{KODE{KLOUD

INGRESS

www.my-online-store.com

www.my-online-store.com

http://<node-ip>:38080
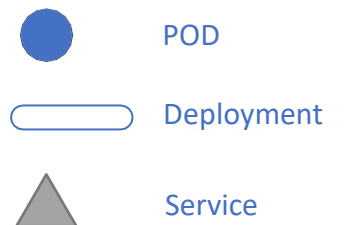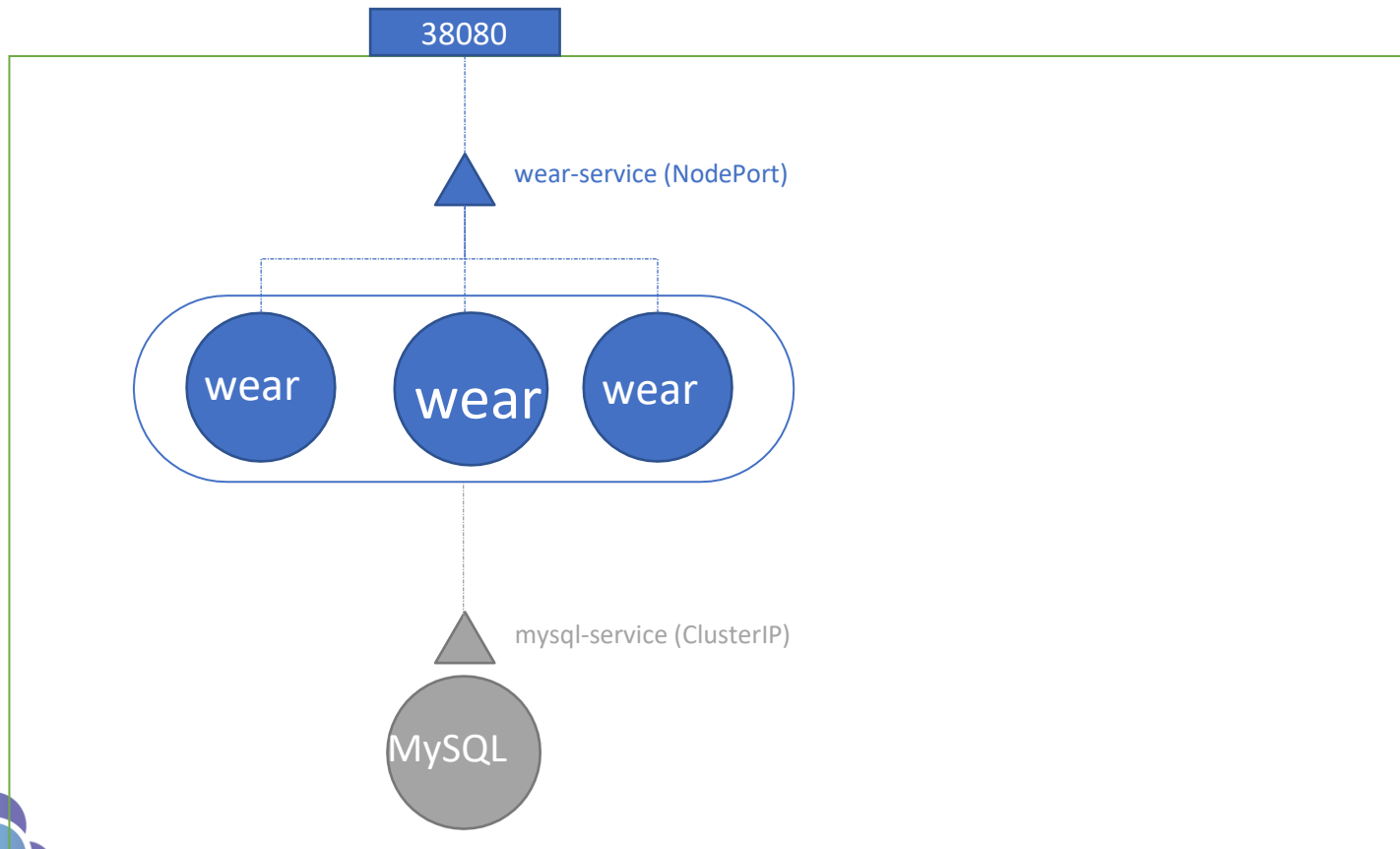
38080

△ wear-service (NodePort)

wear | wear | wear

△ mysql-service (ClusterIP)

MySQL

● POD

▭ Deployment

▲ Service

www.my-online-store.com → <node-ip>

http://my-online-store.com:38080

38080

▲ wear-service (NodePort)

wear   wear   wear

www.my-online-store.com ➡ proxy-server

http://my-online-store.com

80

proxy-server

38080

wear-service (NodePort)

wear wear wear

www.my-online-store.com → <node-ip>
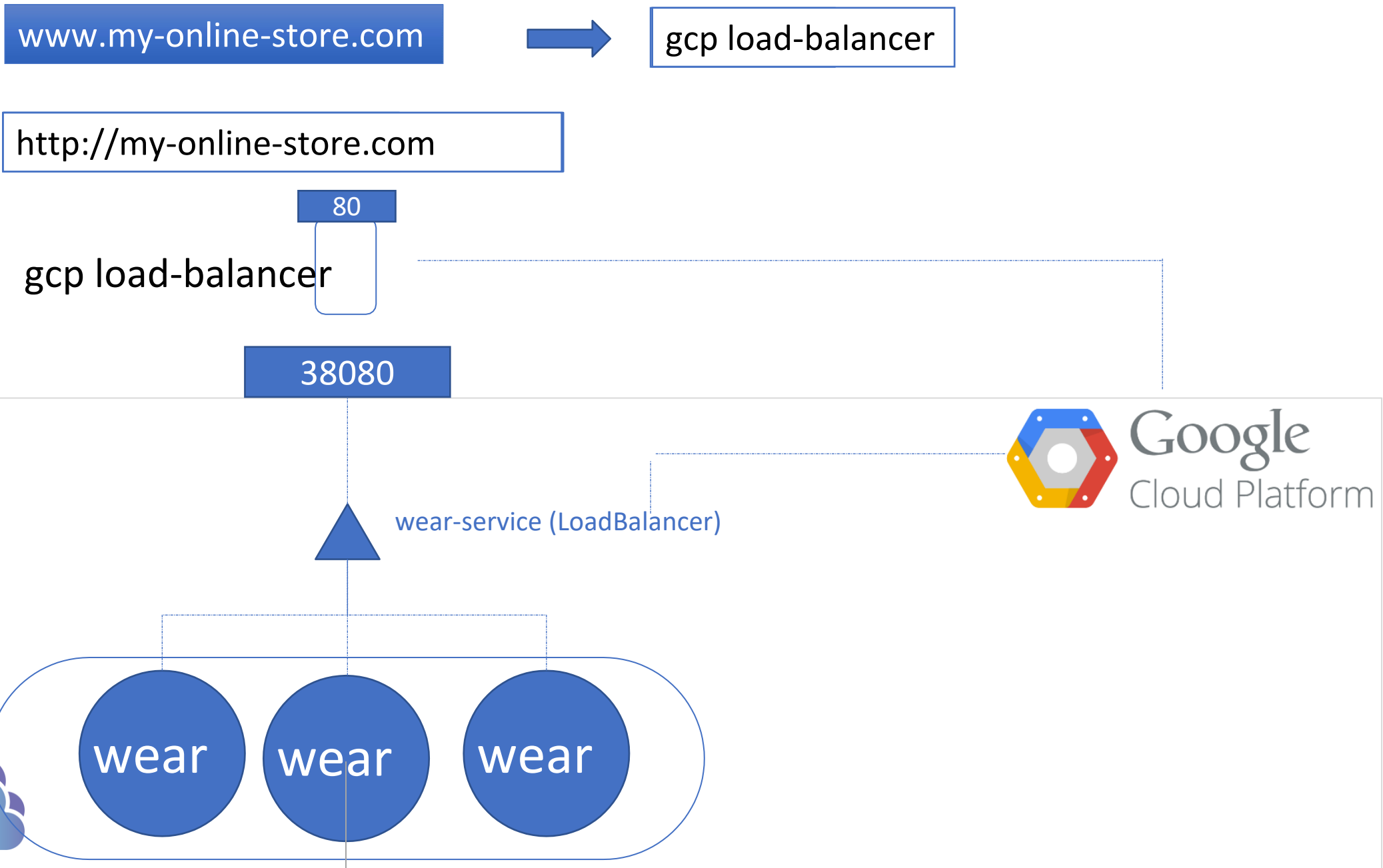
http://my-online-store.com:38080

38080

wear-service (LoadBalancer) (NodePort)
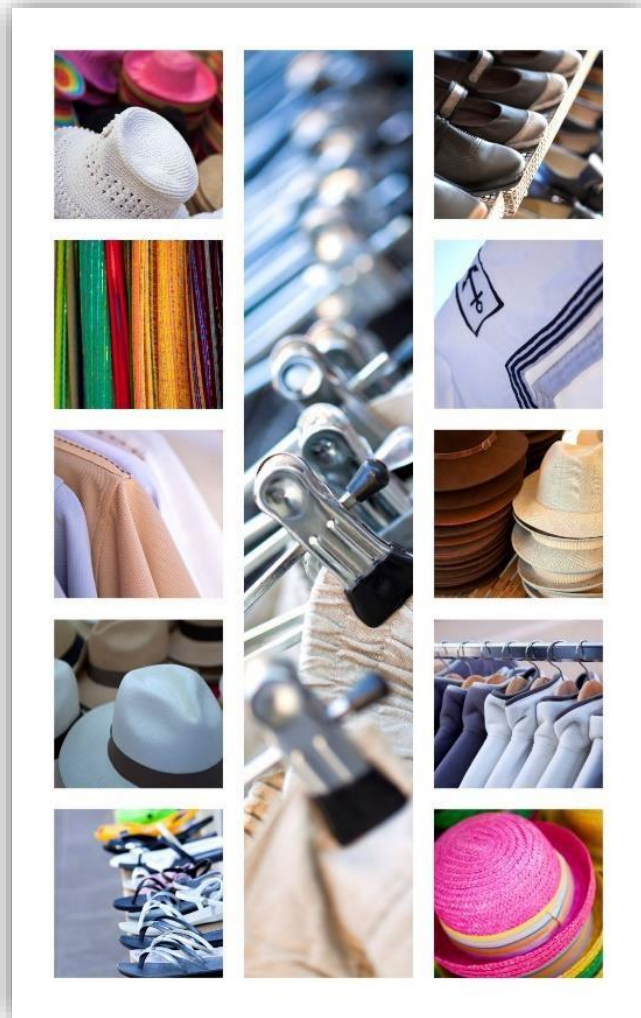
Google Cloud Platform

wear    wear    wear

www.my-online-store.com → gcp load-balancer

http://my-online-store.com

80

gcp load-balancer

38080

wear-service (LoadBalancer)

Google Cloud Platform

wear   wear   wear

www.my-online-store.com/wear www.my-online-store.com/watch

www.my-online-store.com → gcp load-balancer

http://my-online-store.com

gcp load-balancer

gcp load-balancer-2

38080

38282

wear-service (LoadBalancer)

video-service (LoadBalancer)

wear  wear  wear

Video  Video  Video
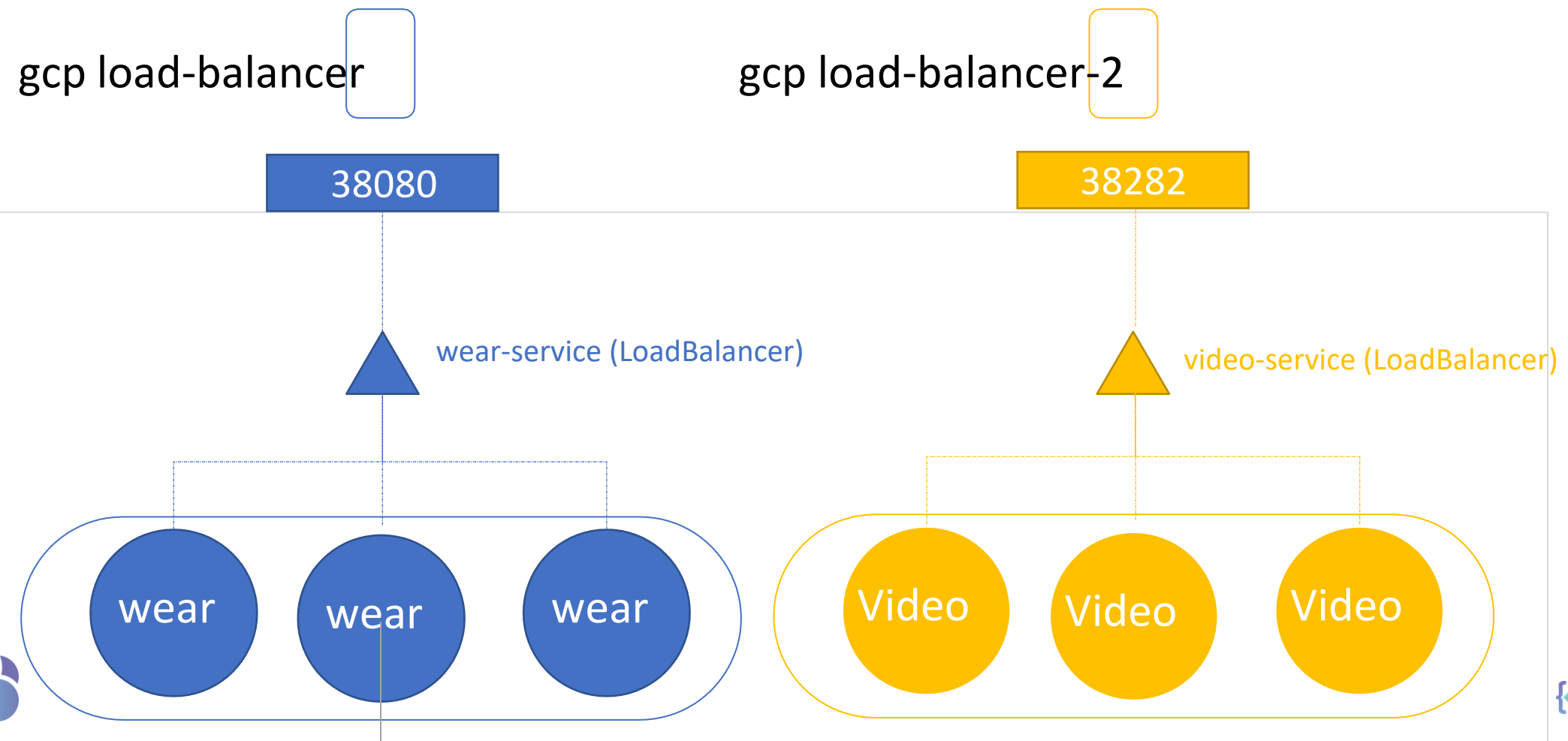
www.my-online-store.com → yet another load-balancer

https://my-online-store.com

yet another load-balancer

/apparel -> gcp load-balancer
/video    -> gcp load-balancer-2

gcp load-balancer

gcp load-balancer-2

380  0

382  2

wear-service (LoadBalancer)

video-service (LoadBalancer)

wear

wear

wear

Video

Video

Video

# Ingress

yet another load-balancer

/apparel -> load-balancer
/video    -> load-balancer-2

load-balancer

load-balancer-2

38080

38282
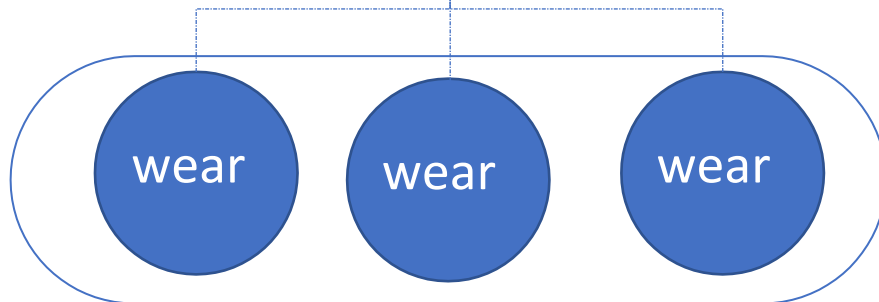
wear-service (LoadBalancer)
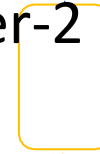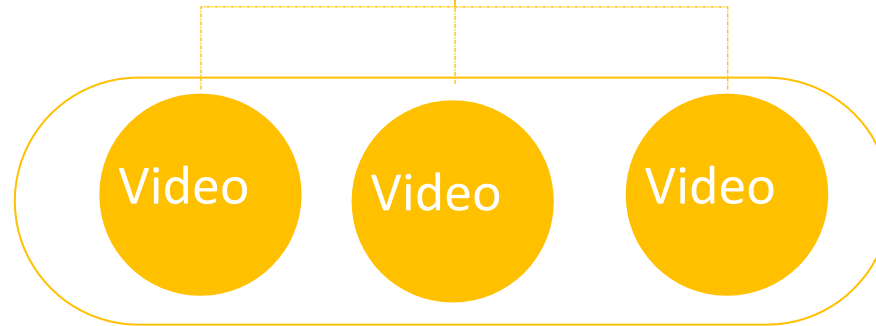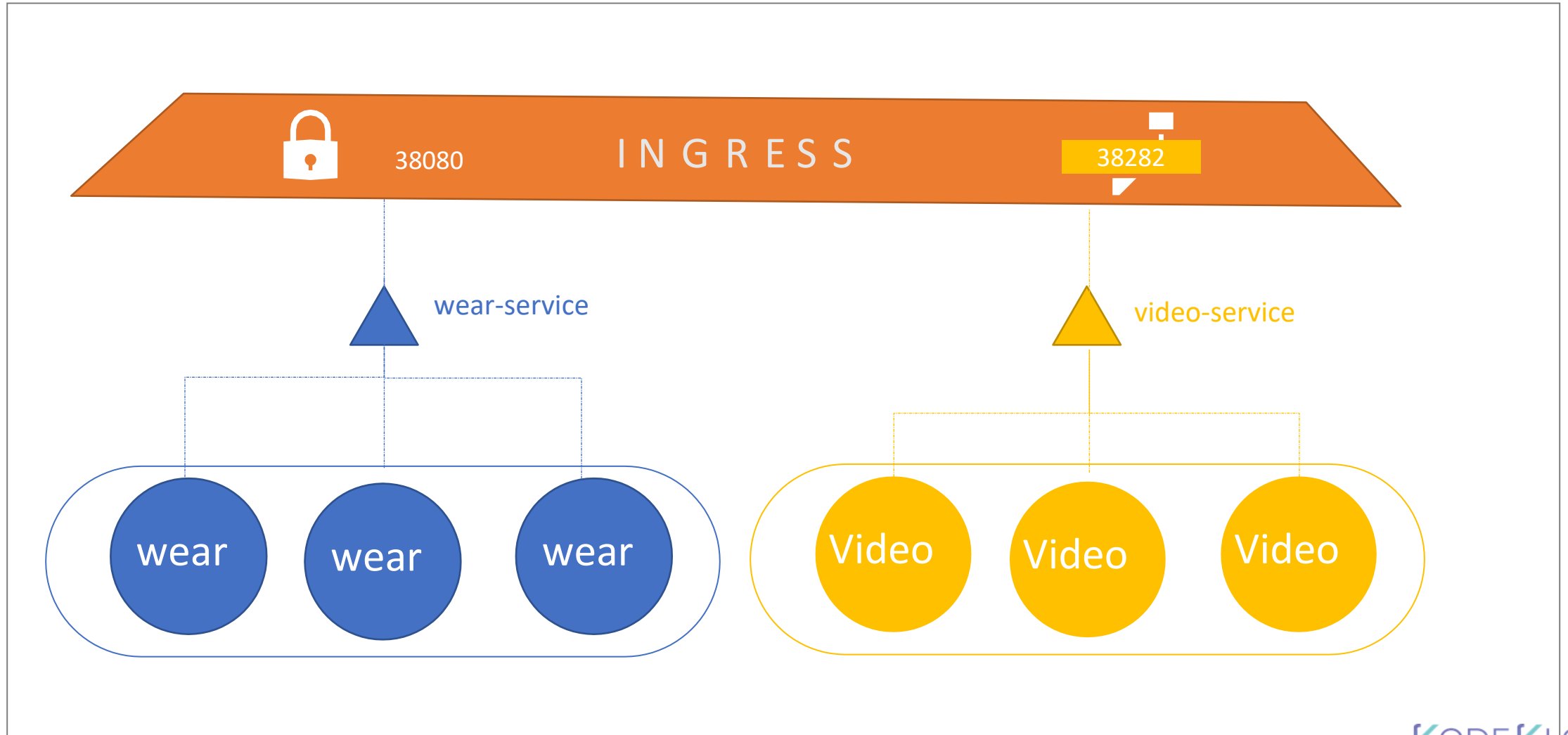
video-service (LoadBalancer)
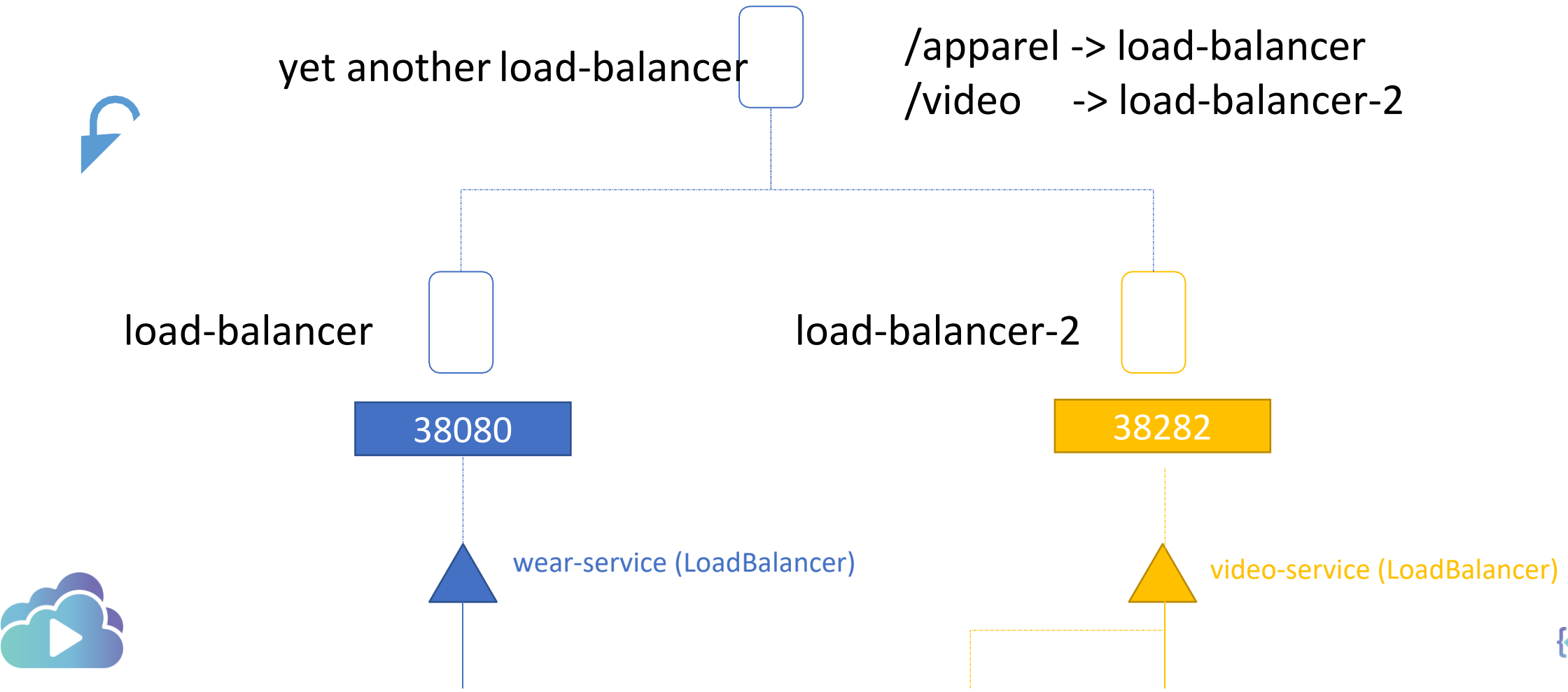
# Ingress

# Ingress
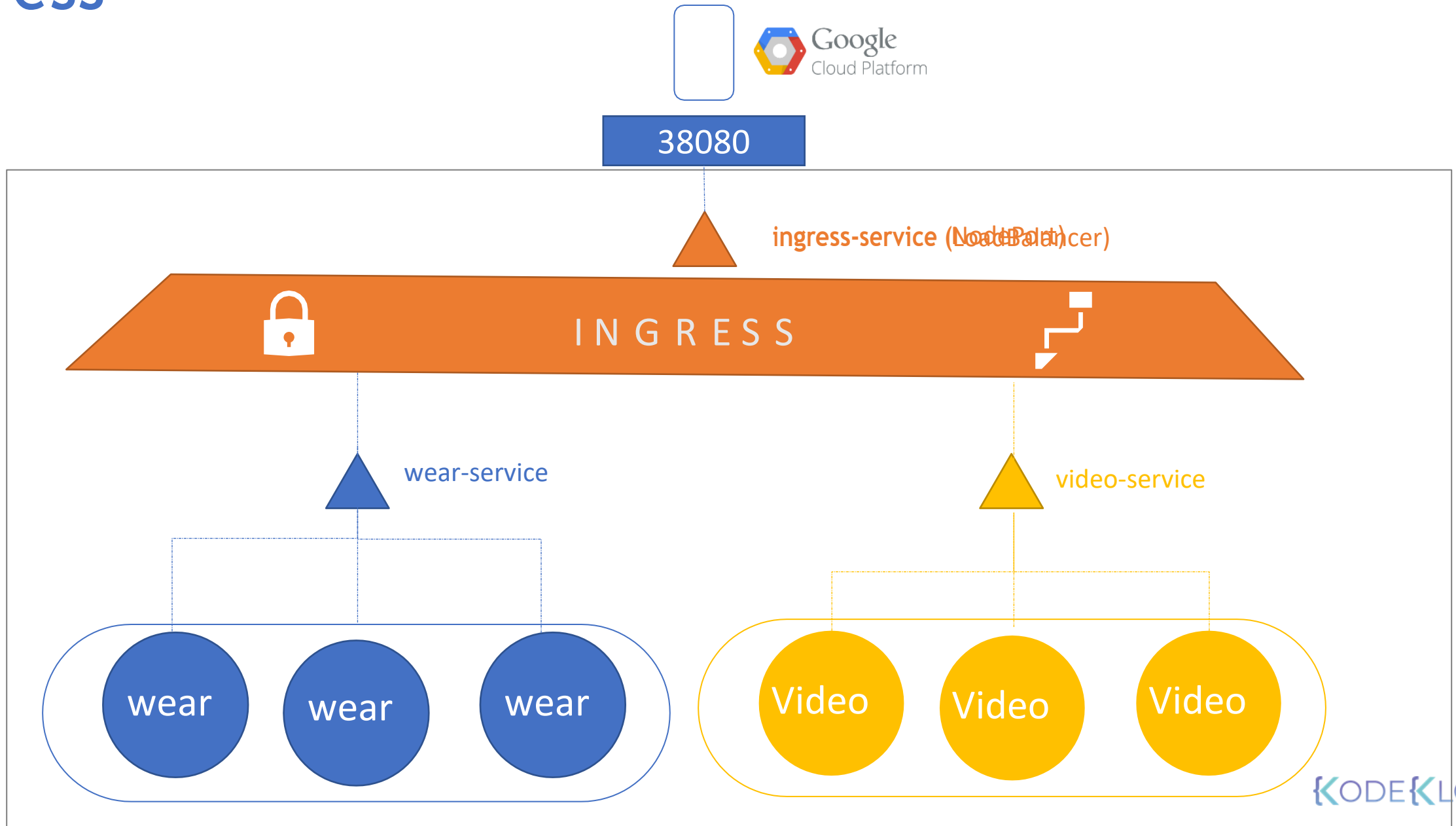
# Ingress



1. Deploy

INGRESS CONTROLLER

+

2. Configure

INGRESS RESOURCES
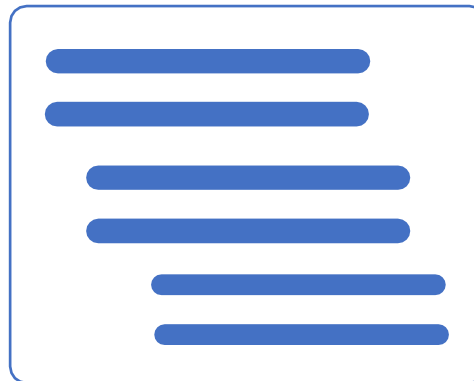
# INGRESS CONTROLLER

**GCP HTTP(S) Load Balancer (GCE)**

N

**Contour**

**HAPROXY**

**traefik**
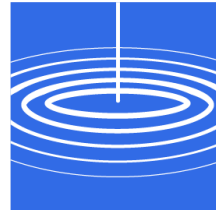
**Istio**

# INGRESS CONTROLLER

ConfigMap

nginx-configuration

```yaml
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

```yaml
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: nginx-ingress-controller
spec:
  replicas: 1
  selector:
    matchLabels:
      name: nginx-ingress
  template:
    metadata:
      labels:
        name: nginx-ingress
    spec:
      containers:
        - name: nginx-ingress-controller
          image:quay.io/kubernetes-ingress-
                controller/nginx-ingress-controller:0.21.0

      args:
        - /nginx-ingress-controller
        - --configmap=$(POD_NAMESPACE)/nginx-configuration
```

# INGRESS CONTROL



ConfigMap

nginx-configuration

```
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

```
name: nginx-ingress-controller
spec:
  replicas: 1
  selector:
    matchLabels:
      name: nginx-ingress
  template:
    metadata:
      labels:
        name: nginx-ingress
    spec:
      containers:
        - name: nginx-ingress-controller
          image:quay.io/kubernetes-ingress-
                controller/nginx-ingress-controller:0.21.0

          args:
            - /nginx-ingress-controller

            - --configmap=$(POD_NAMESPACE)/nginx-configuration

          env:
            - name: POD_NAME
              valueFrom:
                fieldRef:
                  fieldPath: metadata.name
            - name: POD_NAMESPACE
              valueFrom:
                fieldRef:
                  fieldPath: metadata.namespace
```

# INGRESS CONTROL



ConfigMap

nginx-configuration

```
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

```
- name: nginx-ingress-controller
  image: quay.io/kubernetes-ingress-
         controller/nginx-ingress-controller:0.21.0

args:
  - /nginx-ingress-controller

  - --configmap=$(POD_NAMESPACE)/nginx-configuration

env:
  - name: POD_NAME
    valueFrom:
      fieldRef:
        fieldPath: metadata.name
  - name: POD_NAMESPACE
    valueFrom:
      fieldRef:
        fieldPath: metadata.namespace

ports:
  - name: http
    containerPort: 80
  - name: https
    containerPort: 443
```
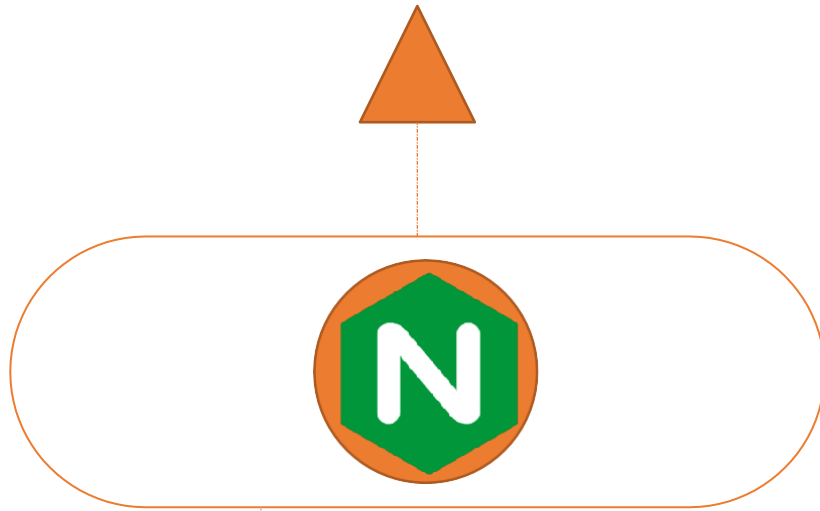
# INGRESS CONTROL

```yaml
          fieldPath: metadata.namespace
      ports:
        - name: http
          containerPort: 80
        - name: https
          containerPort: 443
```

```yaml
apiVersion: v1
kind: Service
metadata:
  name: nginx-ingress
spec:
  type: NodePort
  ports:
  - port: 80
    targetPort: 80
    protocol: TCP
    name: http
  - port: 443
    targetPort: 443
    protocol: TCP
    name: https
  selector:
    name: nginx-ingress
```

ConfigMap

nginx-configuration

```yaml
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

# INGRESS CONTROLLER

```
    protocol: TCP
    name: http
  - port: 443
    targetPort: 443
    protocol: TCP
    name: https
  selector:
    name: nginx-ingress
```

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: nginx-ingress-serviceaccount
```

Roles
ClusterRol
RoleBinding

**ConfigMap**
nginx-configuration

**ServiceAccount**
nginx-ingress-serviceaccount

```
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

# INGRESS CONTROLLER
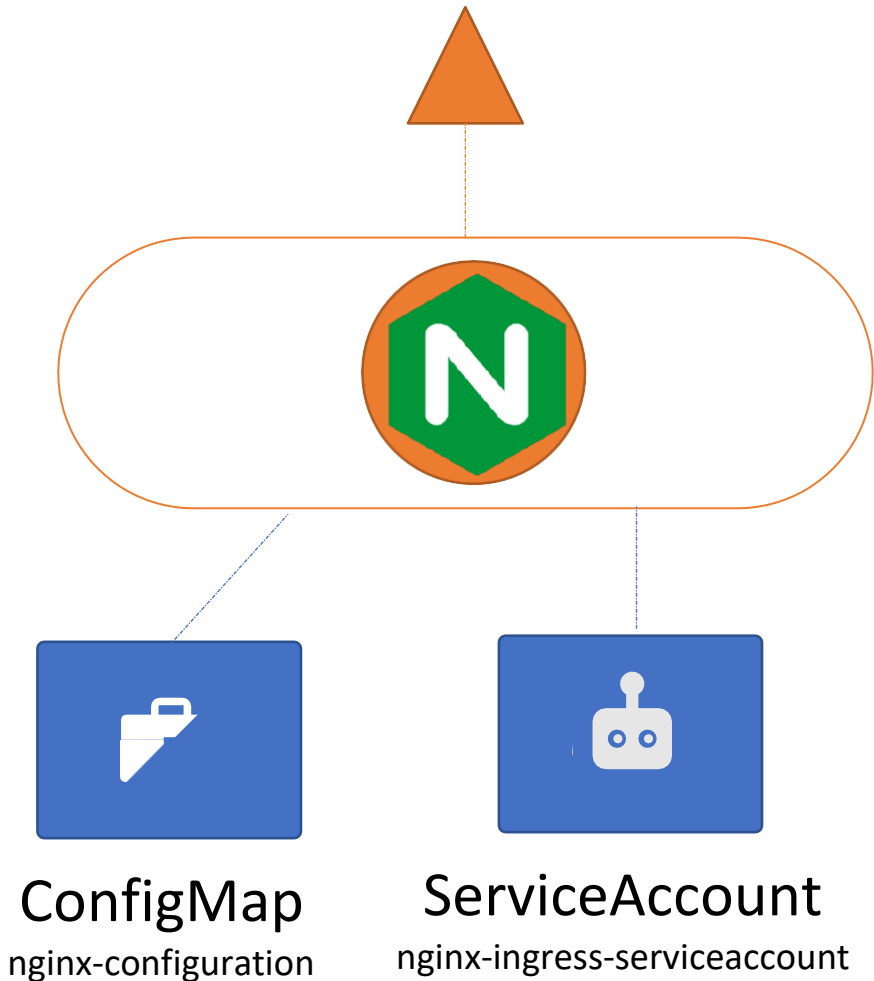


**Deployment**

```
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: nginx-ingress-controller
spec:
  replicas: 1
  selector:
    matchLabels:
      name: nginx-ingress
  template:
    metadata:
      labels:
        name: nginx-ingress
    spec:
      containers:
        - name: nginx-ingress-controller
          image: quay.io/kubernetes-ingress-
              controller/nginx-ingress-controller:0.21.0

      args:
        - /nginx-ingress-controller

        - --configmap=$(POD_NAMESPACE)/nginx-configuration

      env:
        - name: POD_NAME
          valueFrom:
            fieldRef:
              fieldPath: metadata.name
        - name: POD_NAMESPACE
          valueFrom:
            fieldRef:
              fieldPath: metadata.namespace

      ports:
        - name: http
          containerPort: 80
        - name: https
          containerPort: 443
```
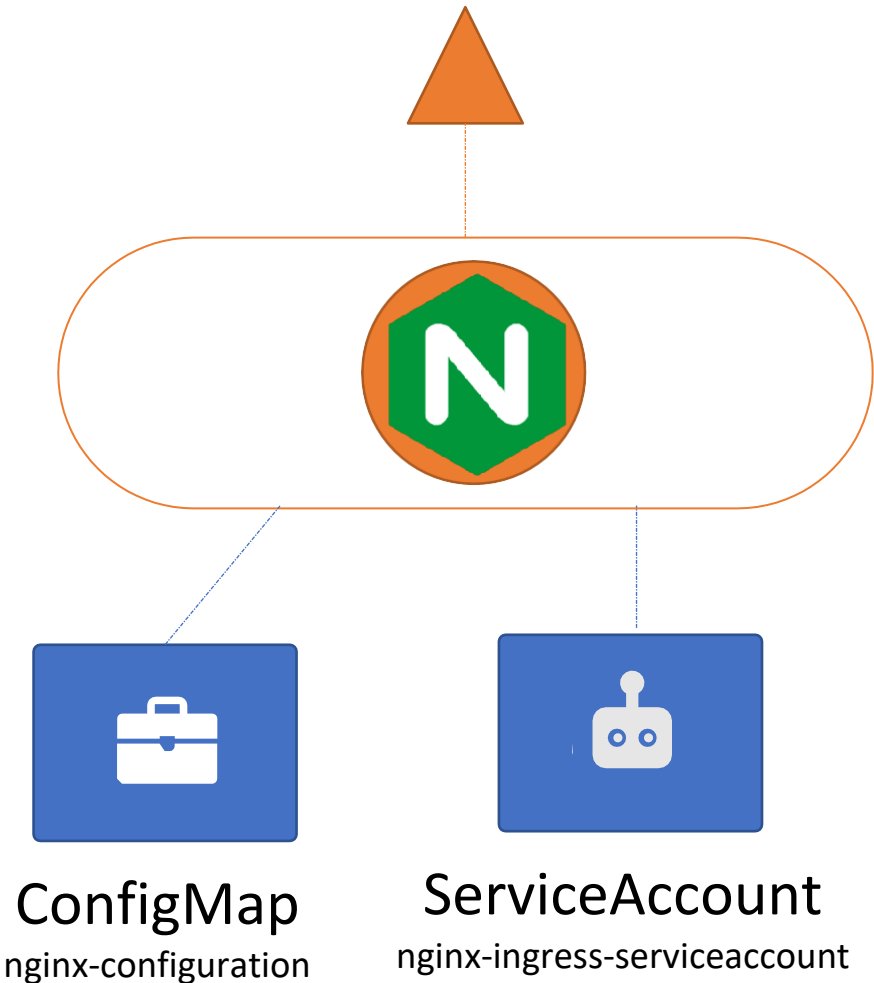
**Service**

```
apiVersion: v1
kind: Service
metadata:
  name: nginx-ingress
spec:
  type: NodePort
  ports:
  - port: 80
    targetPort: 80
    protocol: TCP
    name: http
  - port: 443
    targetPort: 443
    protocol: TCP
    name: https
  selector:
    name: nginx-ingress
```

**ConfigMap**

```
kind: ConfigMap
apiVersion: v1
metadata:
  name: nginx-configuration
```

**Auth**

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: nginx-ingress-serviceaccount
```

ConfigMap

nginx-configuration

ServiceAccount

nginx-ingress-serviceaccount

| Roles | ClusterRoles | RoleBindings |

# INGRESS RESOURCE
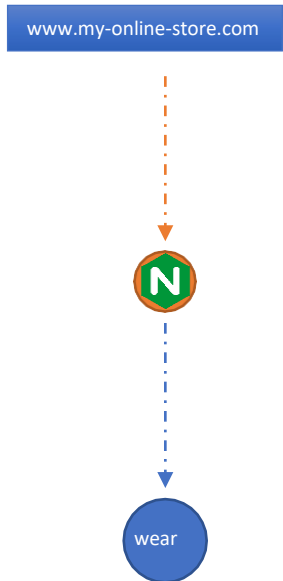


www.my-online-store.com

www.my-online-store.com

/wear    /watch

wear.my-online-store.com

watch.my-online-store.com

wear

wear    VID

wear    VID

# INGRESS RESOURCE

www.my-online-store.com

**N**

wear

**Ingress-wear.yaml**

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
   name: ingress-wear
spec:
```

# INGRESS RESOURCE
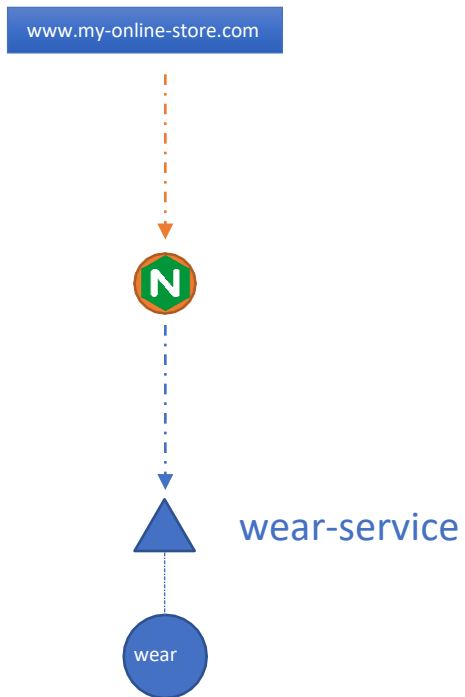
www.my-online-store.com

**N**

wear-service

wear

**Ingress-wear.yaml**

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
    name: ingress-wear
spec:
  backend:
        serviceName: wear-service
        servicePort: 80
```

> kubectl create -f Ingress-wear.yaml

ingress.extensions/ingress-wear created

> kubectl get ingress

ingress-wear          *                    80          2s

# INGRESS RESOURCE - RULES

| www.my-online-store.com | www.wear.my-online-store.com | www.watch.my-online-store.com | Everything Else |
|---|---|---|---|
| Rule 1 | Rule 2 | Rule 3 | Rule 4 |

# INGRESS RESOURCE - RULES

| DNS Name | Forward IP |
|---|---|
| www.my-online-store.com | 10.123.23.12 (INGRESS SERVICE) |
| www.wear.my-online-store.com | 10.123.23.12 |
| www.watch.my-online.store.com | 10.123.23.12 |
| www.my-wear-store.com | 10.123.23.12 |
| www.my-watch-store.com | 10.123.23.12 |

www.my-online-sto...                                                ...ing Else

Rule 1                                                                Rule 4

# INGRESS RESOURCE - RULES

| www.my-online-store.com | www.wear.my-online-store.com | www.watch.my-online-store.com | Everything Else |
|---|---|---|---|

http://www.my-online-store.com/wear

http://www.my-online-store.com/watch

http://www.my-online-store.com/listen

## Rule 1

### Path /wear



### Path /watch



### Path /



| Rule 2 | Rule 3 | Rule 4 |
|---|---|---|

# INGRESS RESOURCE - RULES

| www.my-online-store.com | www.wear.my-online-store.com | www.watch.my-online-store.com | Everything Else |

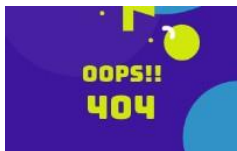| tp://www.my-online-store.com/wear | http://www.wear.my-online-store.com/ |
| tp://www.my-online-store.com/watch | http://www.wear.my-online-store.com/returns |
| tp://www.my-online-store.com/listen | http://www.wear.my-online-store.com/support |

## Rule 1
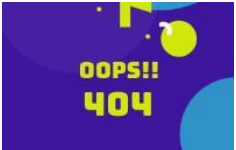
### Path /wear


### Path /watch


### Path /


## Rule 2

### Path /


### Path /returns


### Path /support


## Rule 3

## Rule 4

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# INGRESS RESOURCE - RULES

| www.my-online-store.com | www.wear.my-online-store.com | www.watch.my-online-store.com | Everything Else |
|---|---|---|---|

| http://www.my-online-store.com/wear | http://www.wear.my-online-store.com/ | http://www.watch.my-online-store.com/ |
|---|---|---|
| http://www.my-online-store.com/watch | http://www.wear.my-online-store.com/returns | http://www.watch.my-online-store.com/movies |
| http://www.my-online-store.com/listen | http://www.wear.my-online-store.com/support | http://www.watch.my-online-store.com/tv |

## Rule 1

Path /wear



Path /watch



Path /


OOPS!! 404

## Rule 2

Path /



Path /returns



Path /support



## Rule 3

Path /



Path /movies



Path /tv



## Rule 4

# INGRESS RESOURCE - RULES

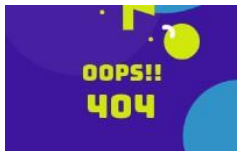| www.my-online-store.com | www.wear.my-online-store.com | www.watch.my-online-store.com | Everything Else |
|---|---|---|---|
| http://www.my-online-store.com/wear | http://www.wear.my-online-store.com/ | http://www.watch.my-online-store.com/ | http://www.listen.my-online-store.com/ |
| http://www.my-online-store.com/watch | http://www.wear.my-online-store.com/returns | http://www.watch.my-online-store.com/movies | http://www.eat.my-online-store.com/ |
| http://www.my-online-store.com/listen | http://www.wear.my-online-store.com/support | http://www.watch.my-online-store.com/tv | http://www.drink.my-online-store.com/tv |

## Rule 1

Path /wear

Path /watch
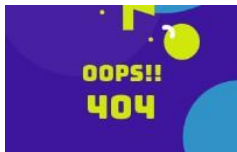
Path /

## Rule 2

Path /

Path /returns

Path /support

## Rule 3

Path /

Path /movies

Path /tv

## Rule 4

Path /

# INGRESS RESOURCE
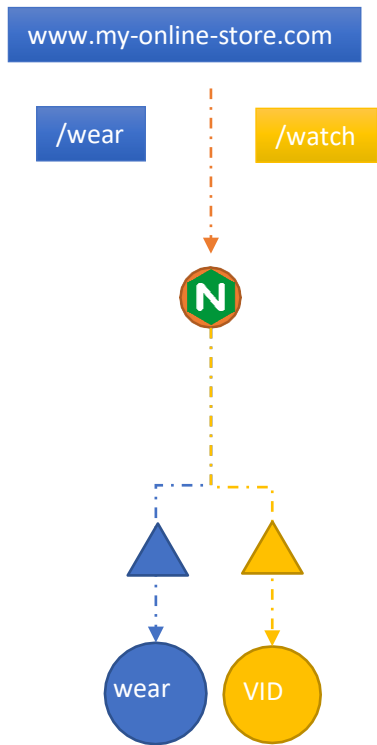
www.my-online-store.com

/wear    /watch

wear    VID

**Ingress-wear.yaml**

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: ingress-wear
spec:
  backend:
    serviceName: wear-service
    servicePort: 80
```

**Ingress-wear-watch.yaml**

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: ingress-wear-watch
spec:
  rules:
  - http:
      paths:
      - path: /wear


      - path: /watch

        backend:
          serviceName: watch-service
          servicePort: 80
```

KODEKLOUD

# INGRESS RESOURCE

```
    kubectl describe ingress ingress-wear-watch

Name:               ingress-wear-watch
Namespace:          default
Address:
Default backend:    default-http-backend:80 (<none>)
Rules:
  Host    Path    Backends
  ----    ----    --------
  *
          /wear      wear-service:80 (<none>)
          /watch     watch-service:80 (<none>)
Annotations:
Events:
  Type       Reason    Age    From                         Message
  ------     ------    ----   ----                         -------
  Normal     CREATE    14s    nginx-ingress-controller     Ingress default/ingress-wear-watch
```

# INGRESS RESOURCE

www.my-online-store.com/eat

www.my-online-store.com/liste

www.my-online-store.com/wear

www.my-online-store.com    www.my-online-store.com/watch



Live Stream

• LIVE

OOPS!!
404

WE ARE NOT
THERE YET. BUT WE
ARE WORKING ON
IT.

KODEKLOUD

# INGRESS RESOURCE

wear.my-online-store.com

watch.my-online-store.com

WEAR

VIDEO

Ingress-wear-watch.yaml

```yaml
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: ingress-wear-watch
spec:

  rules:
  - host: wear.my-online-store.com
    http:
      paths:
      - backend:
          serviceName: wear-service
          servicePort: 80
  - host: watch.my-online-store.com
    http:
      paths:
      - backend:
          serviceName: watch-service
          servicePort: 80
```

# INGRESS RESOURCE

Ingress-wear-watch.yaml

```yaml
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: ingress-wear-watch
spec:
  rules:
  - http:
      paths:
      - path: /wear
        backend:
          serviceName: wear-service
          servicePort: 80
      - path: /watch
        backend:
          serviceName: watch-service
          servicePort: 80
```

Ingress-wear-watch.yaml

```yaml
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: ingress-wear-watch
spec:

  rules:
  - host: wear.my-online-store.com
    http:
      paths:
      - backend:
          serviceName: wear-service
          servicePort: 80
  - host: watch.my-online-store.com
    http:
      paths:
      - backend:
          serviceName: watch-service
          servicePort: 80
```

ServiceAccount
**ingress-serviceaccount**

Deployment
**ingress-controller**

Service
**ingress**

RoleBinding
**ingress-role-binding**

ClusterRoleBinding
**ingress-clusterrole-binding**

ConfigMap
**nginx-configuration**

Role
**ingress-role**

ClusterRole
**ingress-clusterrole**

NameSpace
**Ingress-space**

ServiceAccount
**ingress-serviceaccount**

Deployment
**ingress-controller**

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**ingress**

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**ingress-role-binding**

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**ingress-clusterrole**

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**Ingress-space**