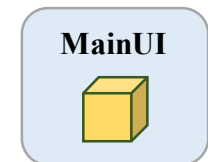
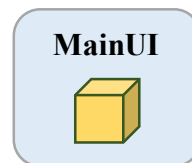
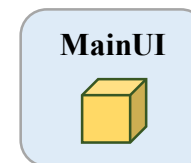
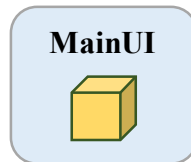


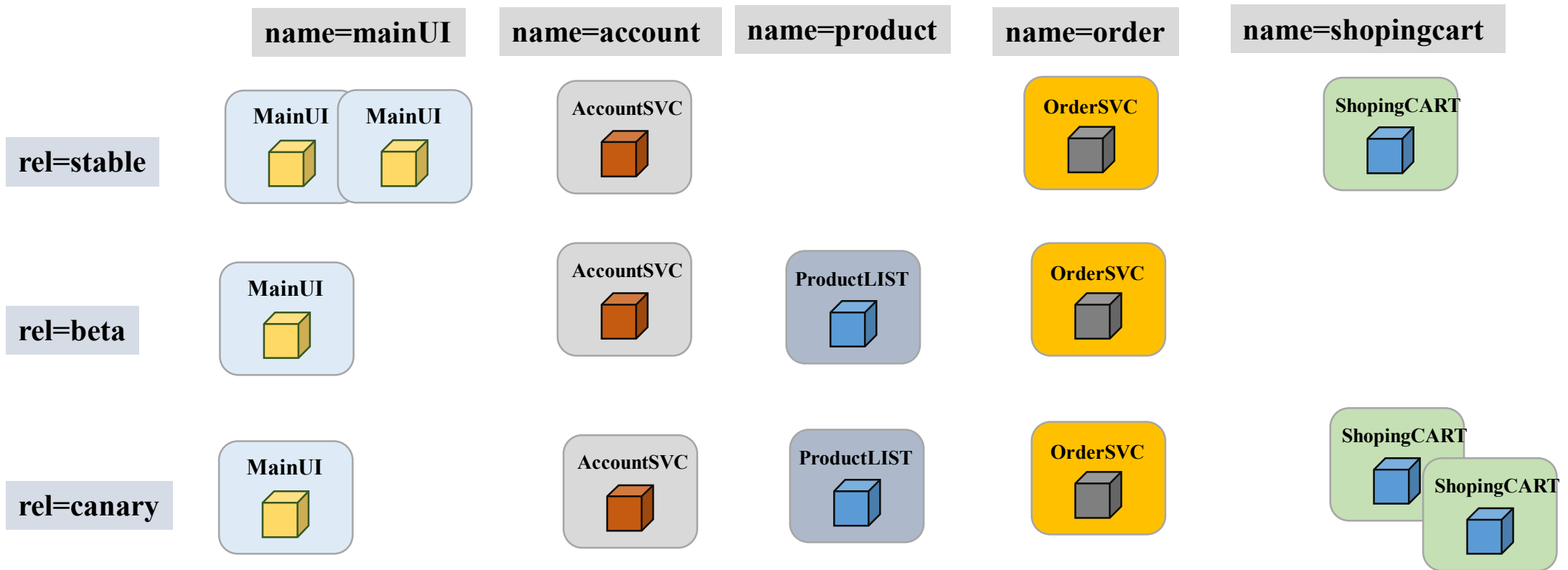
Label & Selector

- 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> <p>pod1.yaml</p>	<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> <p>pod2.yaml</p>

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-
```

❶ `kubectl run labpod01 --image=nginx:1.14 --port=80`

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

❷ `nano labpod02.yaml`

```
root@master:/# nano labpod02.yaml
root@master:/# cat labpod02.yaml
apiVersion: v1
kind: Pod
metadata:
  name: labpod02
spec:
  containers:
  - name: nginx
    image: nginx:1.14
    ports:
    - containerPort: 80
```

❸ `nano labpod03.yaml`

```
root@master:/# nano labpod03.yaml
root@master:/# cat labpod03.yaml
apiVersion: v1
kind: Pod
metadata:
  name: labpod03
  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
lablepod01    1/1     Running   0          23m   run=lablepod01
```

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
lablepod01    1/1     Running   0          23m   10.32.0.2    wnode02       <none>           <none>             run=lablepod01
```

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
```


❶ kubectl delete pods --selector run=labelpod01

```
root@master:/# kubectl delete pods --selector run=labelpod01
pod "labelpod01" 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:/#
```

❷ 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
```

```
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

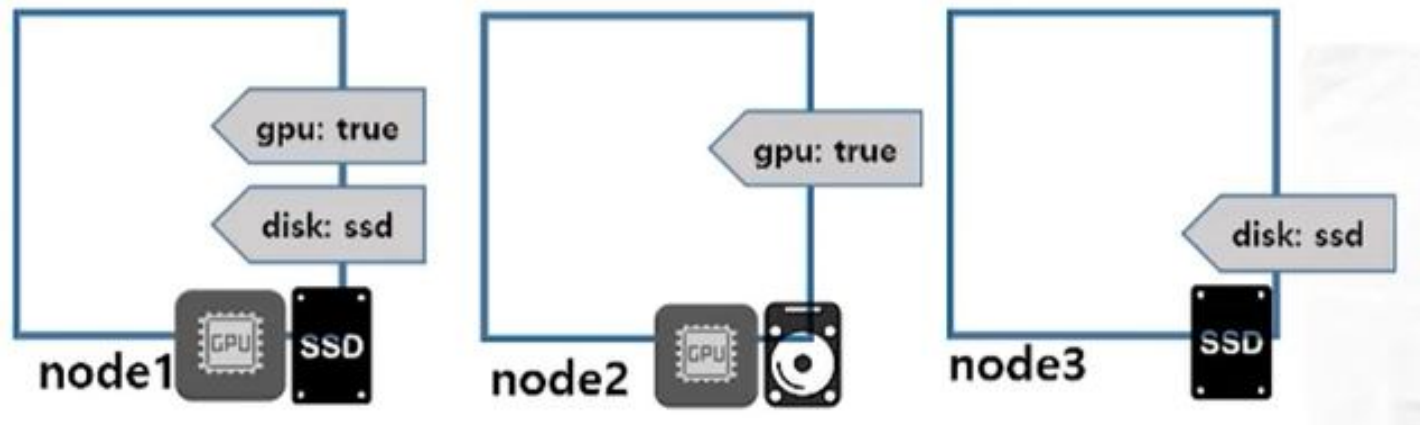
kubectl label pod labelpod02 app-

```
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=statble
labelpod03    1/1     Running   0          50m   name=test03,rel=statble
root@master:/#
root@master:/# kubectl delete pods --selector rel=statble
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-
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,kubernetes.io/a
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,kubernetes.io/a
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:/#
```