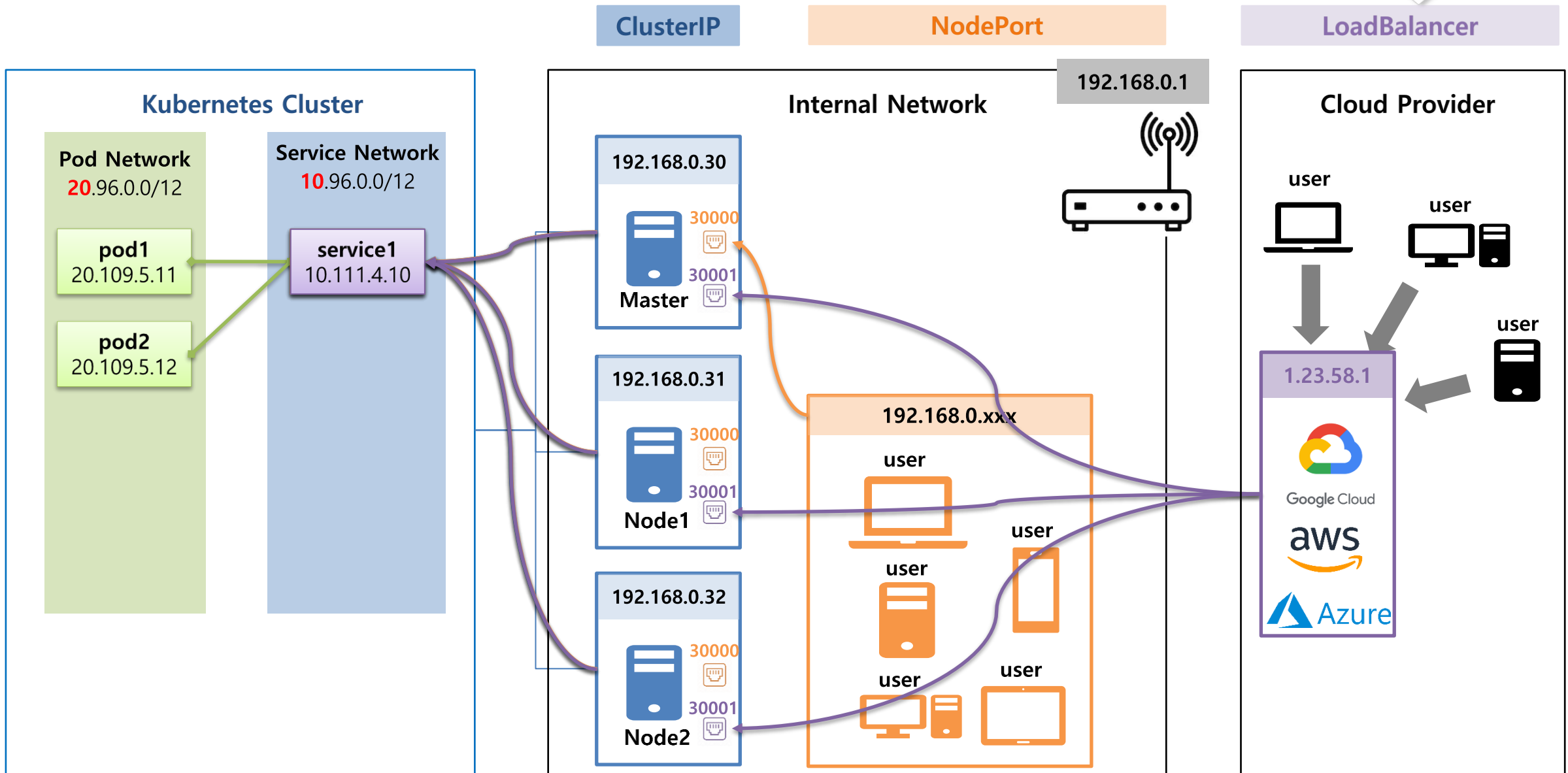# 2. Basic Object - Service

2. Basic Object - Service

ClusterIP   NodePort   LoadBalancer

Admin   Internal User   Cloud Provider

Pod ← Service

10.111.41.1

재생성시
IP 변경

동시배포 → Pod A

Pod B ← Service

IP 동적할당

Headless

DNS Server
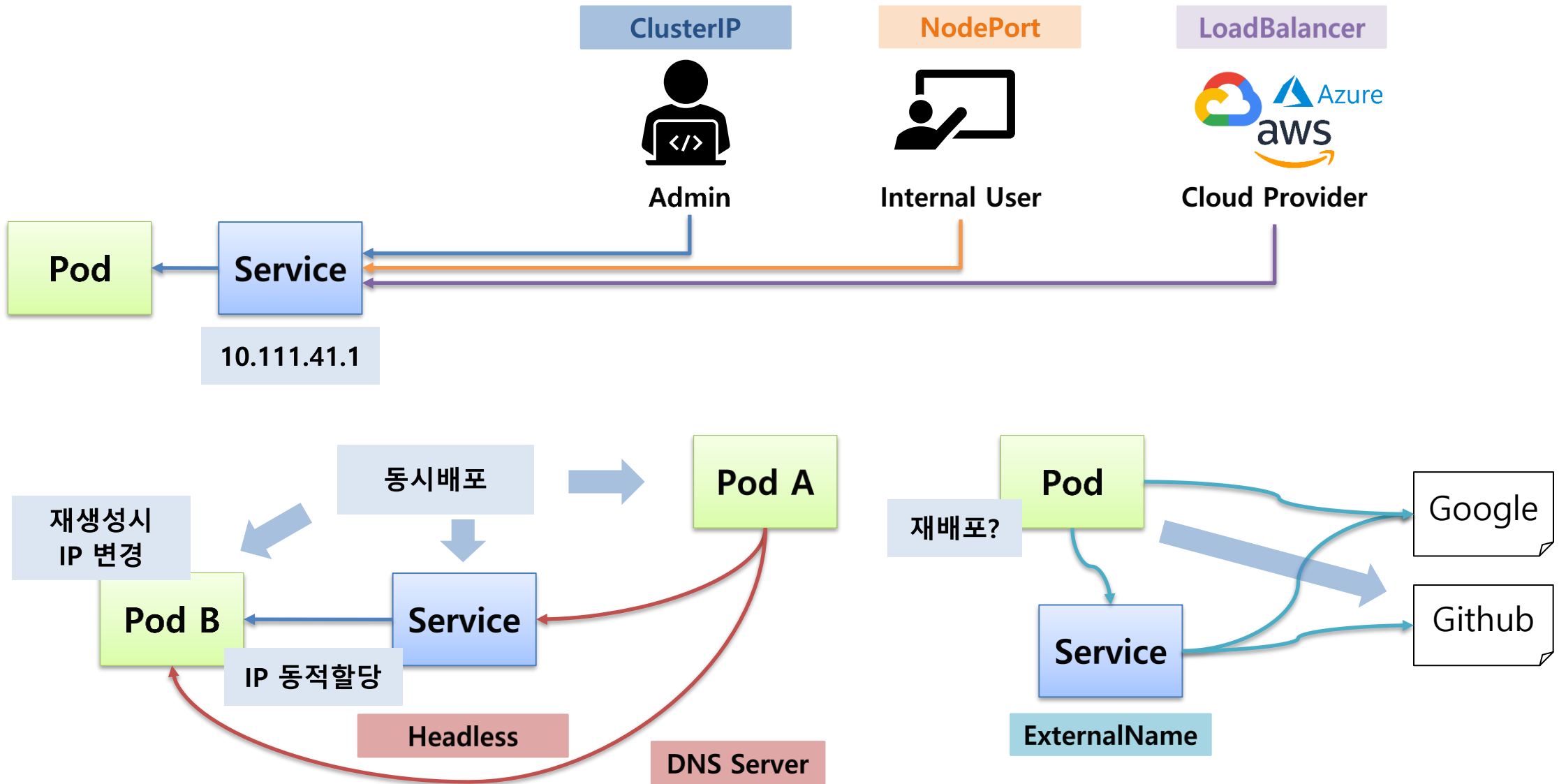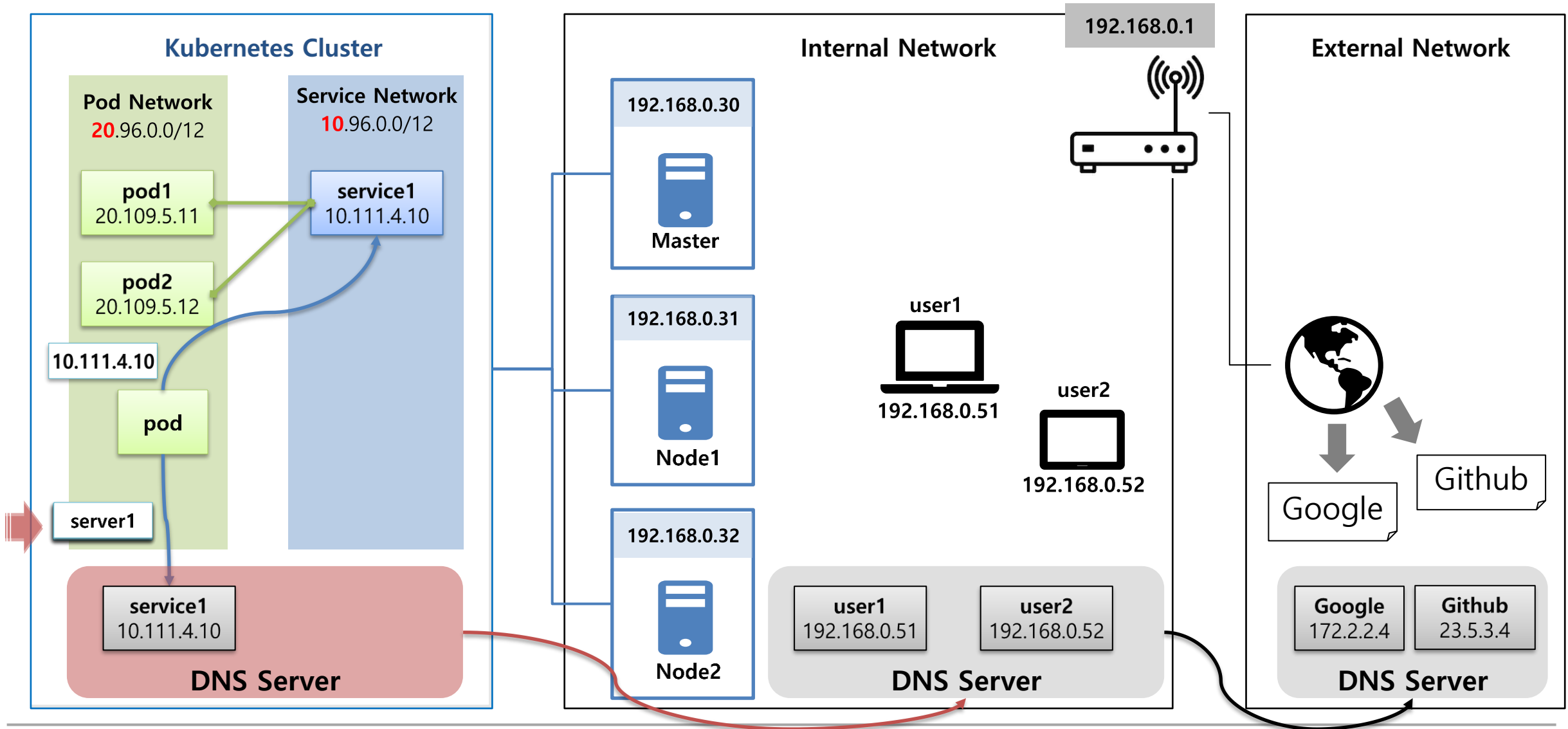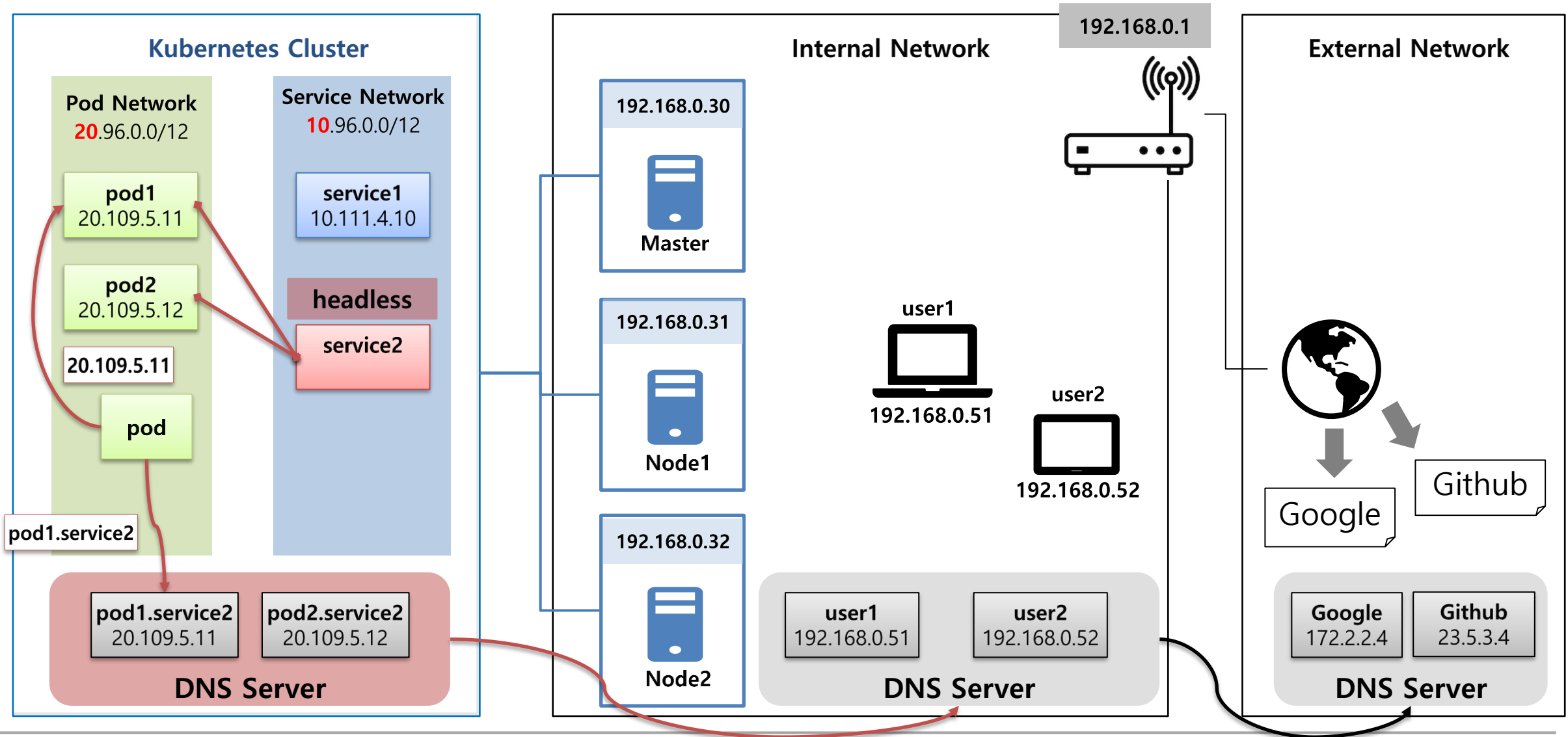
재배포?

Pod → Service

ExternalName
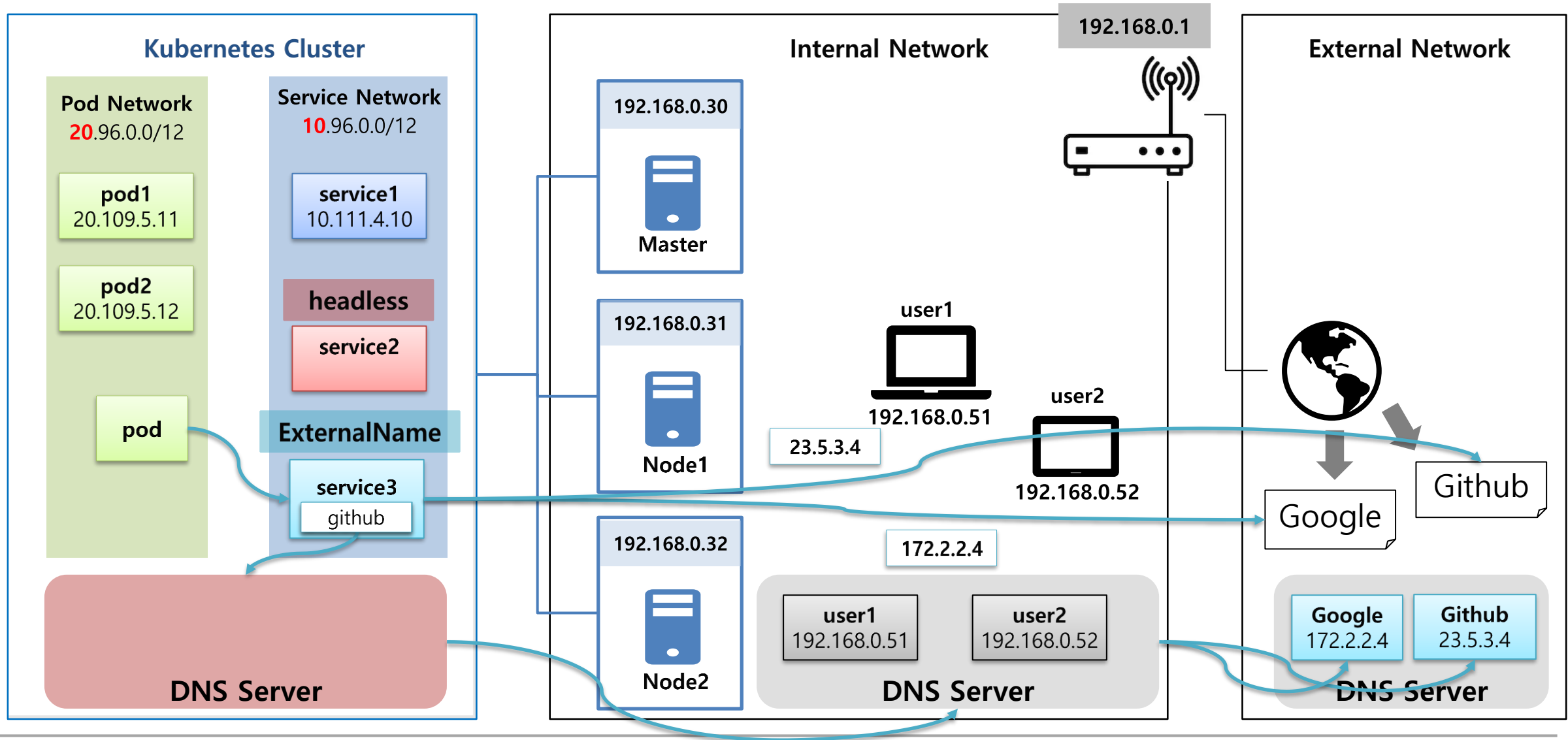
Google

Github

2. Basic Object - Service
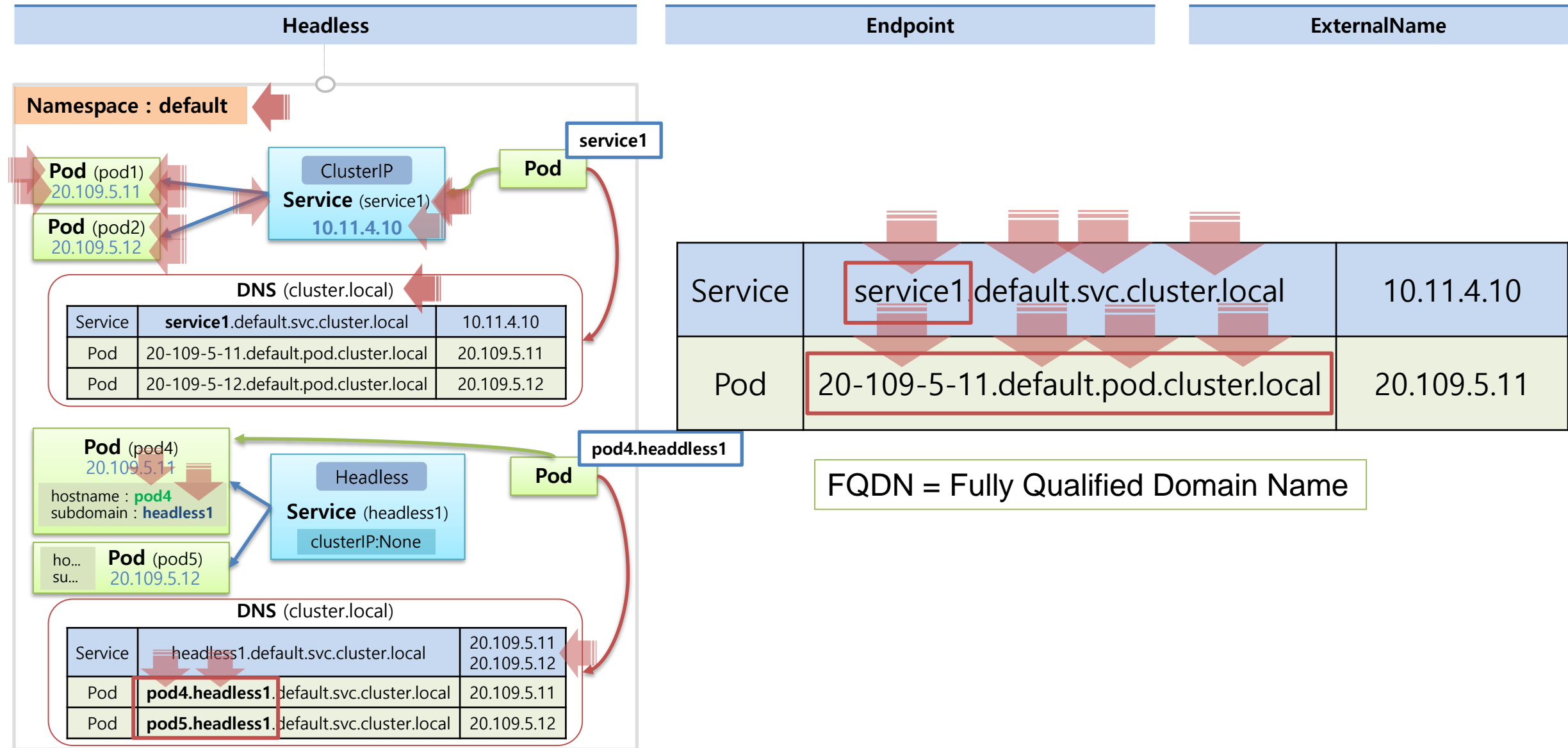
2. Basic Object - Service

2. Basic Object - Service

Headless

Endpoint

ExternalName

Headless

Namespace : default

service1

Pod (pod1)
20.109.5.11

Pod (pod2)
20.109.5.12

ClusterIP
Service (service1)
10.11.4.10

Pod

DNS (cluster.local)

Service	service1.default.svc.cluster.local	10.11.4.10
Pod	20-109-5-11.default.pod.cluster.local	20.109.5.11
Pod	20-109-5-12.default.pod.cluster.local	20.109.5.12

Pod (pod4)
20.109.5.11

hostname : **pod4**
subdomain : **headless1**

ho...
su... **Pod** (pod5)
20.109.5.12

Headless
Service (headless1)
clusterIP:None

Pod

pod4.headdless1

DNS (cluster.local)

Service	headless1.default.svc.cluster.local	20.109.5.11 20.109.5.12
Pod	**pod4.headless1**.default.svc.cluster.local	20.109.5.11
Pod	**pod5.headless1**.default.svc.cluster.local	20.109.5.12

Endpoint / ExternalName

Service	service1.default.svc.cluster.local	10.11.4.10
Pod	20-109-5-11.default.pod.cluster.local	20.109.5.11

FQDN = Fully Qualified Domain Name

2. Basic Object - Service

Headless

Namespace : default
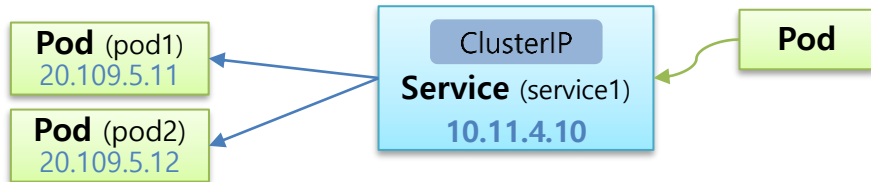
Pod (pod1) 20.109.5.11

Pod (pod2) 20.109.5.12

ClusterIP
Service (service1)
10.11.4.10

Pod

DNS (cluster.local)

Service	service1.default.svc.cluster.local	10.11.4.10
Pod	20-109-5-11.default.pod.cluster.local	20.109.5.11
Pod	20-109-5-12.default.pod.cluster.local	20.109.5.12

Pod (pod4) 20.109.5.11

hostname : **pod4**
subdomain : **headless1**

Headless
Service (headless1)
clusterIP:None

Pod

ho...
su...
Pod (pod5) 20.109.5.12

DNS (cluster.local)

Service	headless1.default.svc.cluster.local	20.109.5.11 20.109.5.12
Pod	**pod4.headless1**.default.svc.cluster.local	20.109.5.11
Pod	**pod5.headless1**.default.svc.cluster.local	20.109.5.12

Endpoint

Service (service1)
selector
label:app1

Pod
label:app1
20.109.5.11
8080

Pod
label:app1
20.109.5.12
8080

Endpoint (service1)
20.109.5.11 (8080)
20.109.5.12 (8080)

Service (service2)

Endpoint (service2)
20.109.5.12 (8080)

Pod
20.109.5.12
8080

Service (service3)

Endpoint (service3)
172.217.161.68 (80)

Github
185.199.110.153
80
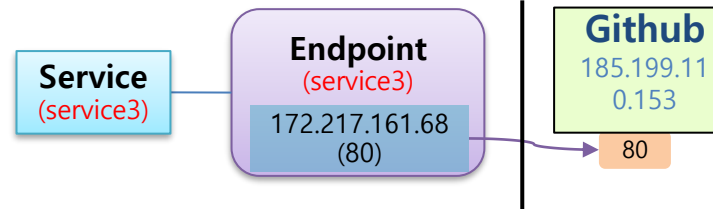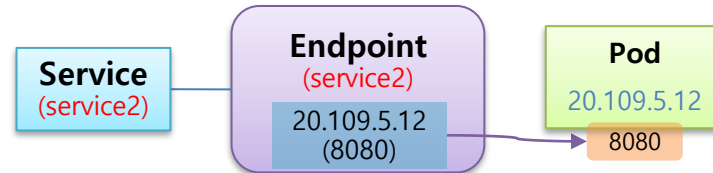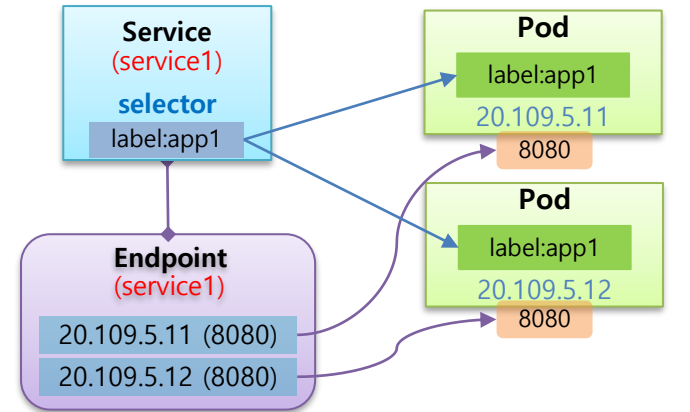
ExternalName

Kubernetes Cluster

Service
externalNmae
github.com

DNS
pod4.headless1
20.109.5.11

DNS cache

External Network
DNS
github.com
185.199.110.153

Pod

Service
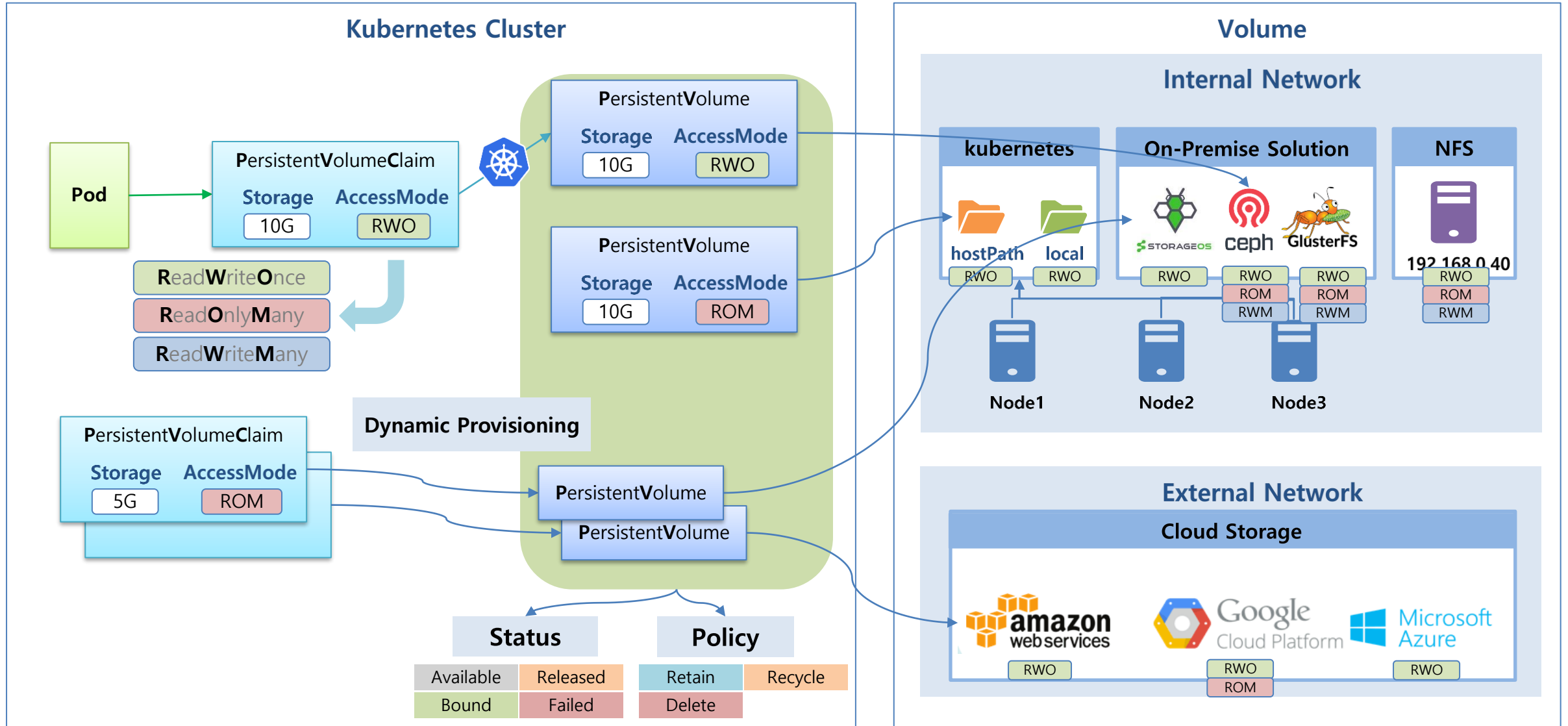**externalNmae**
google.com
github.com

Google   **Github**
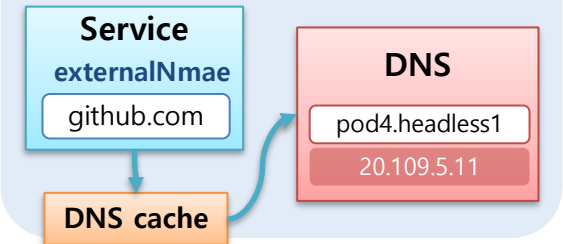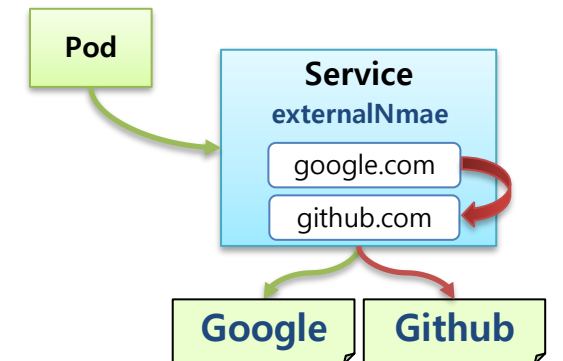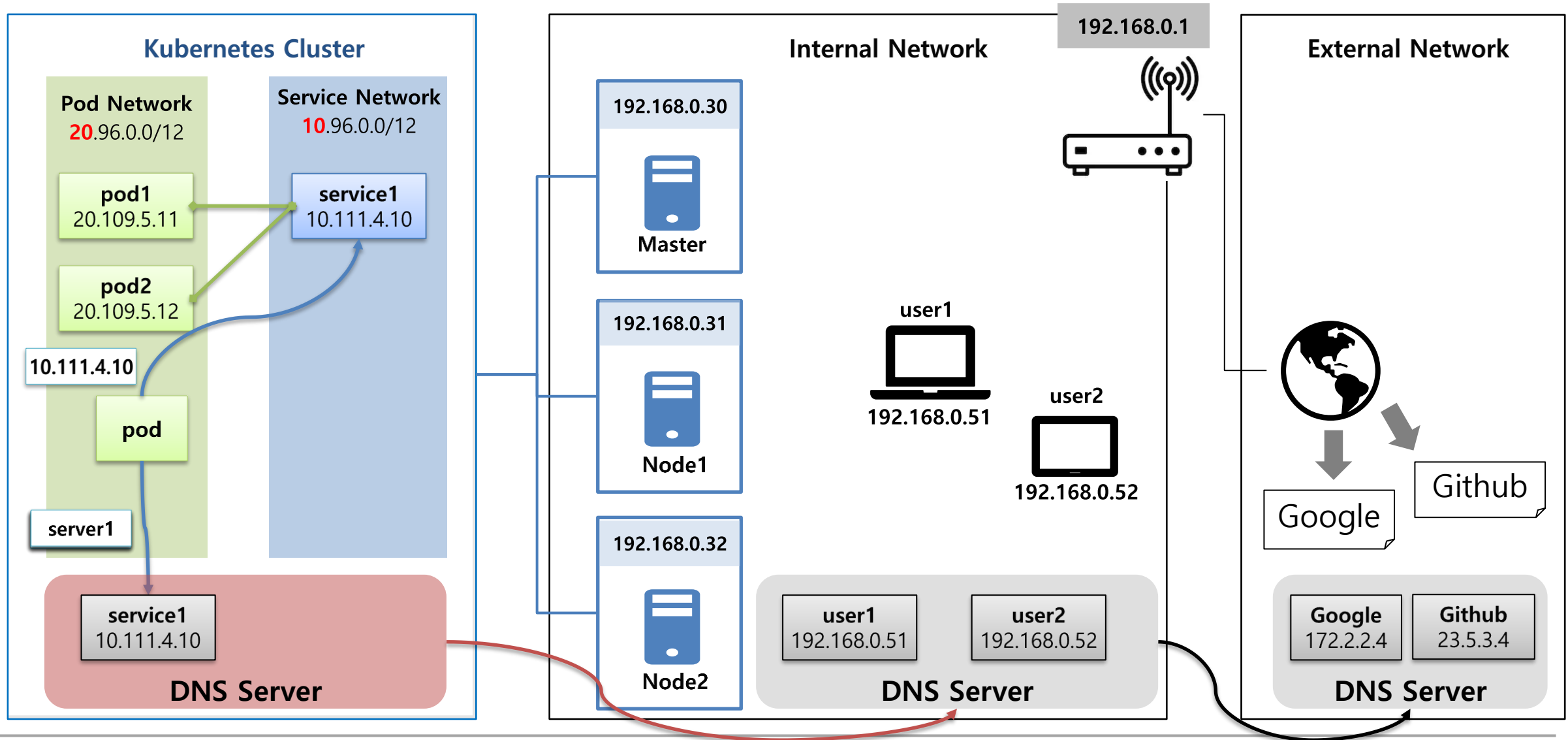
2. Basic Object - Service
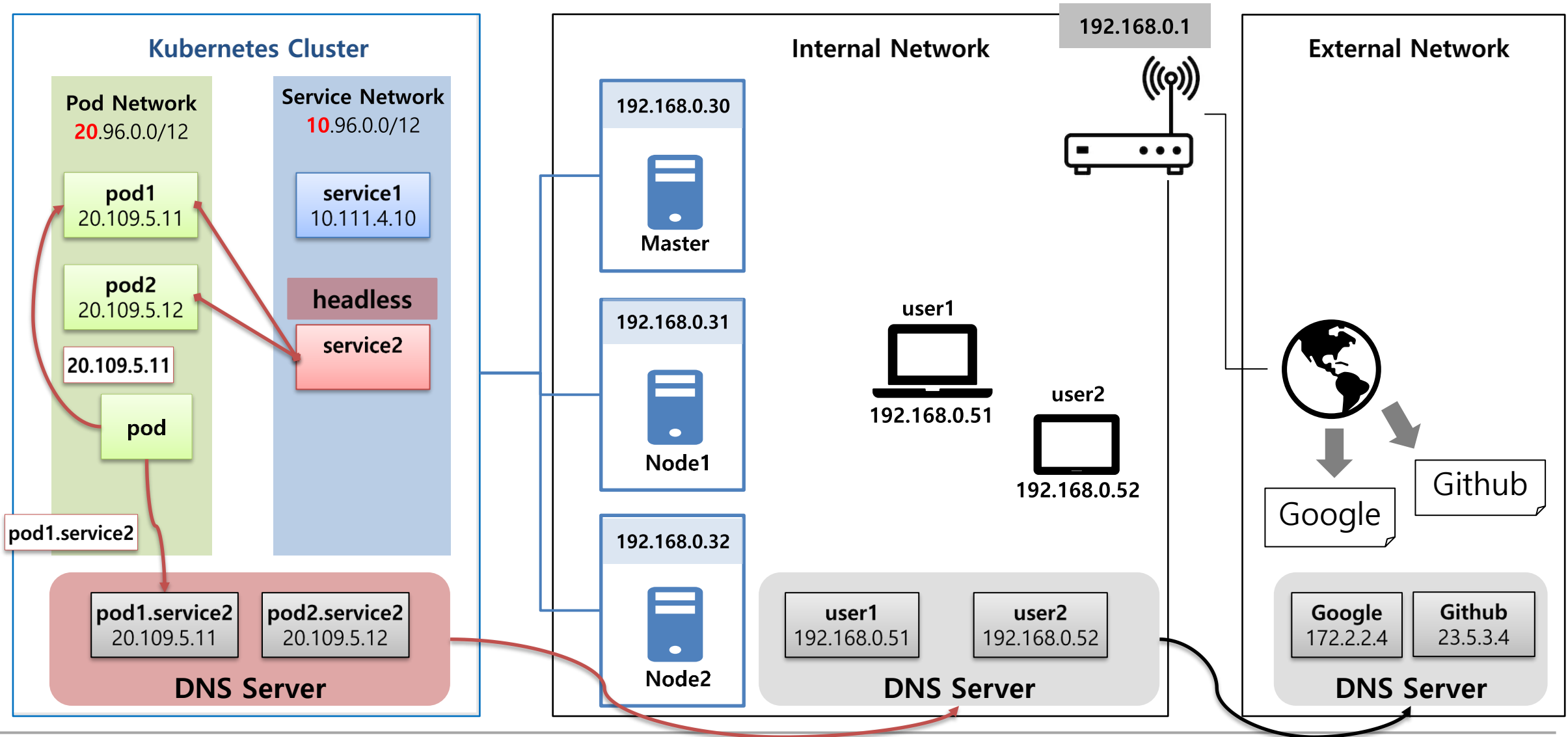
2. Basic Object - Service

- Volume

Kubernetes Cluster

Pod

Persistent**V**olume**C**laim
Storage   AccessMode
10G   RWO

Read**W**rite**O**nce
Read**O**nly**M**any
Read**W**rite**M**any

Persistent**V**olume**C**laim
Storage   AccessMode
5G   ROM

Dynamic Provisioning

Persistent**V**olume
Storage   AccessMode
10G   RWO

Persistent**V**olume
Storage   AccessMode
10G   ROM

Persistent**V**olume

Persistent**V**olume

Status
Available   Released
Bound   Failed

Policy
Retain   Recycle
Delete

Volume

Internal Network

kubernetes
hostPath   local
RWO   RWO

On-Premise Solution
STORAGEOS   ceph   GlusterFS
RWO   RWO   RWO
      ROM   ROM
      RWM   RWM

NFS
192.168.0.40
RWO
ROM
RWM

Node1   Node2   Node3

External Network

Cloud Storage

amazon web services
RWO

Google Cloud Platform
RWO
ROM

Microsoft Azure
RWO

- Volume

Dynamic Provisioning

STORAGEOS

| Service | Pod | Secret | | |

Default

StorageClass
name
fast

StorageClass
name
default

PVC

Storage   **AccessMode**
1G   RWO

StorageClassName

""

fast

| **PV** | |
| 1G | RWO |

| **PV** | |
| 2G | RWO |

| **PV** | |
| 1G | RWO |

| **PV** | |
| 1G | RWO |
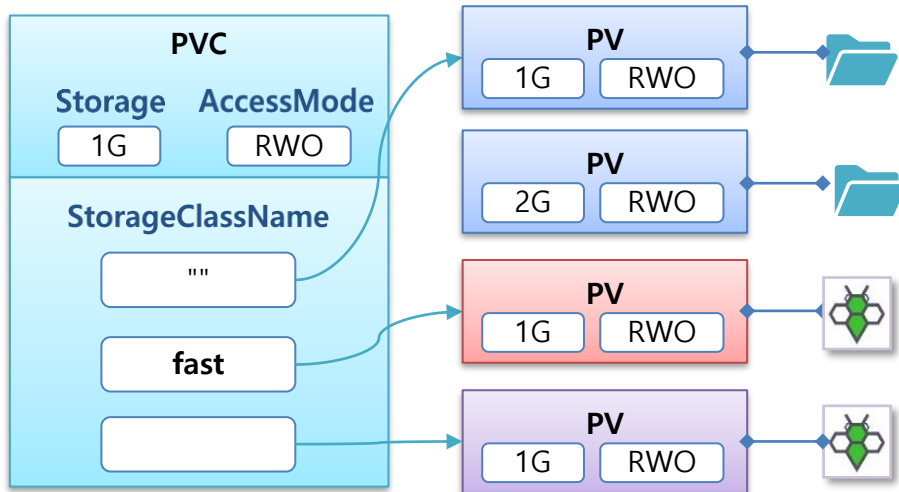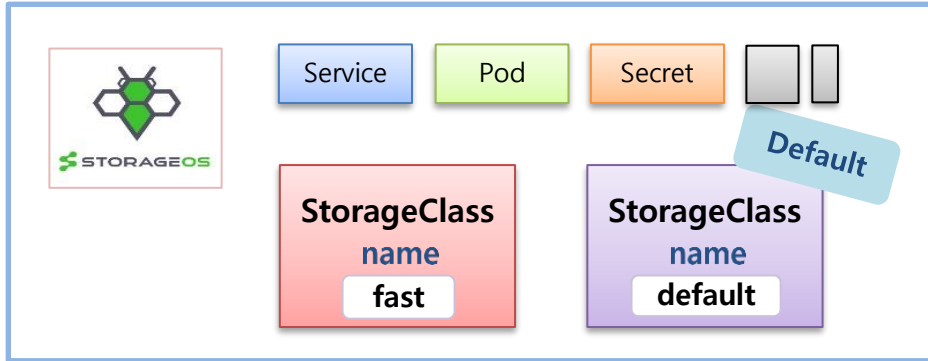
Status & ReclaimPolicy

Status

Pod ✗

| **PV** |
| Available |

PVC → | **PV** |
      | Bound |

PVC ✗ | **PV** |
        | Released |

| **PV** |
| Failed | ⚠

ReclaimPolicy

| **PV** | |
| Retain | Released |

- Default
- 데이터 보존
- 재사용 불가

✗

| **PV** | |
| Delete | |

- StorageClass 사용시 Default
- Volume에 따라 데이터 삭제
- 재사용 불가

| **PV** | |
| Recycle | Available |

- Deprecated
- 데이터 삭제
- 재사용 가능
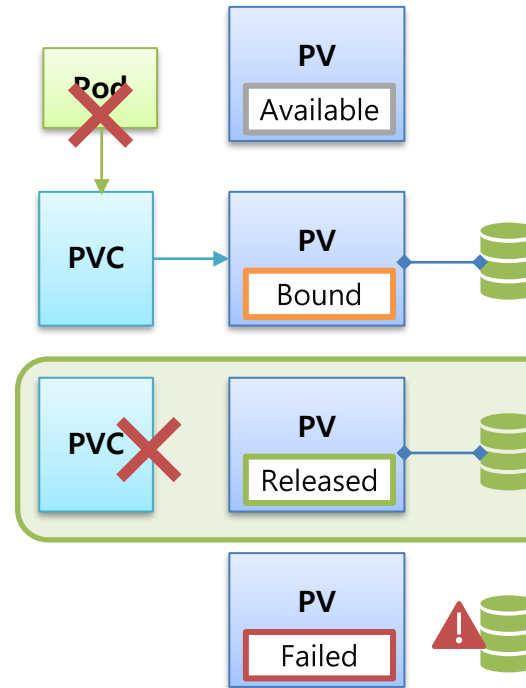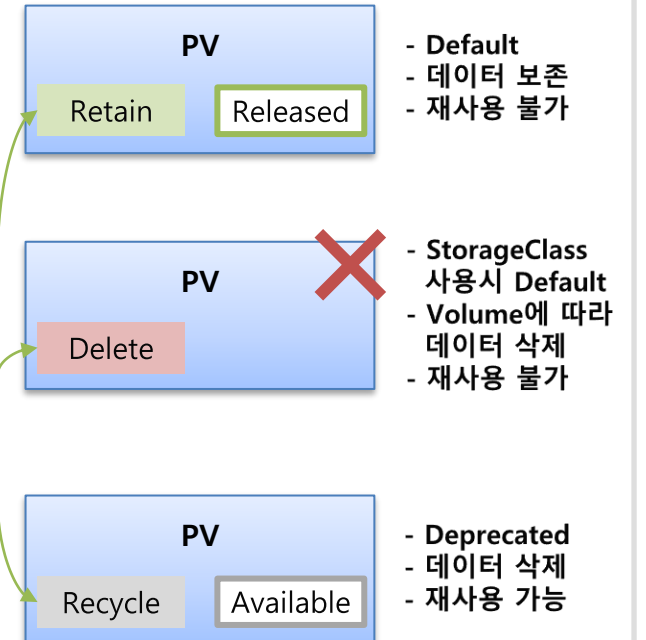
- Access to the Kubernetes API
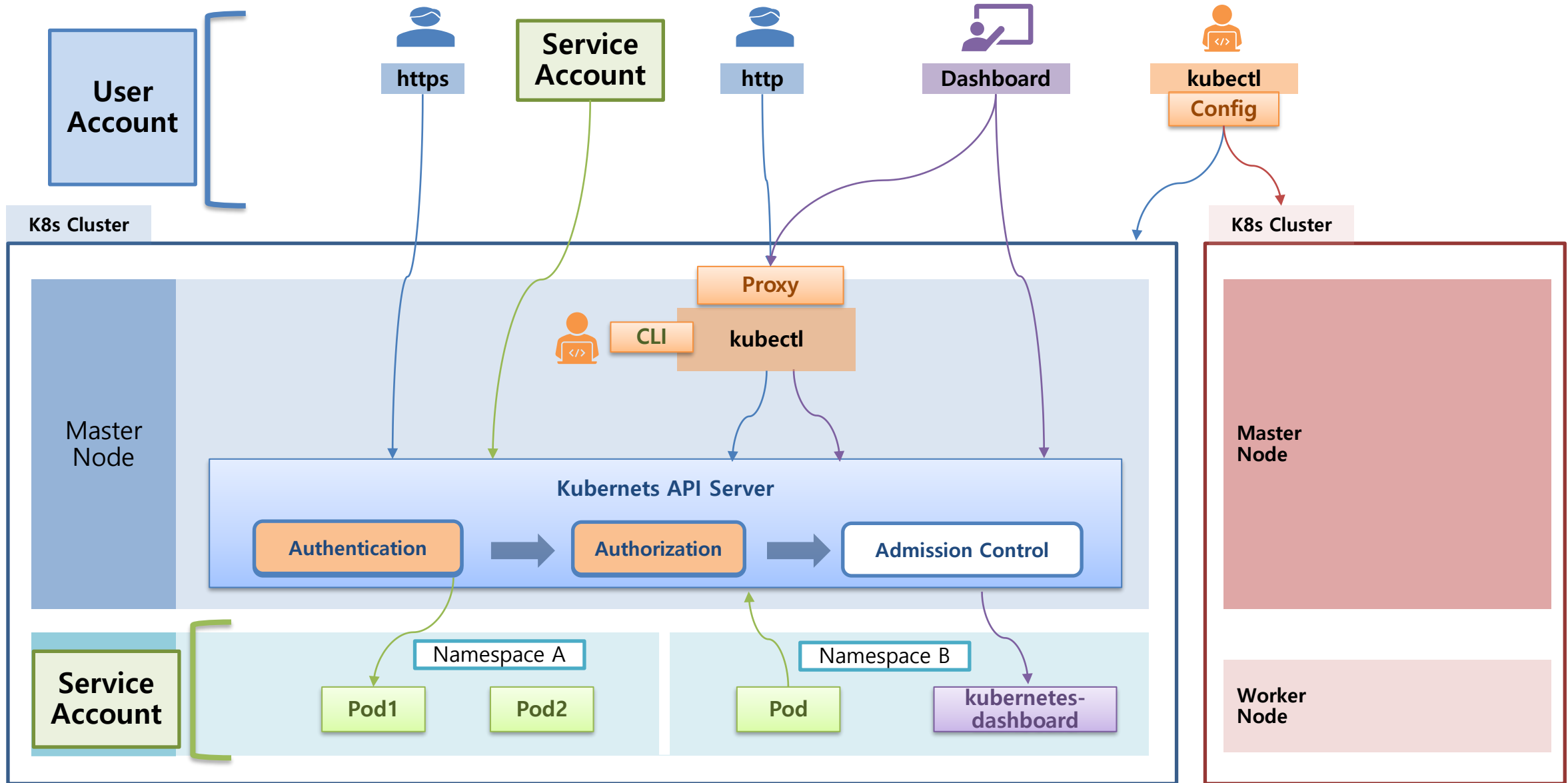
- Authentication
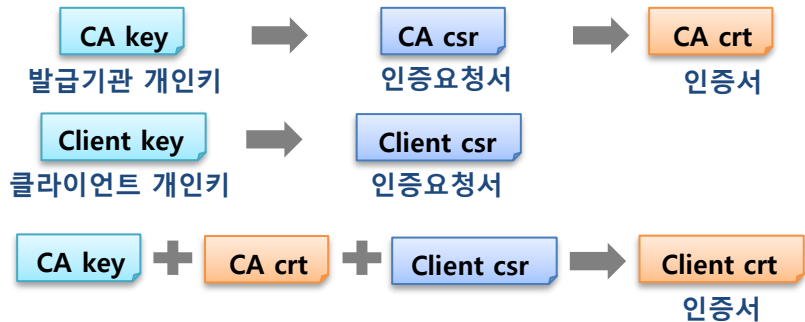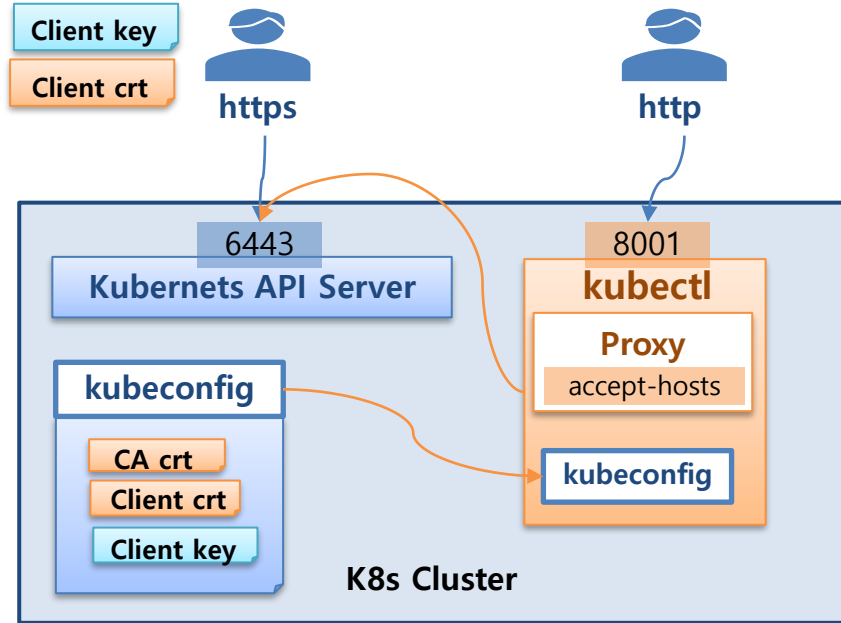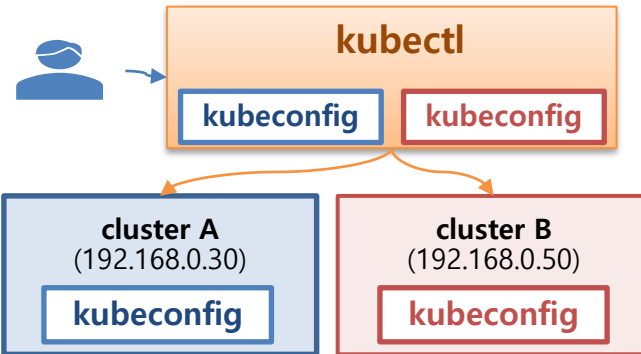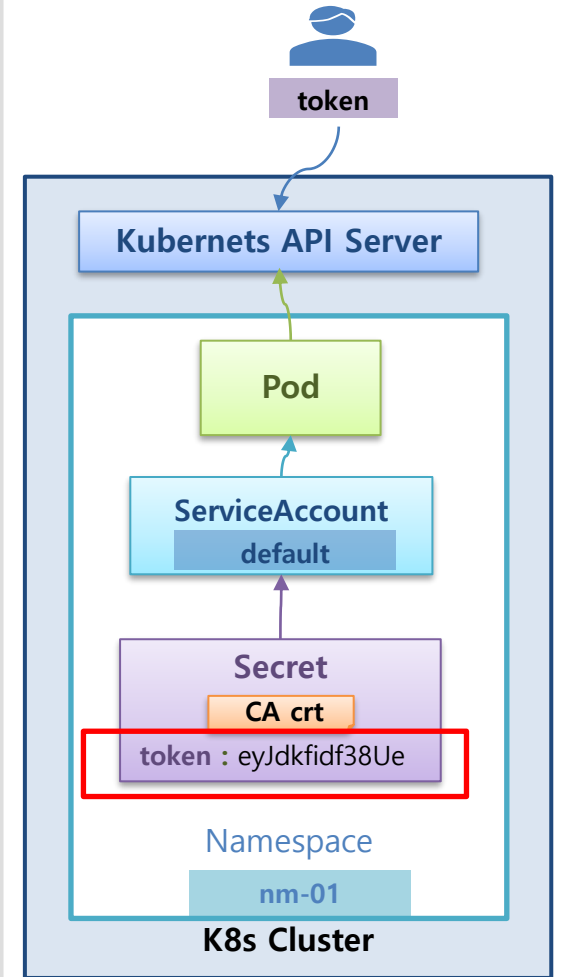
- Authorization

RBAC (Role, RoleBinding) Overview

RBAC | ABAC | Webhok | Node

Cluster

Node | PV | Namespace

ClusterRole1 | ClusterRole2

ClusterRoleBinding

Namespace A

Pod | Svc

Role1 (read) | Role2 (write)

RoleBinding

SA | SA1

Namespace B

Pod | Svc

RoleBinding

SA
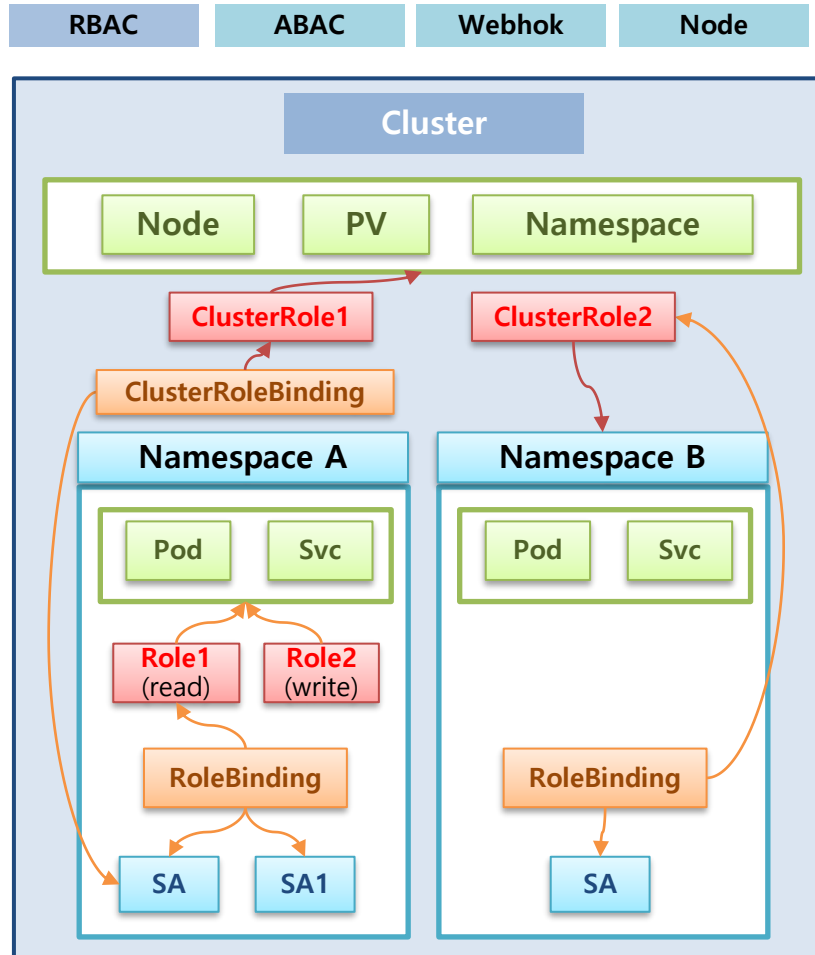
Role, RoleBinding Detail

token | token

Kubernets API Server

Pod | Svc

Node | PV | Namespace

Role (r-01)

apiGroups	resources	verbs
[""]	[pods]	[get, list]
["batch"]	[jobs]	

RoleBinding (rb-01)

roleRef | subjects
Role | SA

ServiceAccount (default)

Secret
ca.crt : CA crt
token : eyJdk1

Namespace (nm-01)

ClusterRole (cr-02)

apiGroups	resources	verbs
[*]	[*]	[*]

ClusterRoleBinding (crb-02)

roleRef | subjects
ClusterRole | SA

ServiceAccount (sa-02)

Secret
ca.crt : CA crt
token : eyJdk2

Namespace (nm-02)

- Kubernetes Dashboard

AS-IS : v1.10.1

Login   SKIP

HTTP

8001
Proxy

6443
Kubernets API Server

Deployment

Service
(kubernetes-dashboard)
ClusterIP

ReplicaSet

ClusterRole
(cluster-admin)

Pod v1.10.1
(kubernetes-dashboard)

RoleBinding
(kubernetes-
dashboard-minimal)

ClusterRoleBinding
(kubernetes-dashboard)

ServiceAccount
(kubernetes-dashboard)

Role
(kubernetes-
dashboard-minimal)

Namespace (kube-system)

TO-BE : v2.0.0

client p12

Login   Token

HTTPS

kubeconfig

6443
Kubernets API Server

Client crt   **Client key**

Deployment

Service
(kubernetes-dashboard)
ClusterIP

Pod
(kubernetes-metrics
-scraper)

ReplicaSet

Pod v2.0.0
(kubernetes-dashboard)

ClusterRole
(cluster-admin)

RoleBinding
(kubernetes-
dashboard)

ClusterRoleBinding
(kubernetes-dashboard2)

ServiceAccount
(kubernetes-dashboard)

ClusterRoleBinding
(kubernetes-dashboard)

Role
(kubernetes-
dashboard)

Secret
token : dki93kjd

ClusterRole
(kubernetes-dashboard)

Namespace (kubernetes-dashboard)