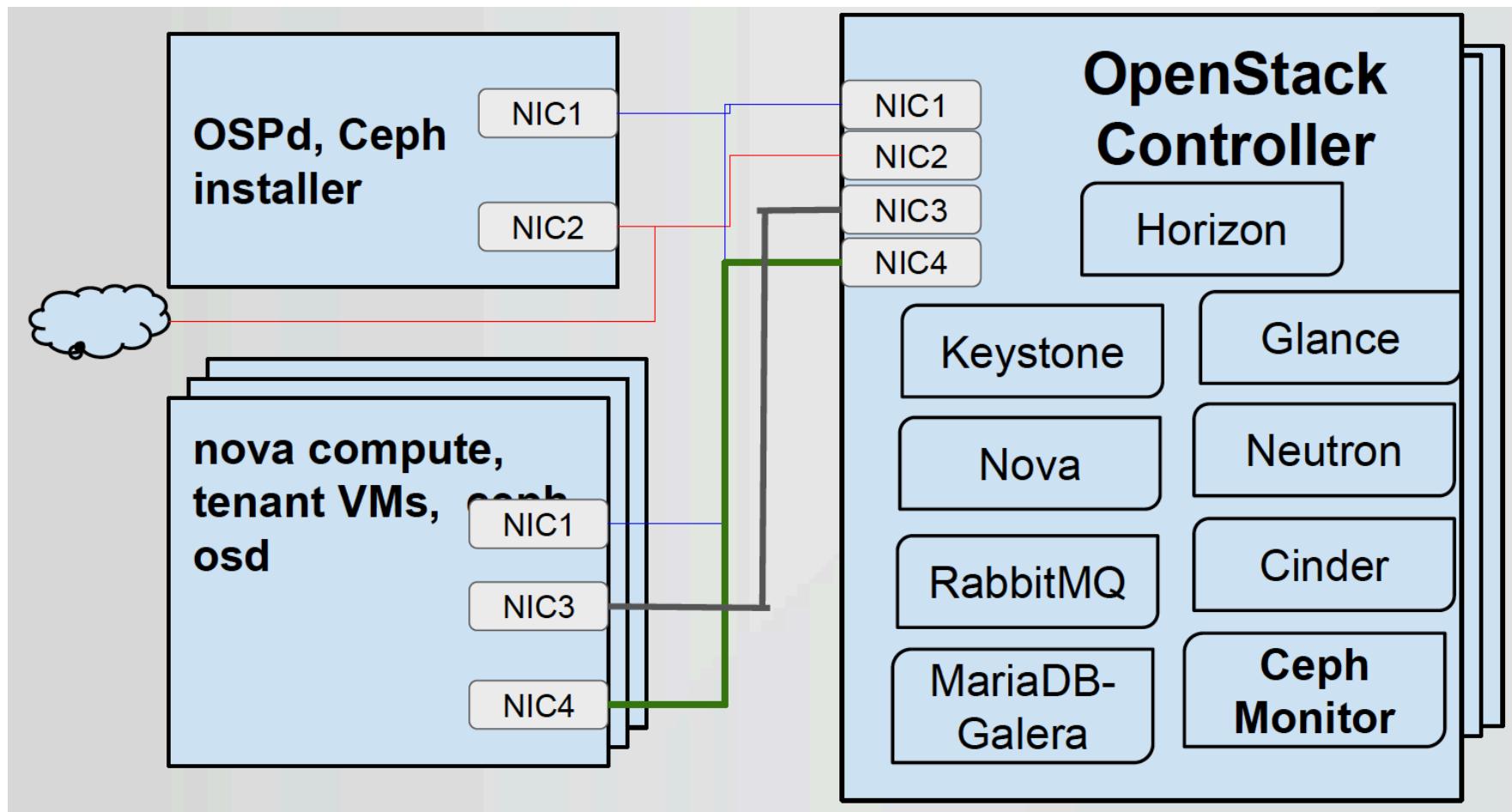


Homework II – Ceph





Homework II – Ceph

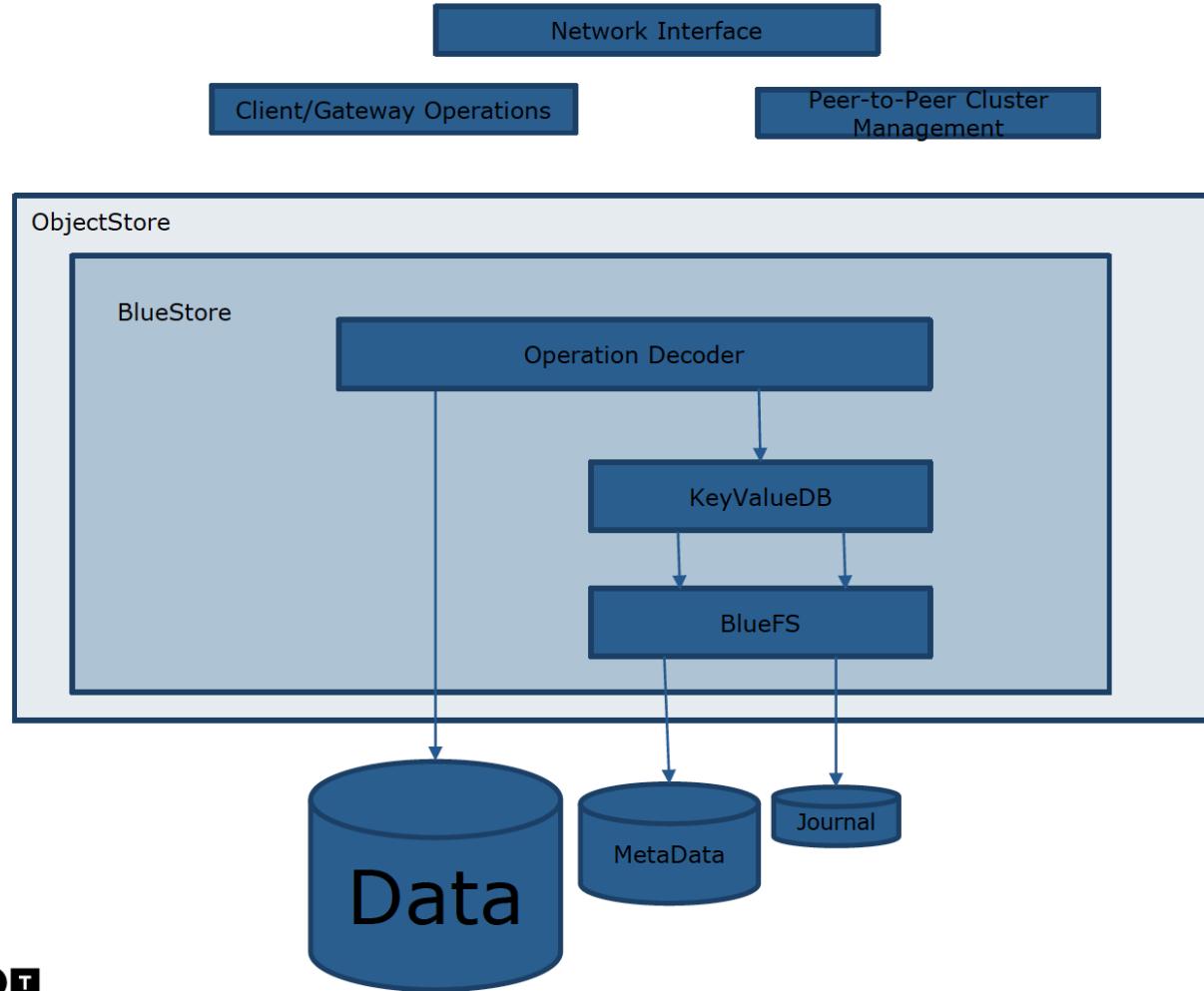




Homework II - Ceph



- SSD
- BlueStore





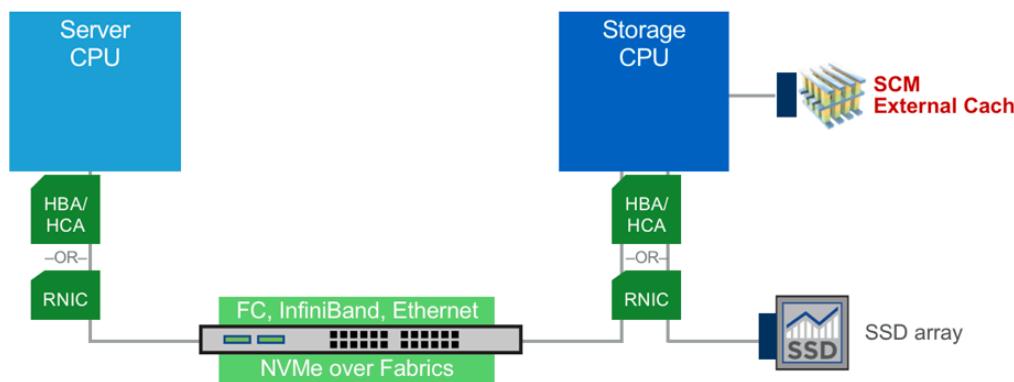
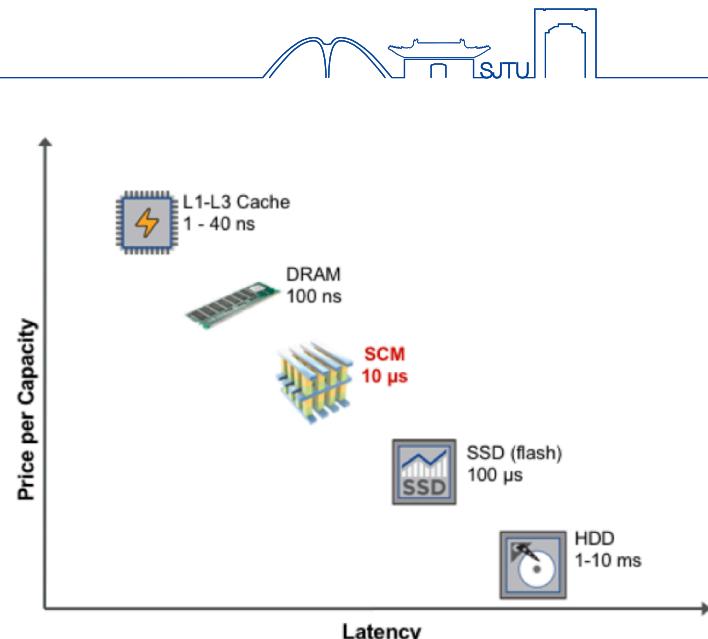
Homework II - Ceph

- BlueStore
 - Efficiently Support current and future HW types
 - SCM, Flash, PMR and SMR hard drives, standalone or hybrid combinations
 - Improve performance
 - Eliminate double write when unneeded
 - Better CPU utilization through simplified structure and tailored algorithms



Homework II - Ceph

- New Hard Drives
 - SCM





Foundation of Internet Platform Development & Operation

Overview of Resource Management System III

2019-10-15



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Kubernetes



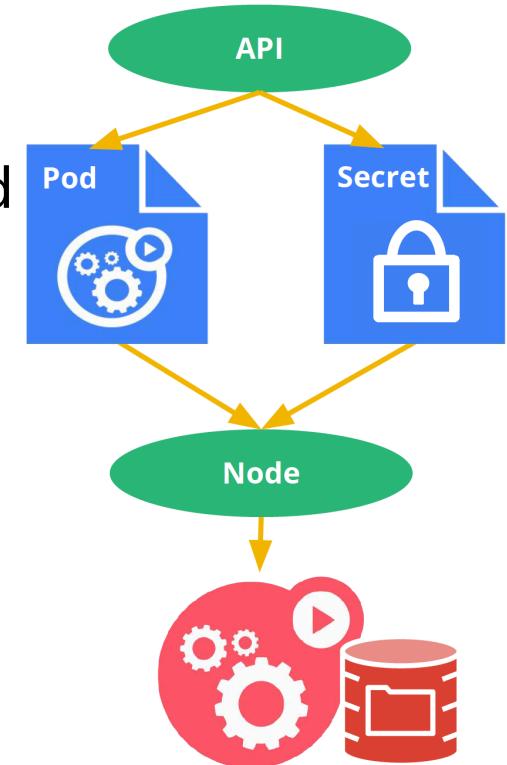
- Volume
 - Storage for container
- Namespace
 - Multi-user
 - Security & Access Policy
- Storage automatically attached to pod
 - Local scratch directories created on demand
 - Cloud block storage
 - GCE Persistent Disk
 - AWS Elastic Block Storage
 - Cluster storage
 - File: NFS, Gluster, Ceph
 - Block: iSCSI, Cinder, Ceph
 - Special volumes
 - Git repository
 - Secret





Kubernetes

- Secrets
 - grant a pod access to a secured something
 - secrets: credentials, tokens, passwords, ...
 - don't put them in the container image
 - Inject them as "virtual volumes" into Pod
 - not baked into images nor pod configs
 - kept in memory - never touches disk
 - not coupled to non-portable metadata API

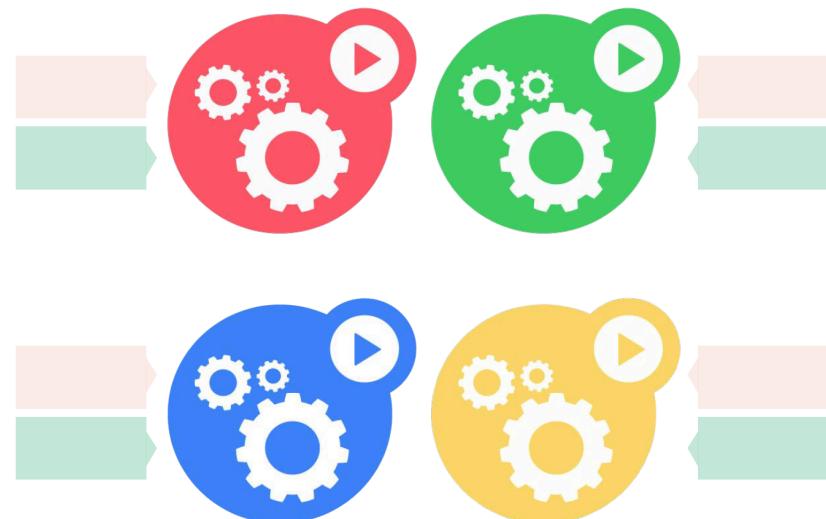




Kubernetes

▪ Labels

- User-provided key-value attributes
- Attached to any API object
- Generally represent identity
- Quarriable by selectors
 - think SQL ‘select ... where ...’
- The only grouping mechanism





Kubernetes

▪ Selectors

app: my-app ●
track: stable ●
tier: FE ●



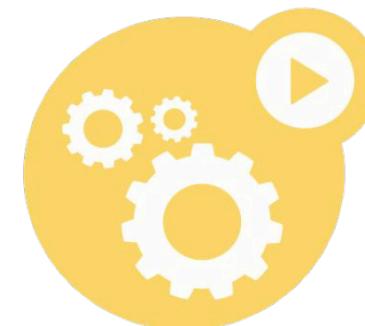
app: my-app ●
track: canary ●
tier: FE ●



app: my-app
track: stable
tier: BE



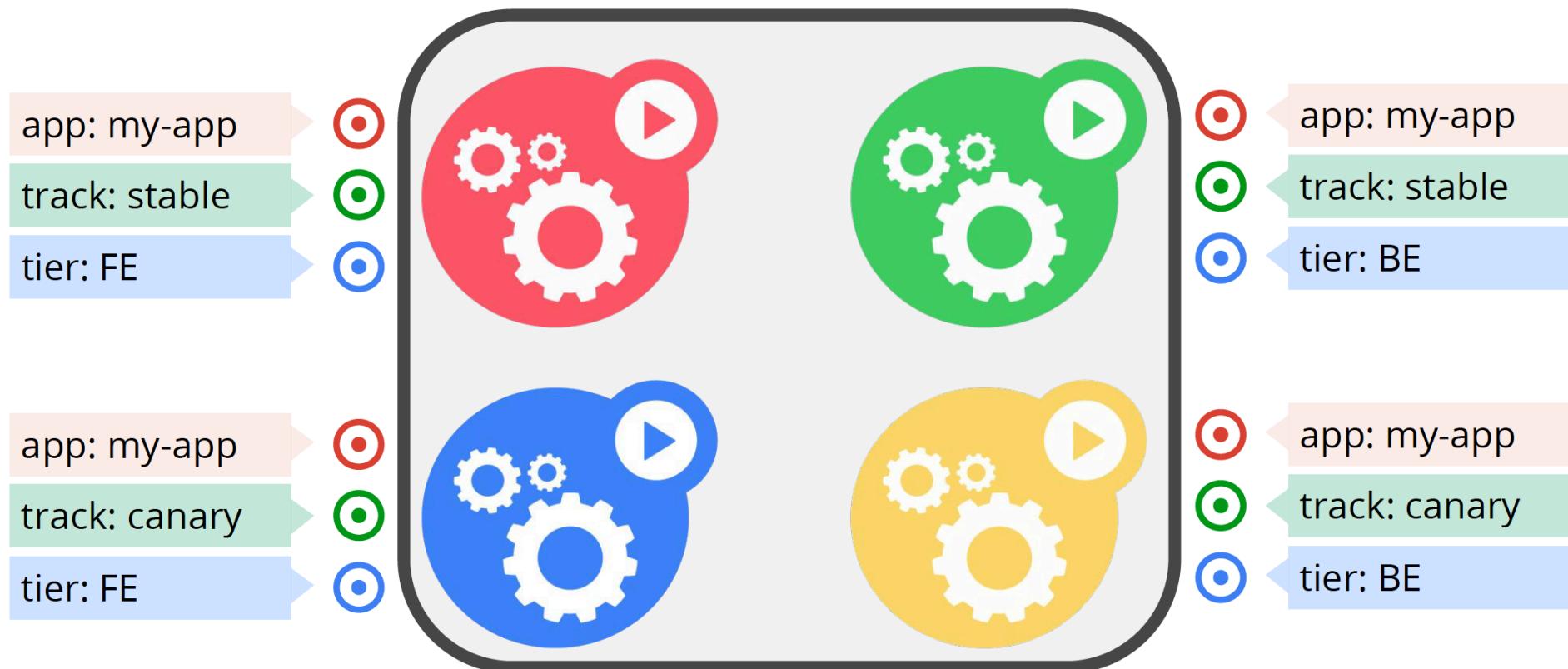
app: my-app
track: canary
tier: BE





Kubernetes

- Selectors

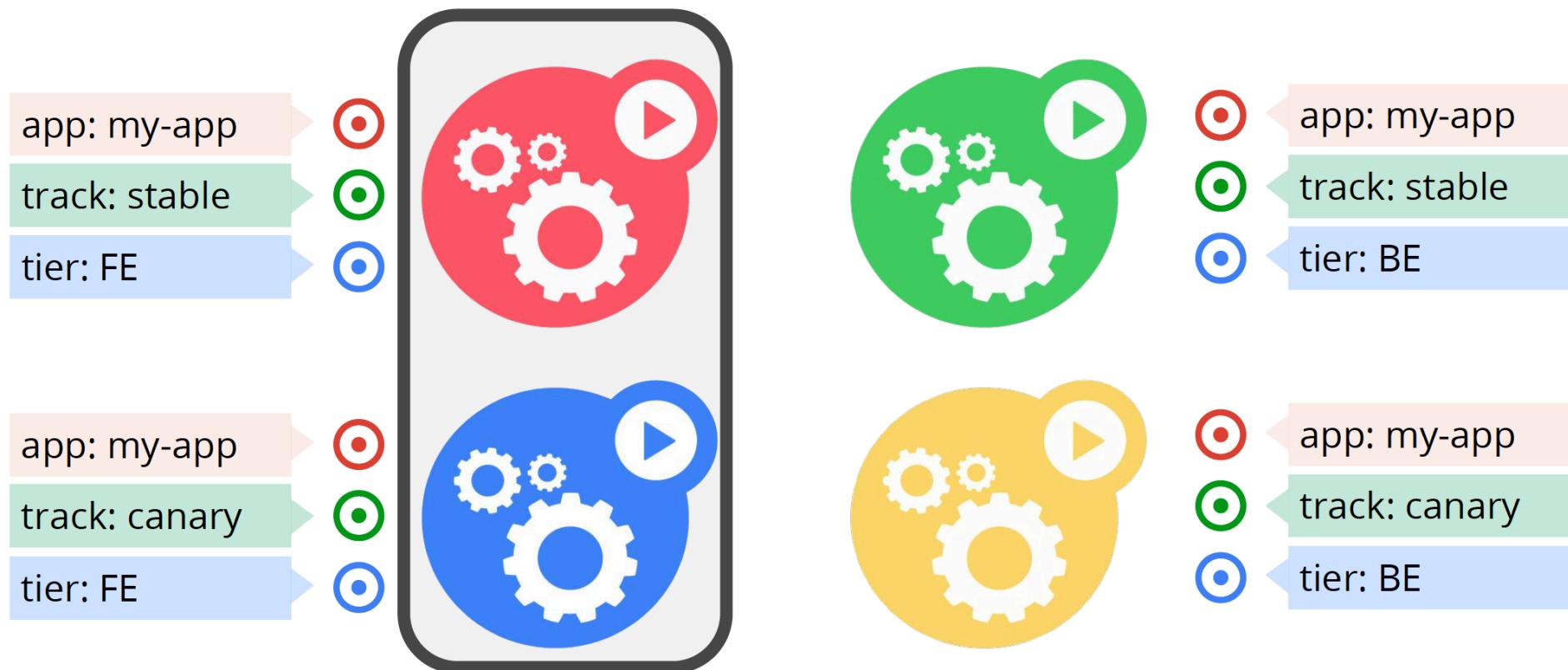


app = my-app



Kubernetes

- Selectors

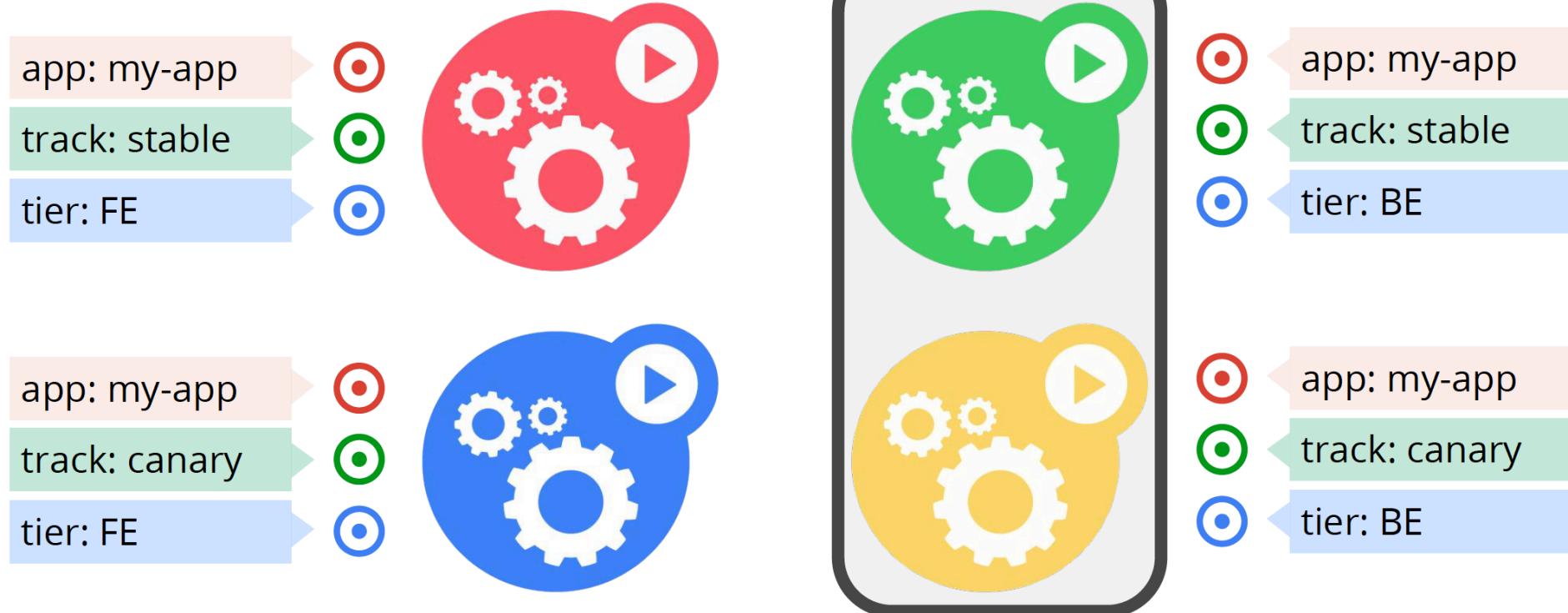


app = my-app, tier = FE



Kubernetes

- Selectors

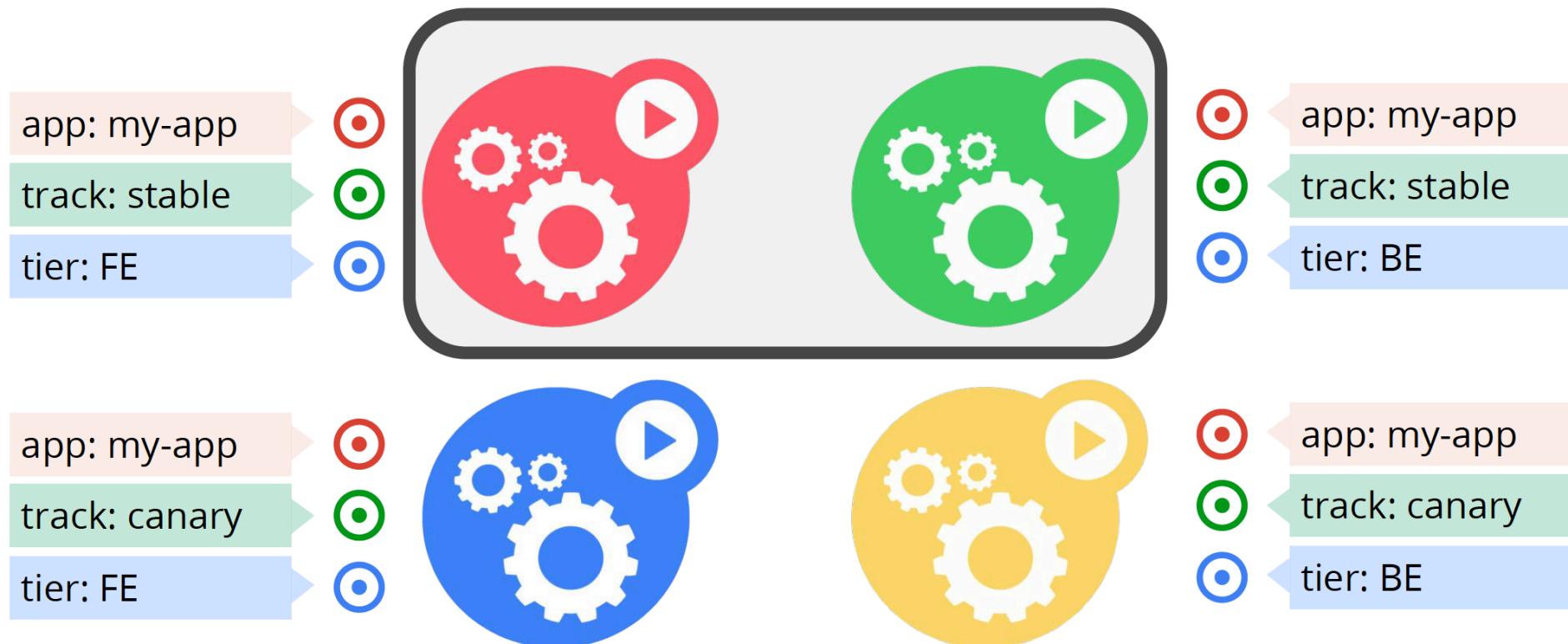


app = my-app, tier = BE



Kubernetes

- Selectors

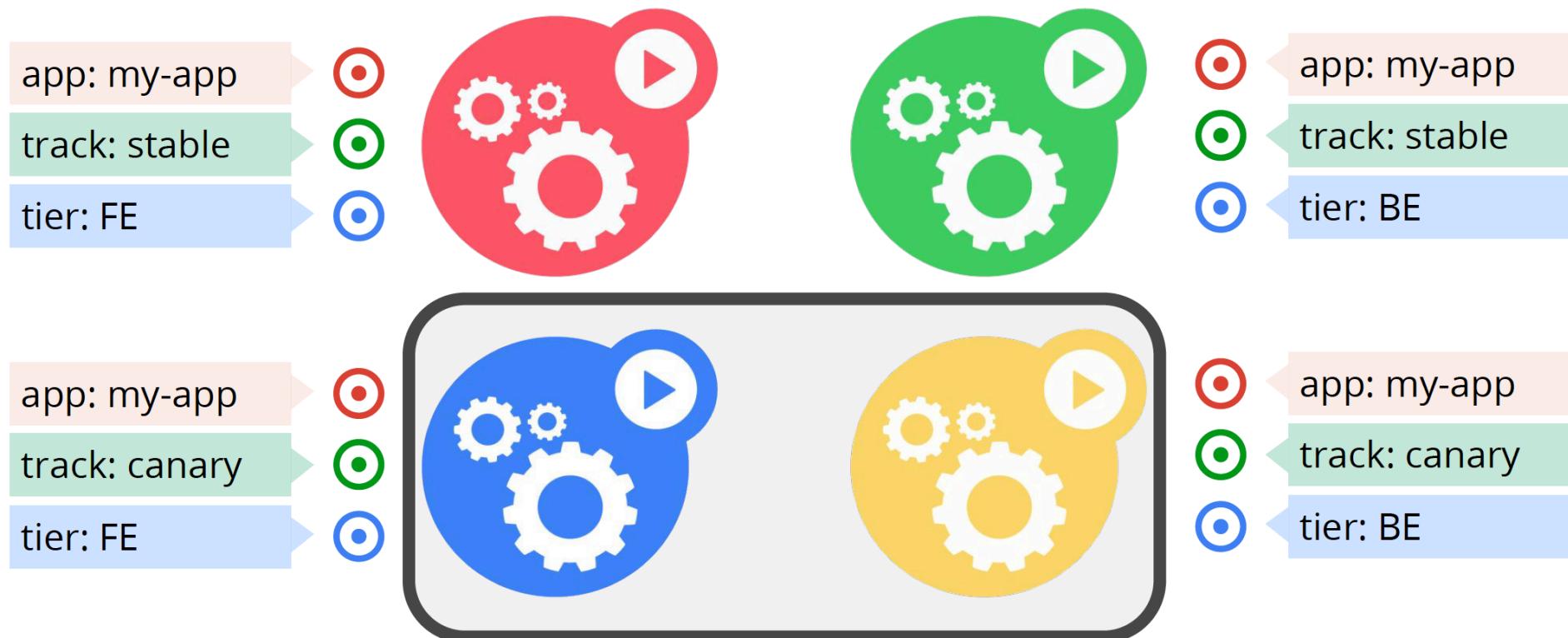


app = my-app, track = stable



Kubernetes

- Selectors



app = my-app, track = canary



Kubernetes



- Objects

- Service

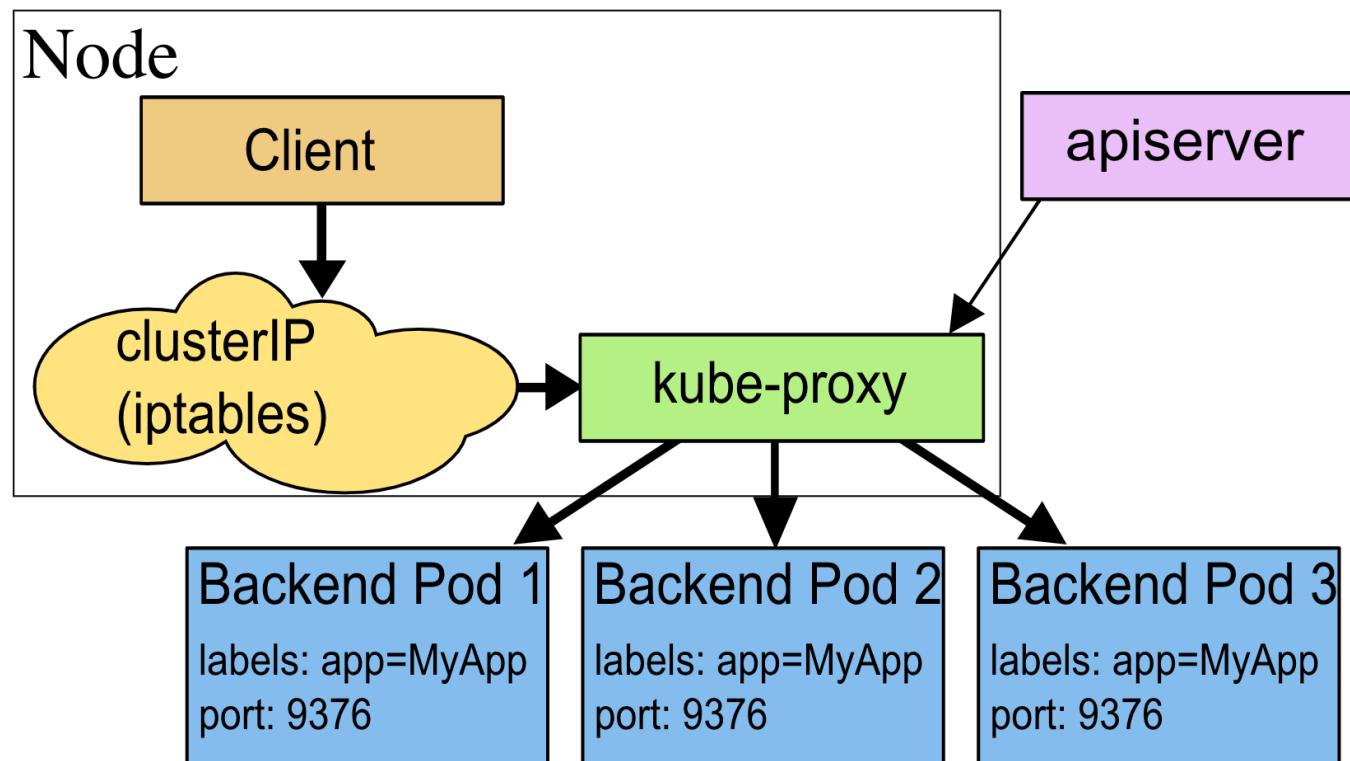
- an abstraction which defines a logical set of Pods and a policy by which to access them

```
kind: Service
apiVersion: v1
metadata:
  name: my-service
spec:
  selector:
    app: MyApp
  ports:
  - protocol: TCP
    port: 80
    targetPort: 9376
```



Kubernetes

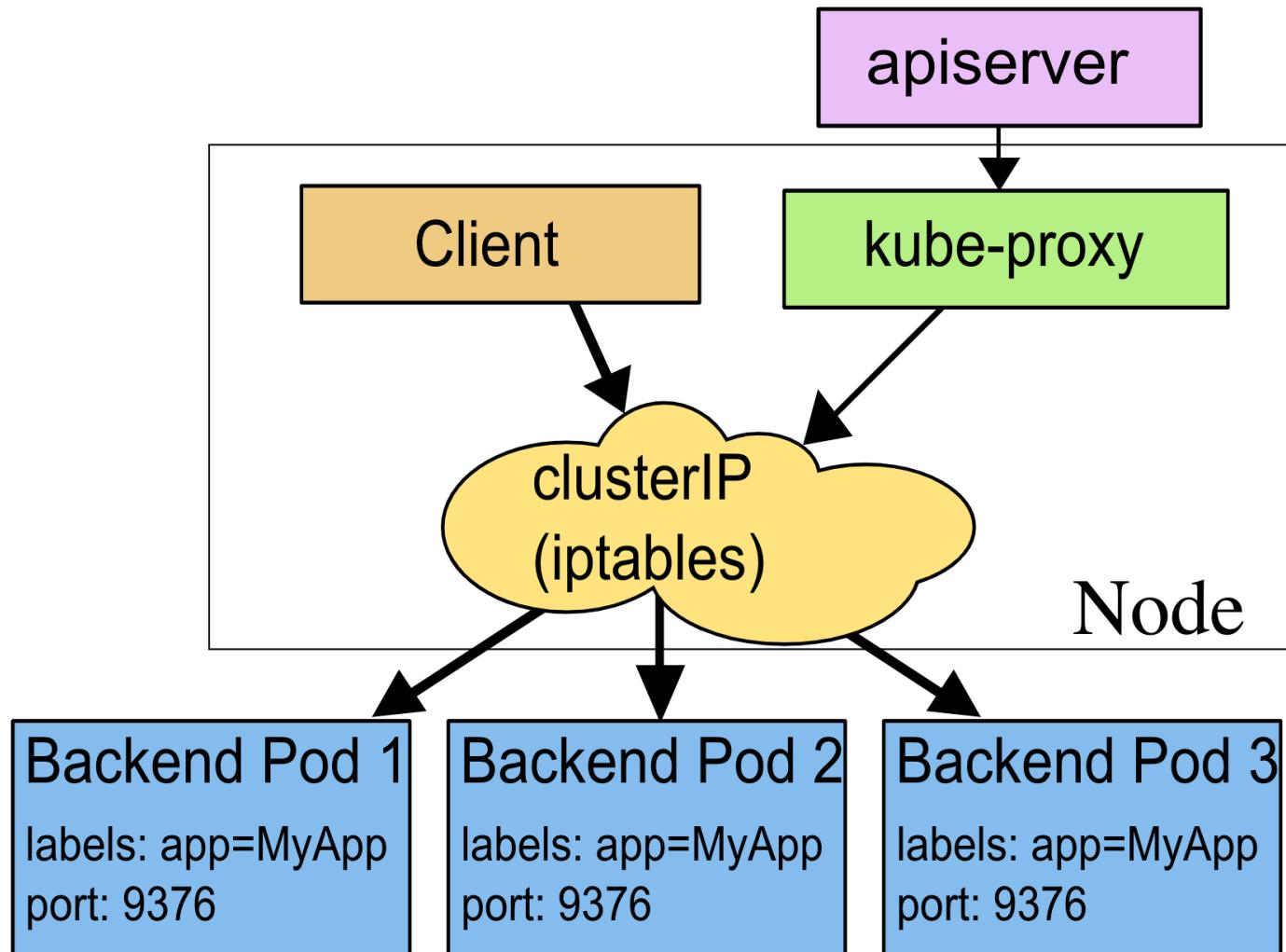
- Objects
 - Service
 - Proxy
 - Userspace





Kubernetes

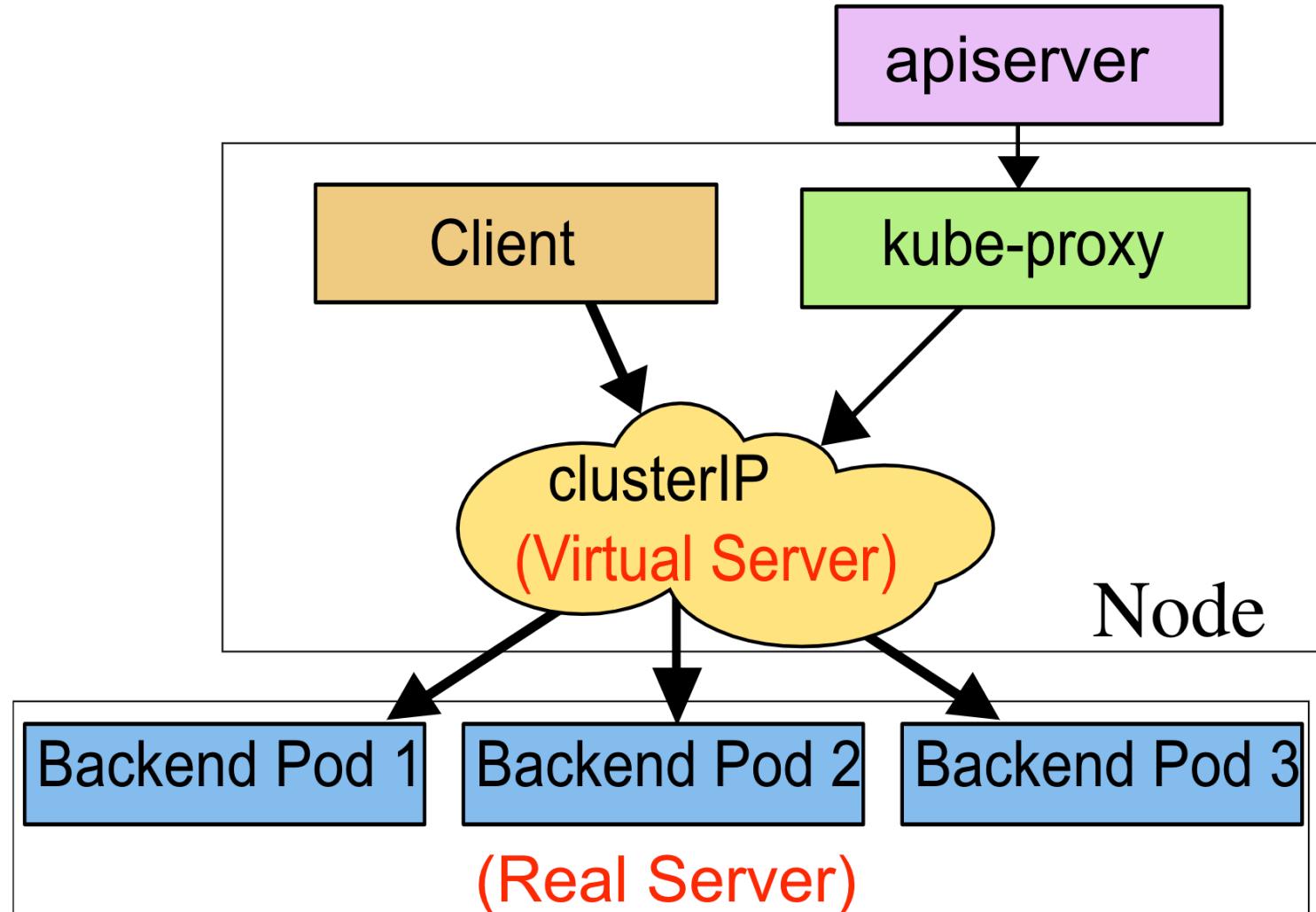
- Objects
 - Service
 - Proxy
 - iptables





Kubernetes

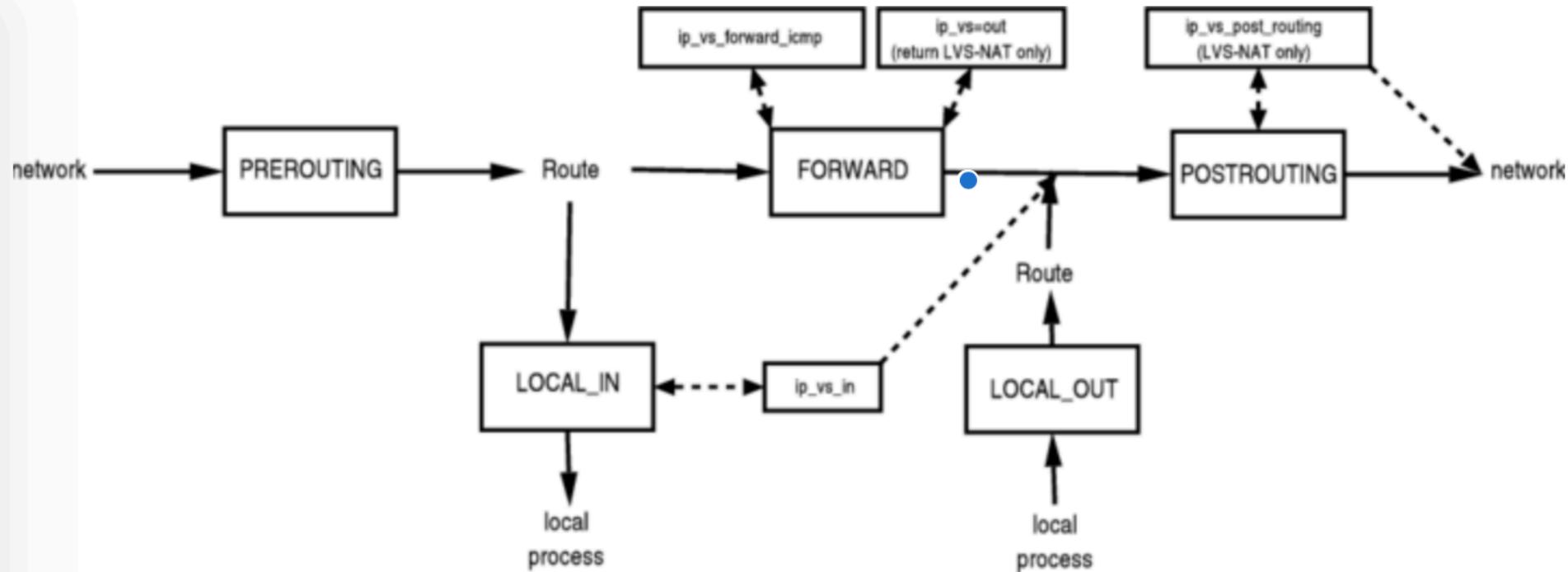
- Objects
 - Service
 - Proxy
 - ipvs





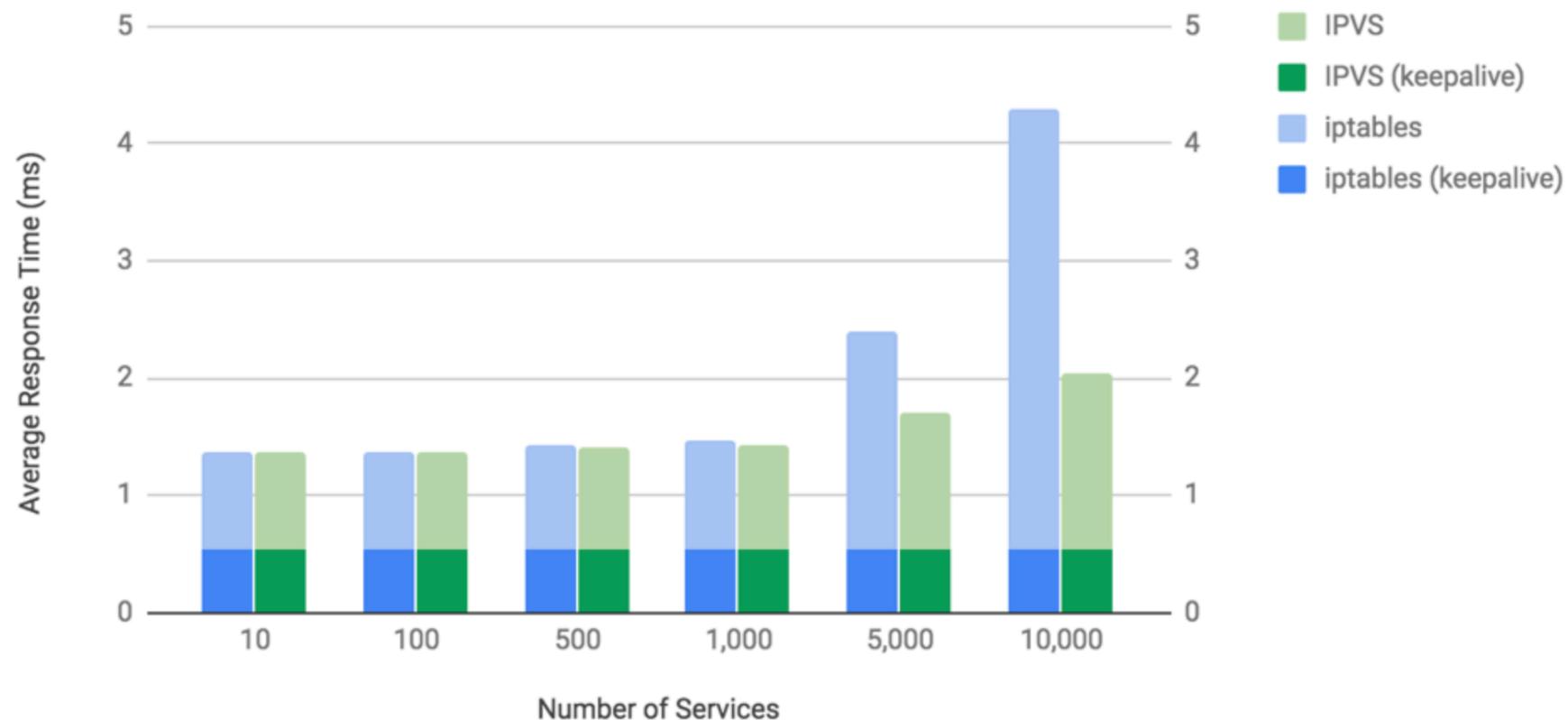
Kubernetes

- iptables & ipvs



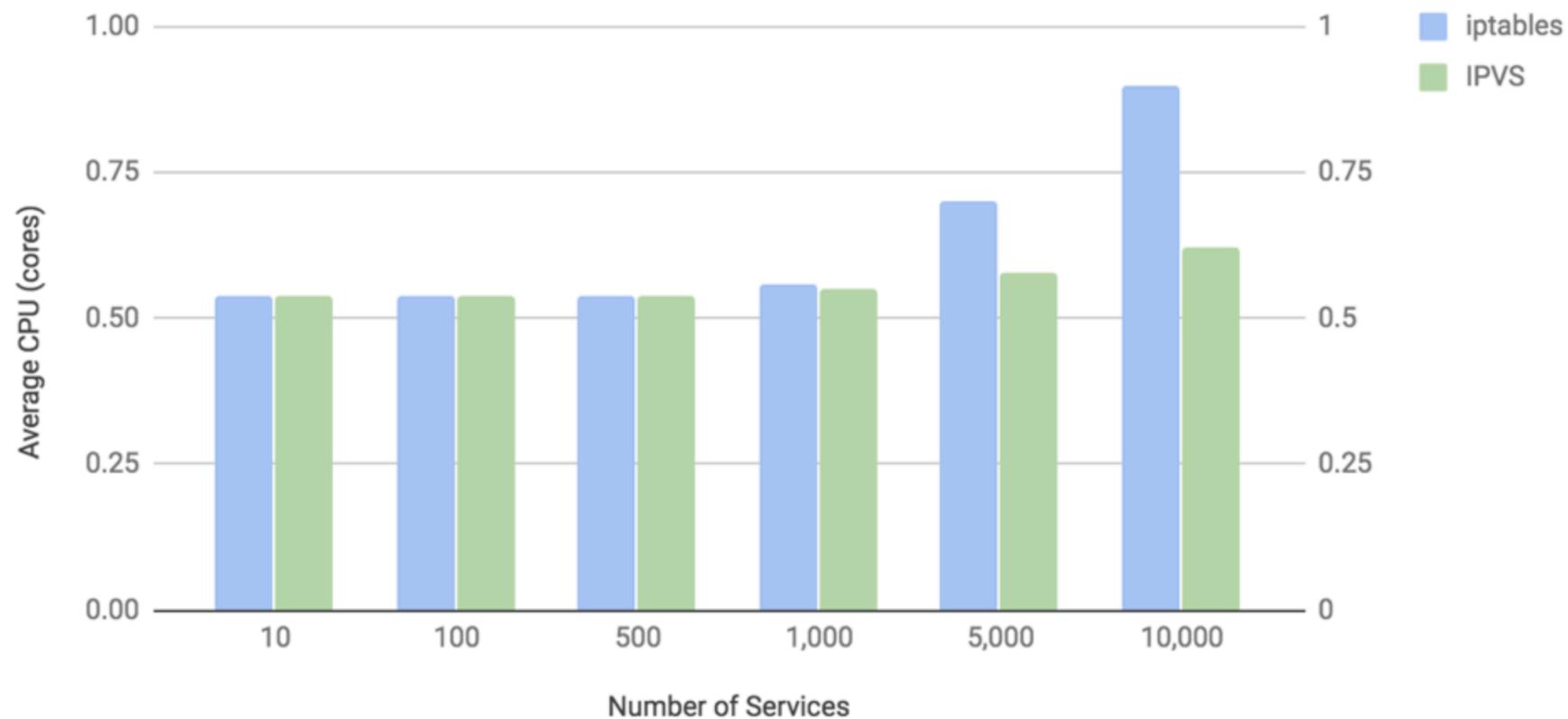


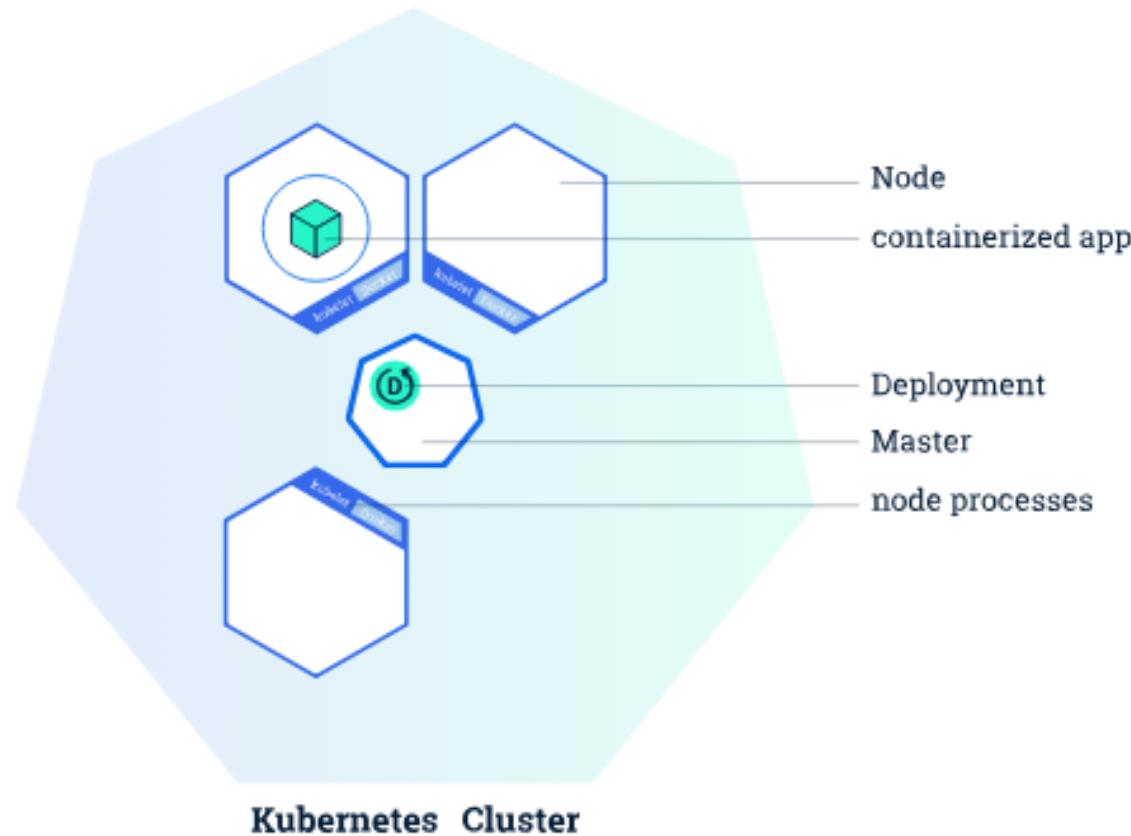
Kubernetes

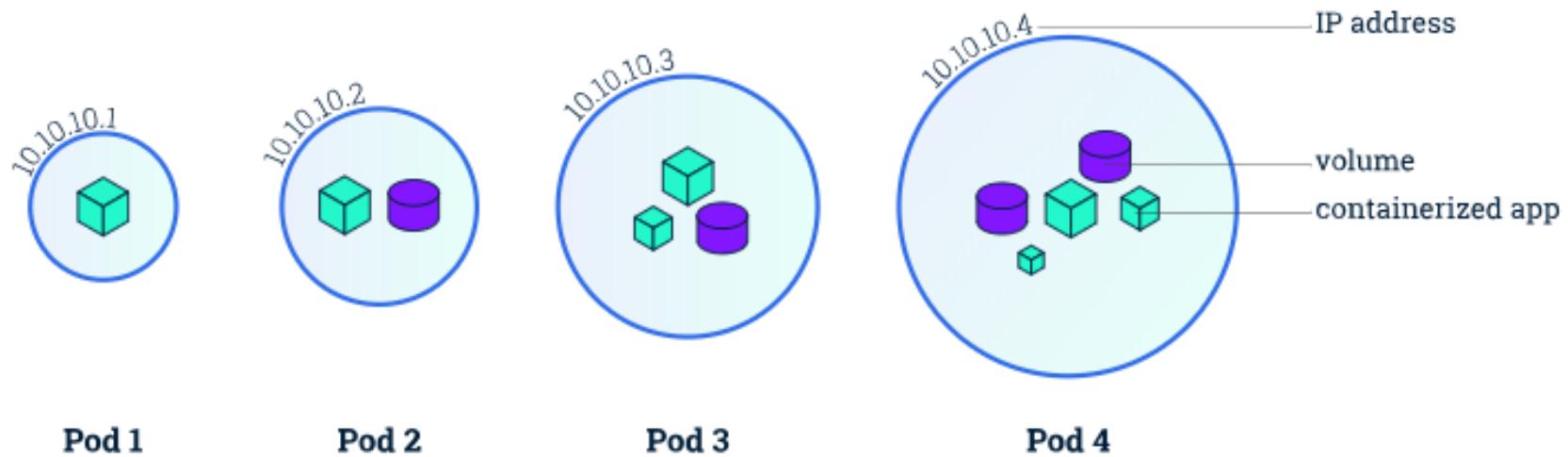


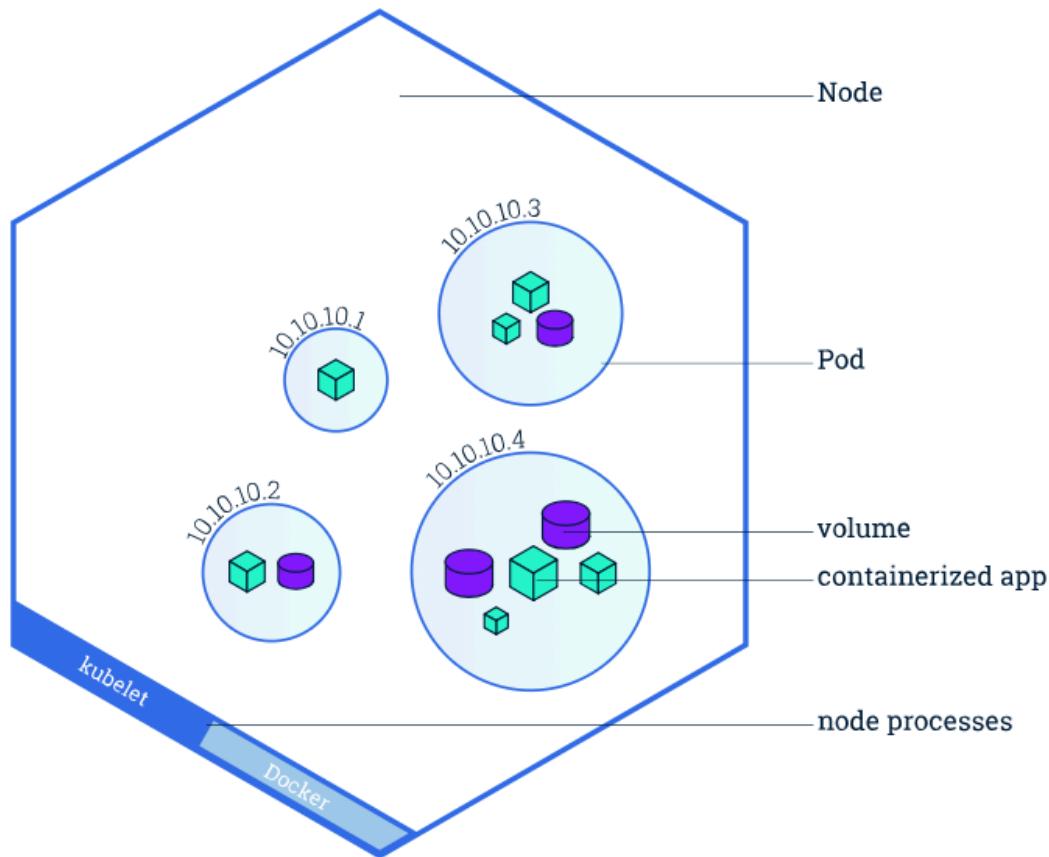
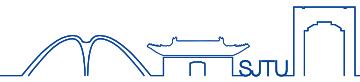


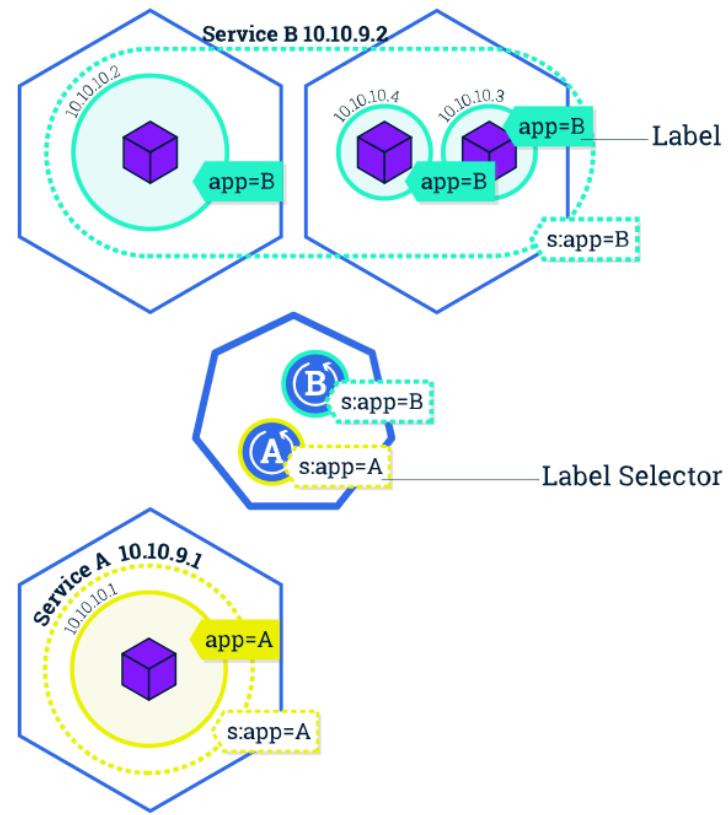
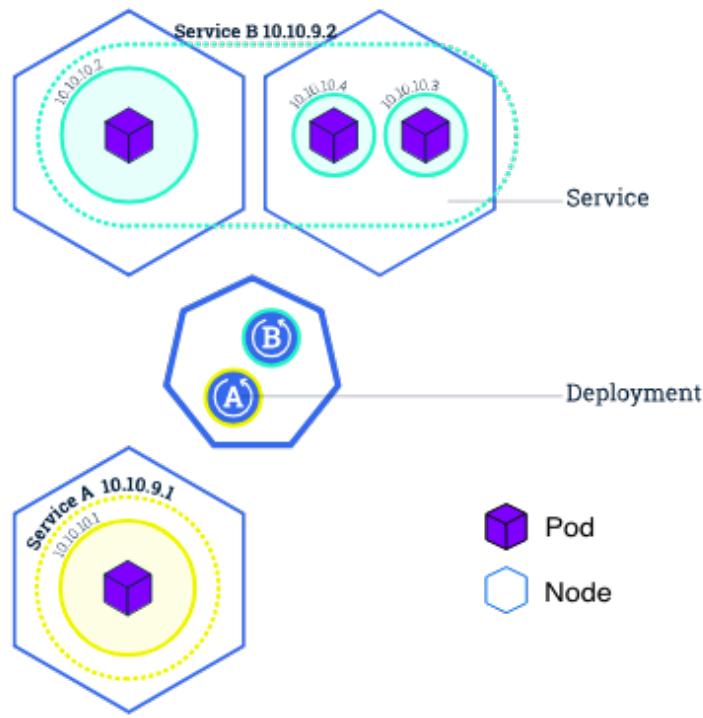
Kubernetes





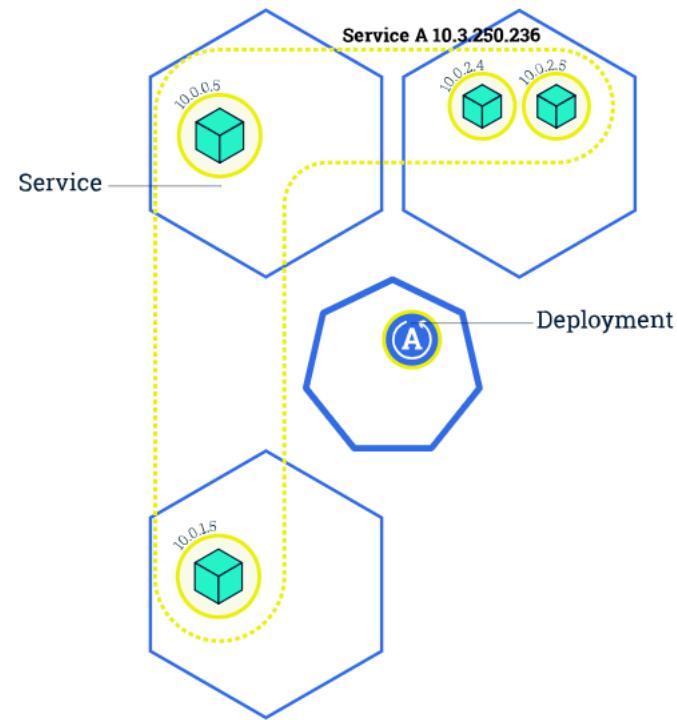
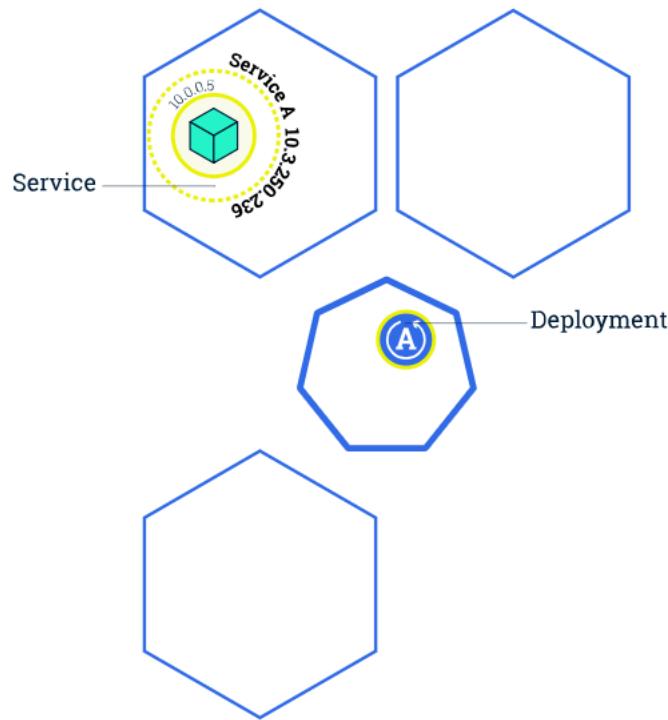






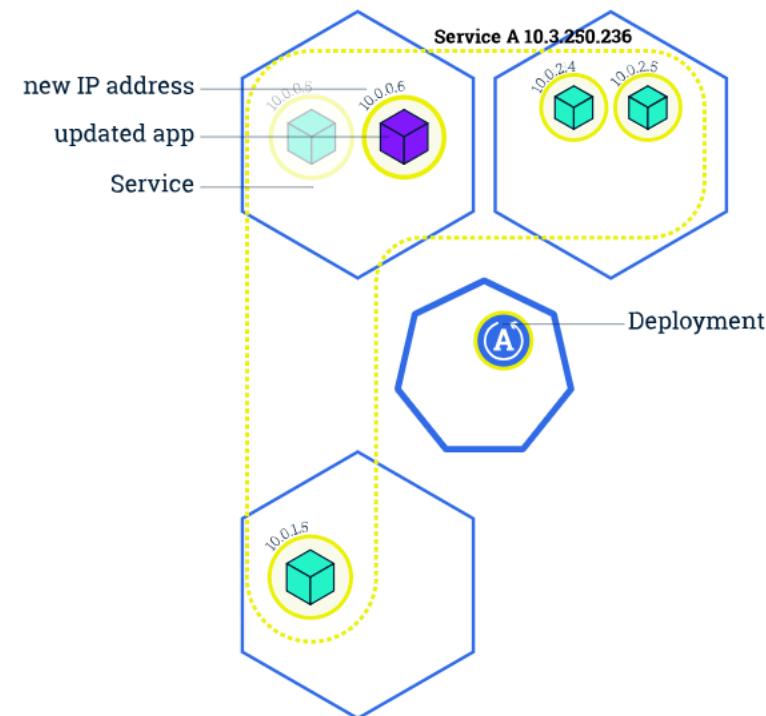
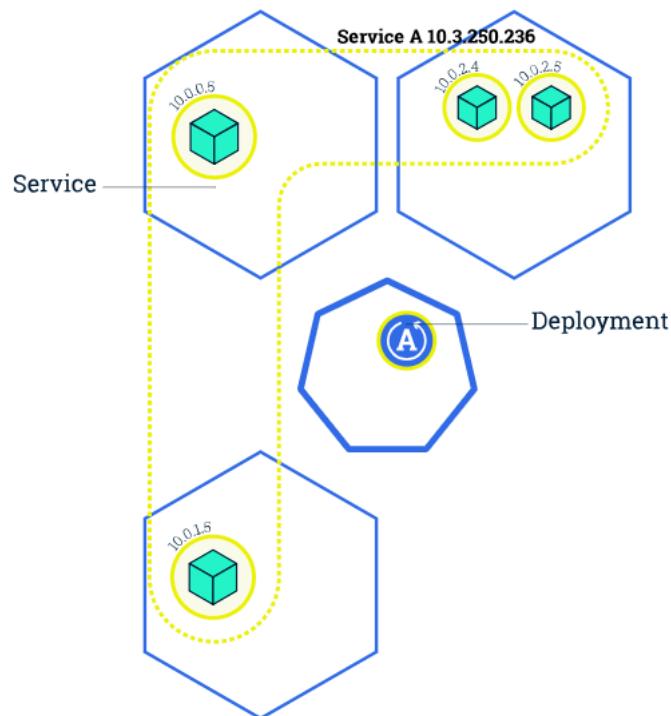


Scaling





Rolling Update





Rolling Update

