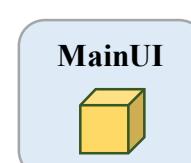
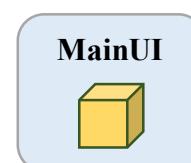


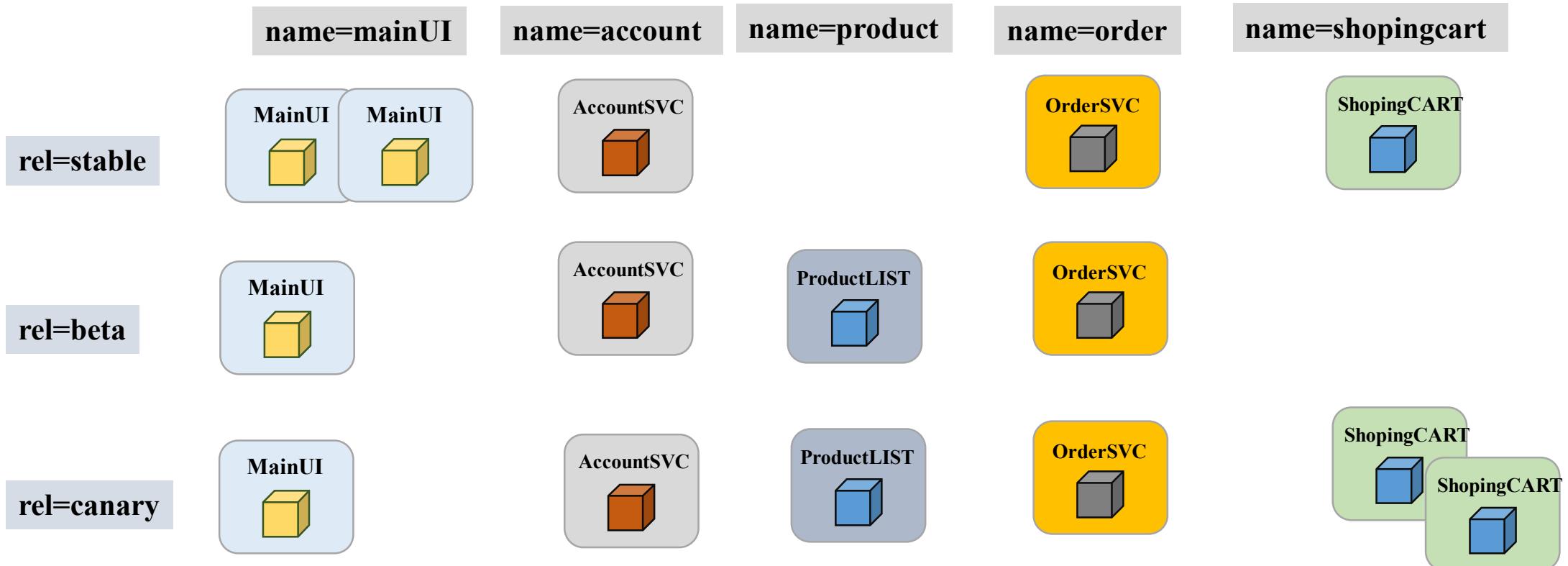
Label & Selector

- Pod와 같은 오브젝트에 첨부된 키(key)와 값(value)의 쌍
 - Node를 포함하여 pod, service, deployment 등 모든 오브젝트에 할당
- 레이블은 오브젝트의 특성을 식별하는 데 사용
 - 리소스의 특성을 분류
 - selector를 이용해서 선택

생성된 PODS



Label로 분류된 PODS



*Canary: 새 버전이나 변경 사항을 전체에 적용하기 전에, 일부 사용자·환경에만 먼저 배포해 안전성을 검증하는 방식

Label이 없는 경우	Label이 있는 경우
<pre> apiVersion: v1 kind: Pod metadata: name: pod-demo spec: containers: - name: nginx image: nginx:1.14 ports: - containerPort: 80 </pre>	<pre> apiVersion: v1 kind: Pod metadata: name: label-pod-demo labels: name: mainui rel: stable spec: containers: - name: nginx image: nginx:1.14 ports: - containerPort: 80 </pre>

pod1.yaml

pod2.yaml

1) Label

metadata:

name: label-pod-demo

labels:

name: mainui

rel: stable

2) selector

matchLabels:

key: value

matchExpressions:

- {key:name, operator:In, values:[mainui]}
- {key:rel, operator:NotIn, values[“beta”, “canary”]}

<<Label 확인>>

kubectl get pods --show-labels

kubectl get pods -l <label_name>

<<Label 생성 및 변경>>

kubectl label pod <name> key=value

kubectl label pod <name> key=value --overwrite

<<Label 제거>>

kubectl label pod <name> key-

1 kubectl run labpod01 --image=nginx:1.14 --port=80

```
root@master:/# kubectl run labpod01 --image=nginx:1.14 --port=80
pod/labpod01 created
```

2 nano labelpod02.yaml

```
root@master:/# nano labelpod02.yaml
root@master:/# cat labelpod02.yaml
apiVersion: v1
kind: Pod
metadata:
  name: labelpod02
spec:
  containers:
  - name: nginx
    image: nginx:1.14
    ports:
    - containerPort: 80
```

3 nano labelpod03.yaml

```
root@master:/# nano labelpod03.yaml
root@master:/# cat labelpod03.yaml
apiVersion: v1
kind: Pod
metadata:
  name: labelpod03
  labels:
    name: testlabel
    app: nginx
spec:
  containers:
  - name: nginx
    image: nginx:1.14
    ports:
    - containerPort: 80
```

① kubectl get pods --show-labels

```
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1    Running   0          16m   <none>
labelpod03  1/1    Running   0          16m   app=nginx,name=testlabel
labelpod01  1/1    Running   0          23m   run=labelpod01
```

② kubectl get pods --show-labels -o wide

```
root@master:/# kubectl get pods --show-labels -o wide
NAME      READY   STATUS    RESTARTS   AGE   IP           NODE   NOMINATED NODE   READINESS GATES   LABELS
labelpod02  1/1    Running   0          16m   10.40.0.1   wnode01  <none>        <none>        <none>
labelpod03  1/1    Running   0          16m   10.46.0.1   wnode03  <none>        <none>        app=nginx,name=testlabel
labelpod01  1/1    Running   0          23m   10.32.0.2   wnode02  <none>        <none>        run=labelpod01
```

③ kubectl get pods -l name=testlabel

```
root@master:/# kubectl get pods -l name=testlabel
NAME      READY   STATUS    RESTARTS   AGE
labelpod03  1/1    Running   0          16m
```

④ kubectl get pods --selector name=testlabel

```
root@master:/# kubectl get pods --selector name=testlabel
NAME      READY   STATUS    RESTARTS   AGE
labelpod03  1/1    Running   0          17m
```

① kubectl delete pods --selector run=lablepod01

```
root@master:/# kubectl delete pods --selector run=lablepod01
pod "lablepod01" deleted
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          17m   <none>
labelpod03  1/1     Running   0          17m   app=nginx,name=testlabel
root@master:/# █
```

② kubectl get pods --show-labels

```
root@master:/#
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          30m   <none>
labelpod03  1/1     Running   0          30m   app=nginx,name=testlabel
root@master:/#
root@master:/# kubectl label pod labelpod02 name=testlabel00
pod/labelpod02 labeled
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          31m   name=testlabel00
labelpod03  1/1     Running   0          31m   app=nginx,name=testlabel
root@master:/#
```

```
kubectl label pod labelpod02 name=test1
```

```
kubectl label pod labelpod02 name=test --overwrite
```

```
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          32m   name=testlabel00
labelpod03  1/1     Running   0          32m   app=nginx,name=testlabel
root@master:/#
root@master:/# kubectl label pod labelpod02 name=test1
error: 'name' already has a value (testlabel00), and --overwrite is false
root@master:/# kubectl label pod labelpod02 name=test1 --overwrite
pod/labelpod02 labeled
root@master:/#
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          33m   name=test1
labelpod03  1/1     Running   0          33m   app=nginx,name=testlabel
root@master:/#
root@master:/# kubectl label pod labelpod02 name=test --overwrite
pod/labelpod02 labeled
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod02  1/1     Running   0          33m   name=test
labelpod03  1/1     Running   0          33m   app=nginx,name=testlabel
10
```

```
kubectl run labelpod --image=nginx:1.14 --port=80
```

```
kubectl get pods --show-labels
```

```
kubectl label pod labelpod name=test01
```

```
kubectl get pods --show-labels
```

```
root@master:/# kubectl run labelpod --image=nginx:1.14 --port=80
pod/labelpod created
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod   1/1     Running   0          3s    run=labelpod
labelpod02 1/1     Running   0          36m   name=test
labelpod03 1/1     Running   0          36m   app=nginx,name=testlabel
root@master:/# kubectl label pod labelpod name=test01
pod/labelpod labeled
root@master:/# kubectl get pods --show-labels
NAME      READY   STATUS    RESTARTS   AGE   LABELS
labelpod   1/1     Running   0          36s   name=test01,run=labelpod
labelpod02 1/1     Running   0          36m   name=test
labelpod03 1/1     Running   0          36m   app=nginx,name=testlabel
```

```
kubectl get pods --show-labels
```

```
kubectl label pod labelpod run-
```

```
kubectl get pods --show-labels
```

```
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod    1/1     Running   0          36s   name=test01,run=labelpod
labelpod02  1/1     Running   0          36m   name=test
labelpod03  1/1     Running   0          36m   app=nginx,name=testlabel
root@master:/#
root@master:/# kubectl label pod labelpod run-
pod/labelpod unlabeled
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod    1/1     Running   0          2m38s  name=test01
labelpod02  1/1     Running   0          38m   name=test
labelpod03  1/1     Running   0          38m   app=nginx,name=testlabel
root@master:/#
```

Label 명 뒤에 -(대시문자) : label 삭제

```
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod    1/1     Running   0          5m27s  name=test01
labelpod02  1/1     Running   0          41m    name=test
labelpod03  1/1     Running   0          41m    app=nginx,name=testlabel
```



```
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod    1/1     Running   0          9m22s  name=test01,rel=beta
labelpod02  1/1     Running   0          45m    name=test02,rel=statble
labelpod03  1/1     Running   0          45m    app=nginx,name=test03,rel=statble
```

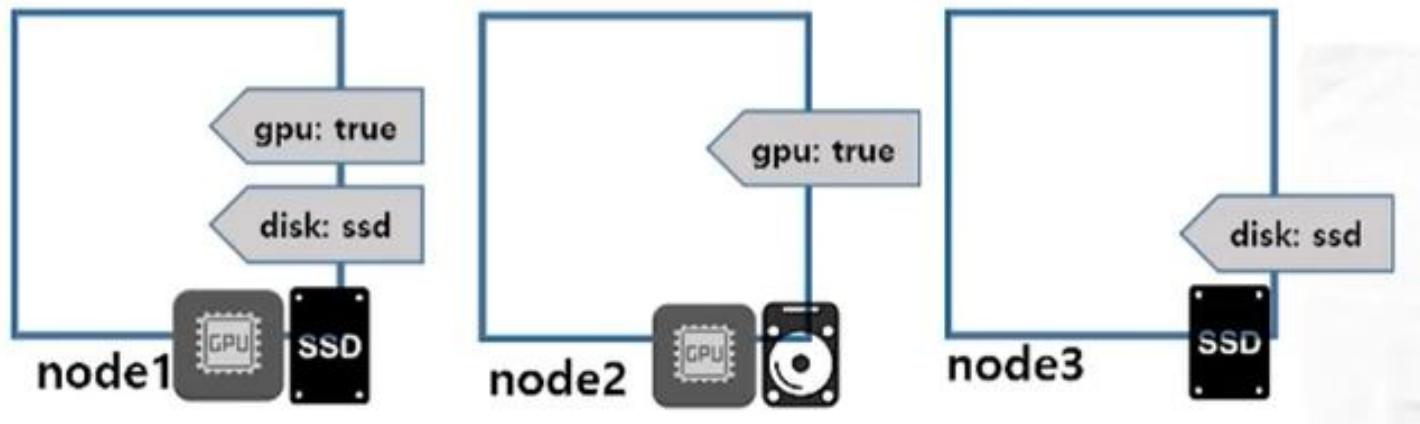
```
kubectl label pod labelpod rel=beta  
kubectl label pod labelpod02 name=test02 rel=stable --overwrite  
kubectl label pod labelpod03 name=test02 rel=stable --overwrite  
kubectl label pod labelpod02 app-
```

```
root@master:/# kubectl label pod labelpod rel=beta  
pod/labelpod labeled  
root@master:/#  
root@master:/# kubectl label pod labelpod02 name=test02 rel=stable --overwrite  
pod/labelpod02 labeled  
root@master:/#  
root@master:/# kubectl label pod labelpod03 name=test03 rel=stable --overwrite  
pod/labelpod03 labeled  
root@master:/# kubectl label pod labelpod03 app-  
pod/labelpod03 unlabeled
```

```
root@master:/# kubectl get pods --show-labels
NAME        READY   STATUS    RESTARTS   AGE   LABELS
labelpod    1/1     Running   0          14m   name=test01,rel=beta
labelpod02  1/1     Running   0          50m   name=test02,rel=stable
labelpod03  1/1     Running   0          50m   name=test03,rel=stable
root@master:/#
root@master:/# kubectl delete pods --selector rel=stable
pod "labelpod02" deleted
pod "labelpod03" deleted
root@master:/# kubectl get pods --show-labels
No resources found in default namespace.
root@master:/#
```

Node Label

- Worker node의 하드웨어 특성을 label로 설정
- 노드를 선택해서 파드를 배치할 수 있음
- `kubectl label nodes <노드이름> <key>=<value>`



```
apiVersion: v1
kind: Pod
metadata:
  name: pod-node
spec:
  containers:
  - name: nginx
    image: nginx:1.14
nodeSelector:
  key1: value1
  key2: value2
```

```
#kubectl get nodes --show-labels
```

```
root@master:/# kubectl get nodes --show-labels
NAME      STATUS    ROLES          AGE    VERSION   LABELS
master    Ready     control-plane  69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux, name=master,kubernetes.io/os=linux,node-role.kubernetes.io/control-plane=,node.kubernetes.io/exclude-from-schedule=false
wnode01   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux, name=wnode01,kubernetes.io/os=linux
wnode02   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux, name=wnode02,kubernetes.io/os=linux
wnode03   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux, name=wnode03,kubernetes.io/os=linux
```

```
#kubectl label nodes wnode01 gpu=true disk=ssd
```

```
#kubectl label nodes wnode02 gpu=true
```

```
#kubectl label nodes wnode03 disk=ssd
```

```
root@master:/# kubectl label nodes wnode01 gpu=true disk=ssd
node/wnode01 labeled
root@master:/# kubectl label nodes wnode02 gpu=true
node/wnode02 labeled
root@master:/# kubectl label nodes wnode03 disk=ssd
node/wnode03 labeled
```

```
#kubectl get nodes --show-labels
```

```
root@master:/# kubectl get nodes --show-labels
NAME      STATUS    ROLES          AGE     VERSION   LABELS
master    Ready     control-plane  69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux,kubernetes.io/arch=amd64,
name=master,kubernetes.io/os=linux,node-role.kubernetes.io/control-plane=node.kubernetes.io/exclude-from-external-load-balancers=
wnode01   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux,disk=ssd,gpu=true,kubern
kubernetes.io/hostname=wnode01,kubernetes.io/os=linux
wnode02   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux,gpu=true,kubern
s.io/hostname=wnode02,kubernetes.io/os=linux
wnode03   Ready     <none>        69d    v1.25.0   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux,disk=ssd,kubern
s.io/hostname=wnode03,kubernetes.io/os=linux
```

```
#kubectl get nodes -L disk,gpu
```

```
root@master:/# kubectl get nodes -L disk,gpu
NAME      STATUS    ROLES          AGE   VERSION   DISK   GPU
master    Ready     control-plane  69d   v1.25.0
wnode01   Ready     <none>        69d   v1.25.0   ssd    true
wnode02   Ready     <none>        69d   v1.25.0
wnode03   Ready     <none>        69d   v1.25.0   ssd
root@master:/#
```

```
#cat nodeselector.yaml
```

```
root@master:/# cat nodeselector.yaml
apiVersion: v1
kind: Pod
metadata:
  name: pod-nodeselector
spec:
  nodeSelector:
    gpu: "true"
    disk: ssd
  containers:
    - name: nginx
      image: nginx:1.14
      ports:
        - containerPort: 80
root@master:/#
```

```
#kubectl create -f nodeselector.yaml
#kubectl get pods -o wide
```

```
root@master:/# kubectl create -f nodeselector.yaml
pod/pod-nodeselector created
root@master:/#
root@master:/# kubectl get pods -o wide
NAME           READY   STATUS    RESTARTS   AGE     IP          NODE     NOMINATED NODE
pod-nodeselector  1/1     Running   0          25s    10.40.0.1   wnode01   <none>
```

```
#kubectl delete pod node-selector
```

```
root@master:/# kubectl delete pod pod-nodeselector
pod "pod-nodeselector" deleted
root@master:/#
```