Imagine that, you have deployed your web app on to Kubernetes cluster

Now, you need to expose it outside world on the internet

NodePort Service

Concept

Udemy

Objectives

Concept

a. Why we need?
b. nodePort
c. Port Types
d. Scenarios

Review Demo

a. Manifest file
b. Create and display
c. Test use cases
d. Clean up

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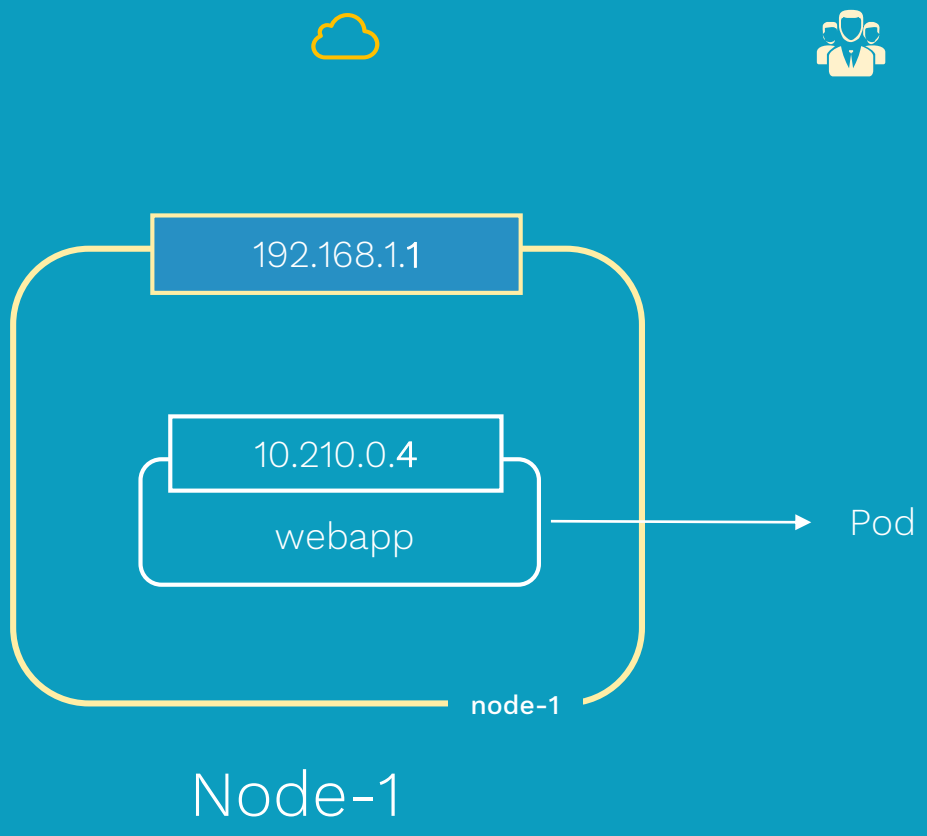
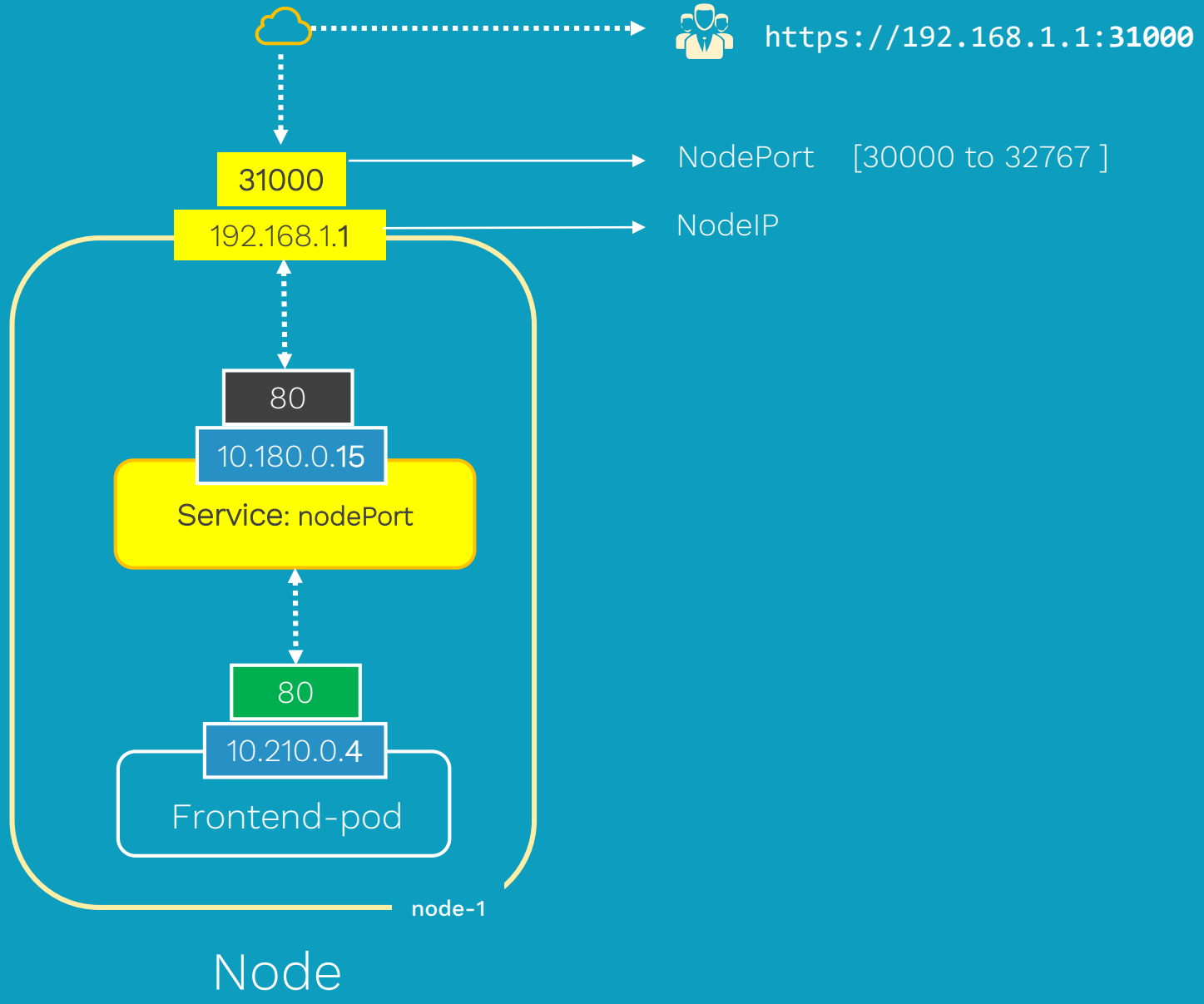
Take a min..



Service Type: NodePort



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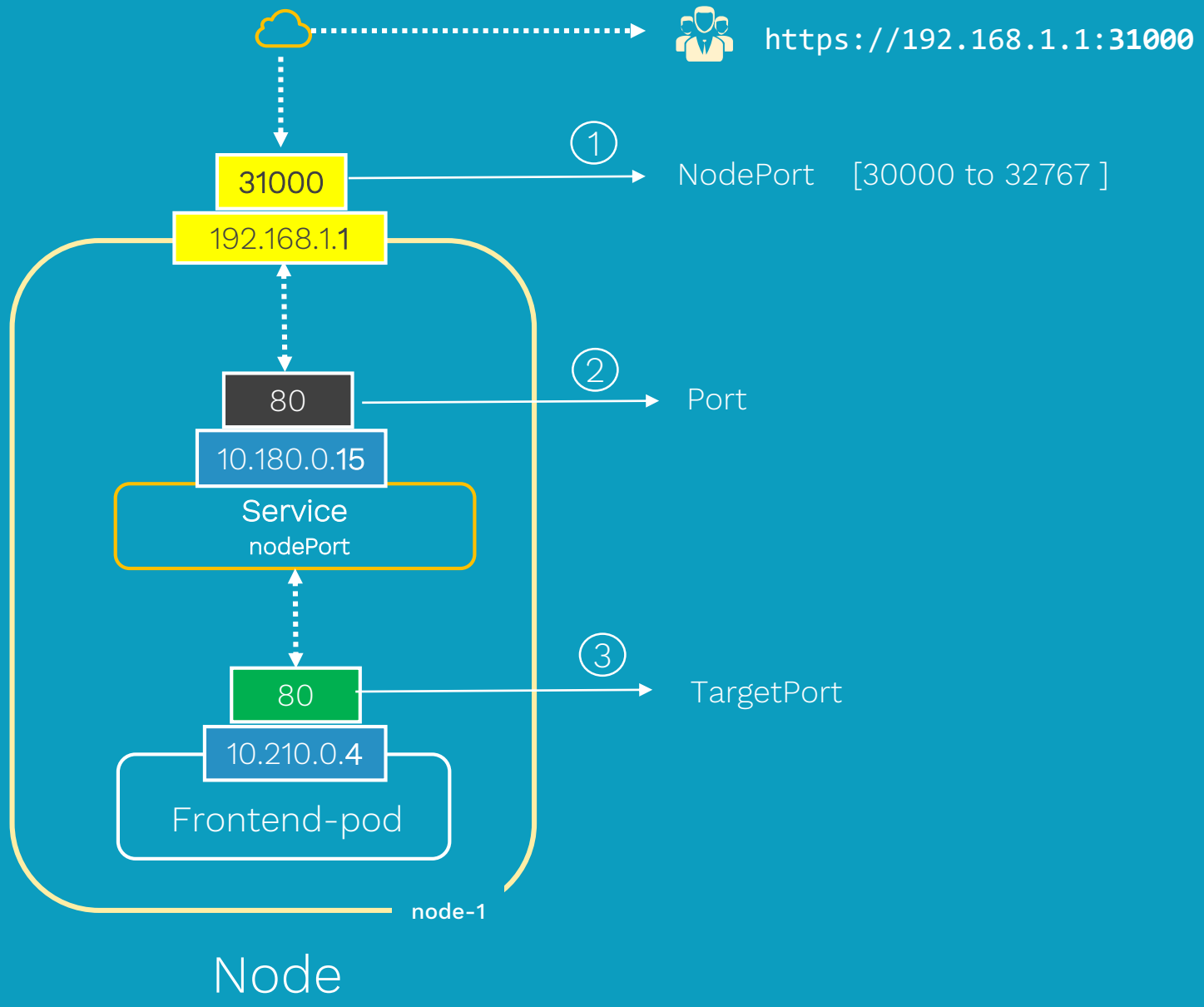
Port Types



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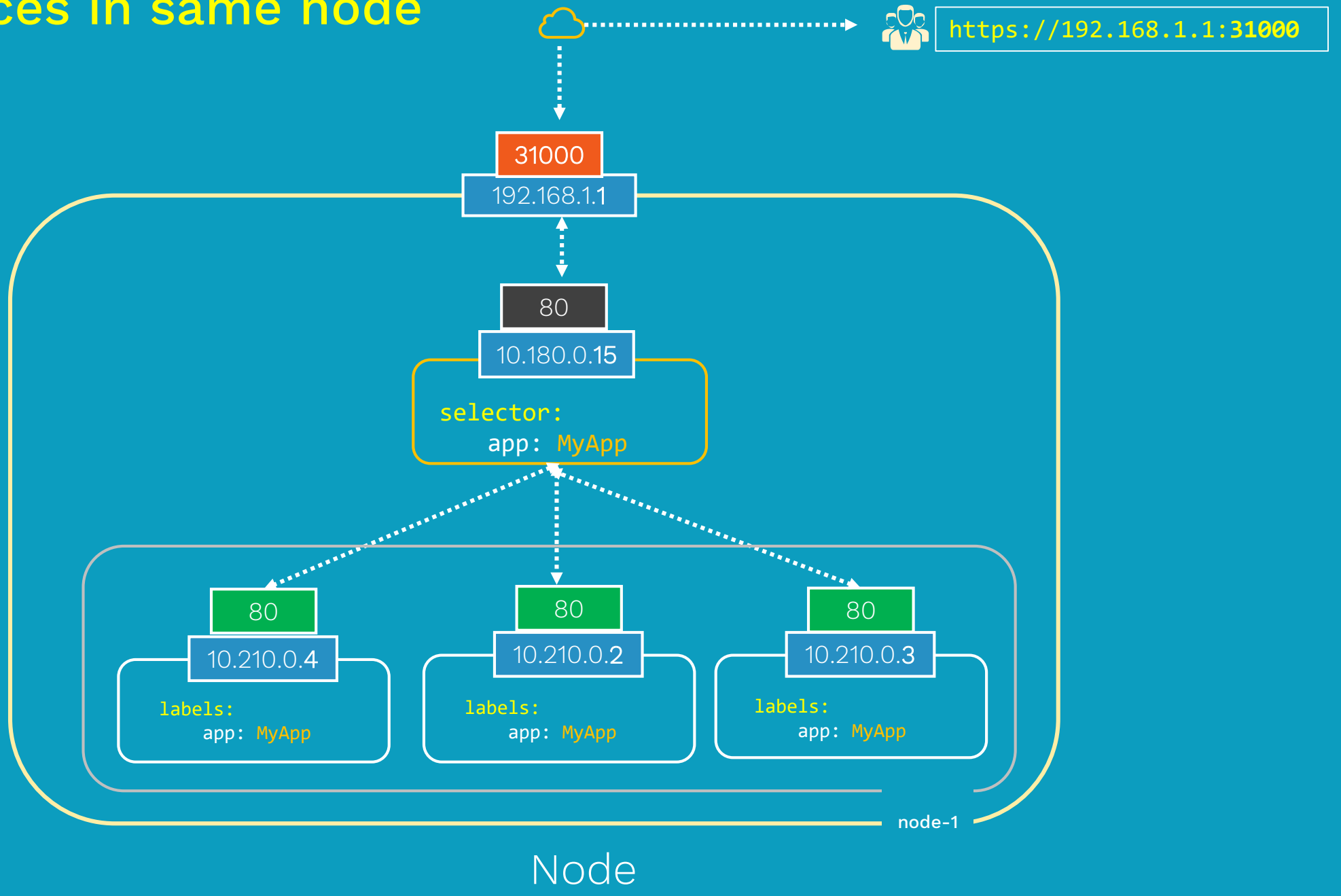
Multi Instances in same node



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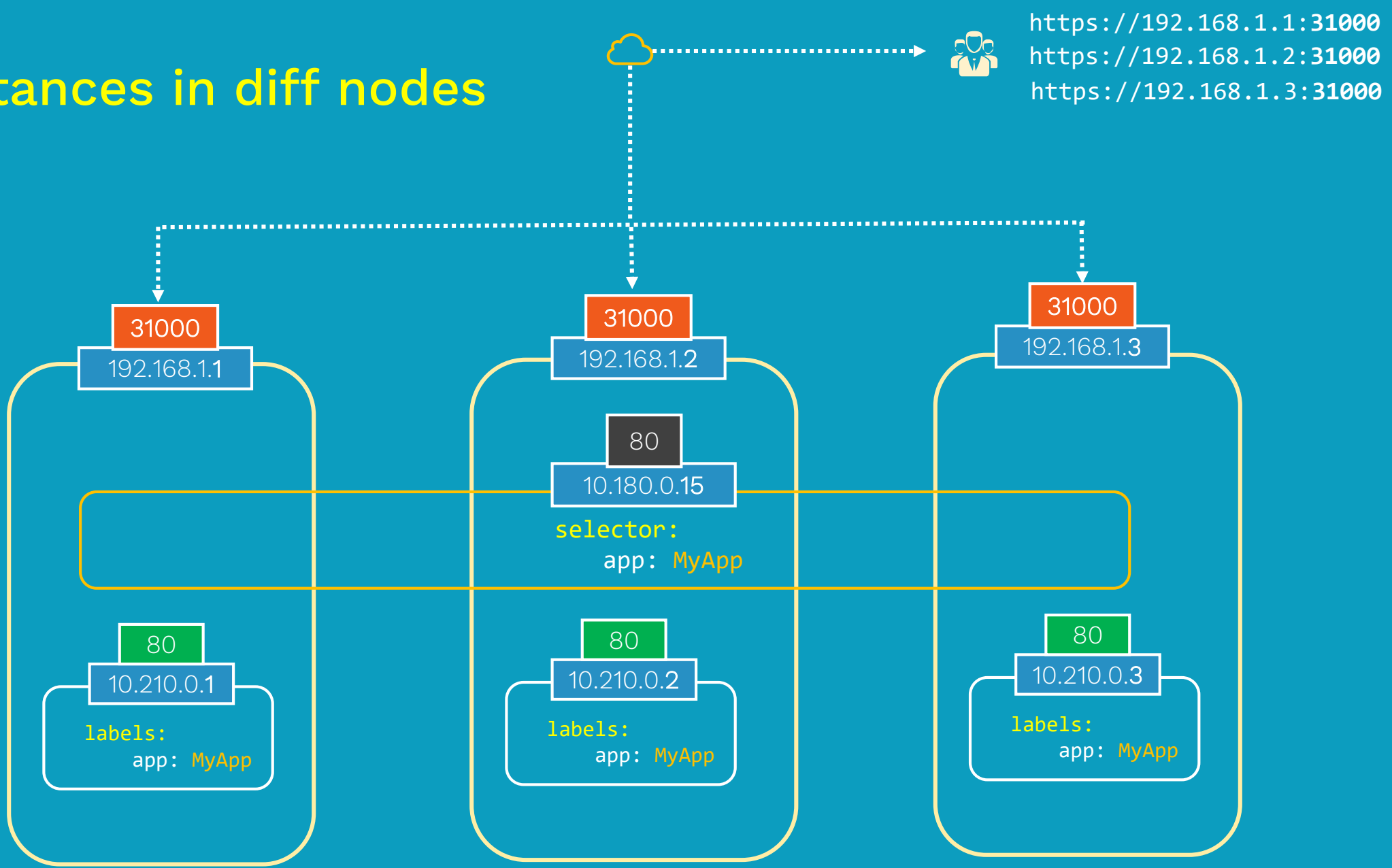
Multi Instances in diff nodes



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Downsides

- You can only have once service per port
- You can only use ports 30000–32767
- If your Node/VM IP address change, you need to deal with that

Review
Demo

a. Manifest file
b. Create objects

d. Display & Validate
e. Clean up

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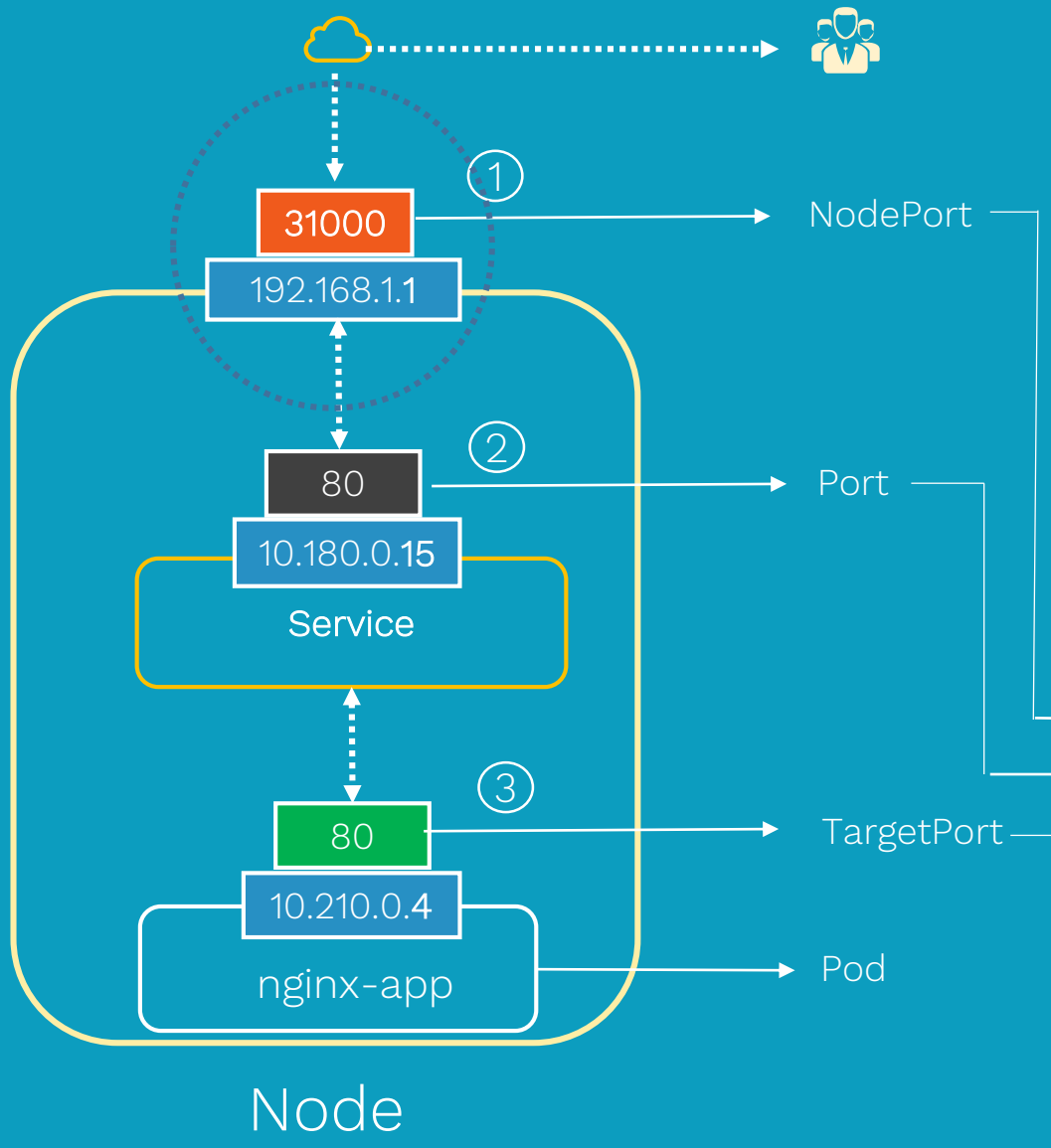
Service Type: NodePort




```yaml
# Service
# nginx-svc-np.yaml
apiVersion: v1
kind: Service
metadata:
  name: my-service
  labels:
    app: nginx-app
spec:
  selector:
    app: nginx-app
  type: NodePort
  ports:
  - nodePort: 31000
    port: 80
    targetPort: 80
```

```yaml
# Deployment
# controllers/nginx-deploy.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx-app
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nginx-app
  template:
    metadata:
      labels:
        app: nginx-app
    spec:
      containers:
      - name: nginx-container
        image: nginx:1.7.9
        ports:
        - containerPort: 80
```

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NodePort – Create & Display

```
[srinath@master ~]$  kubectl create –f nginx-deploy.yaml
deployment.apps/nginx-deployment created
```

```
[srinath@master ~]$ kubectl create -f nginx-svc-np.yaml
service/my-service created
```

```
[srinath@master ~]$ kubectl get service -l app=nginx-app
NAME          TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
my-service    NodePort    10.97.148.44   <none>        80:31000/TCP   14s
```

```
[srinath@master ~]$ kubectl get po -o wide
NAME                                READY     STATUS    RESTARTS   AGE       IP              NODE      NOMINATED NODE
nginx-deployment-c75f4bb64-cgg7g    1/1       Running   0          12m       10.240.2.148    node2     <none>
```

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NodePort – Describe

```
[srinath@master ~]$ kubectl describe svc my-service
Name:                     my-service
Namespace:                default
Labels:                   app=nginx-app
Annotations:              <none>
Selector:                 app=nginx-app
Type:                     NodePort
IP:                       10.97.148.44
Port:                     <unset>  80/TCP
TargetPort:               80/TCP
NodePort:                 <unset>  31000/TCP
Endpoints:                10.240.2.148:80
Session Affinity:         None
External Traffic Policy:  Cluster
Events:                   <none>
[srinath@master ~]$
```

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IPs and Ports

```
[srinath@master ~]$ gcloud compute instances list
NAME                                    ZONE           MACHINE_TYPE   PREEMPTIBLE  INTERNAL_IP  EXTERNAL_IP     STATUS
master                                  us-central1-c  n1-standard-1               10.128.0.3   146.148.106.58  RUNNING
node1                                   us-central1-c  n1-standard-1               10.128.0.5   35.225.164.250  RUNNING
node2                                   us-central1-c  n1-standard-1               10.128.0.7   35.193.47.186   RUNNING
```

Pod IP : TargetPort - http://10.240.2.148:80

ServiceIP : Port - http://10.97.148.44:80

NodeIP : nodePort - http://35.193.47.186:3100

NodePort – Accessing using Pod IP

```
[srinath@master ~]$ kubectl get po -o wide
NAME                                READY     STATUS    RESTARTS   AGE       IP              NODE      NOMINATED NODE
nginx-deployment-c75f4bb64-cgg7g    1/1       Running   0          12m       10.240.2.148    node2     <none>
```

```
[srinath@master ~]$ curl http://10.240.2.148:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
    body {
        width: 35em;
        margin: 0 auto;
        font-family: Tahoma, Verdana, Arial, sans-serif;
    }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
...
```

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NodePort – Accessing using Service IP

```
[srinath@master ~]$ kubectl get svc -l app=nginx-app
NAME         TYPE       CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
my-service   NodePort   10.97.148.44   <none>        80:31000/TCP   14s
```

```
[srinath@master ~]$  curl http://10.97.148.44:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
    body {
        width: 35em;
        margin: 0 auto;
        font-family: Tahoma, Verdana, Arial, sans-serif;
    }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
...
[srinath@master ~]$
```

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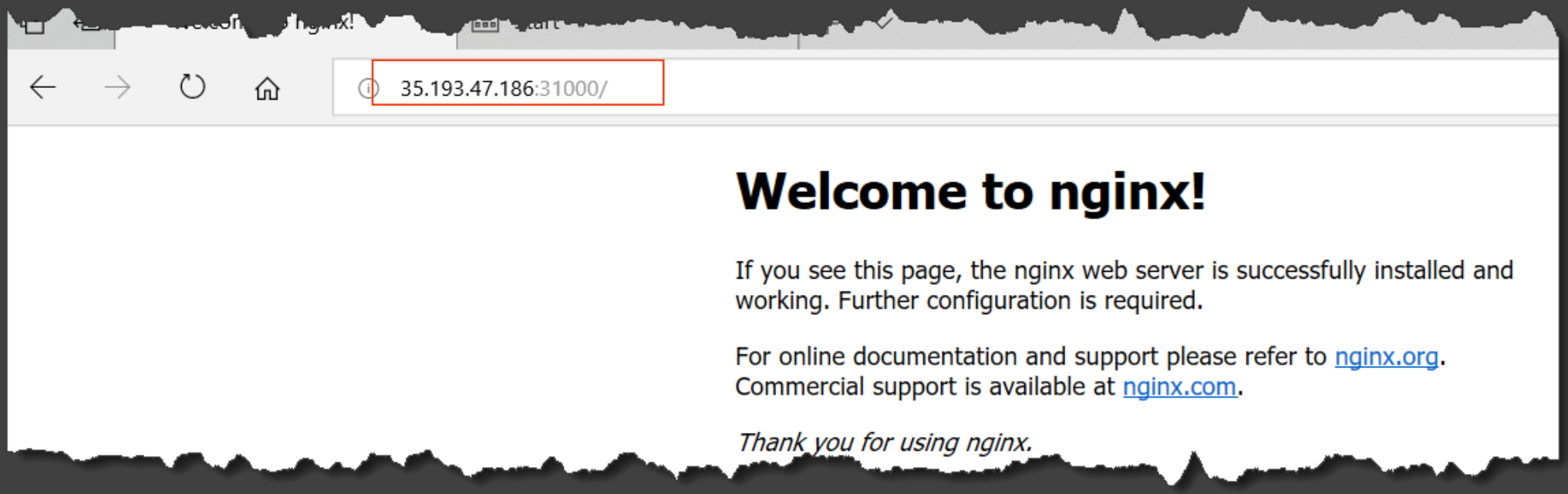
NodePort - Accessing using Node IP (external IP)

```
[srinath@master ~]$ kubectl get po -o wide
NAME                                READY     STATUS    RESTARTS   AGE       IP              NODE      NOMINATED NODE
nginx-deployment-c75f4bb64-cgg7g    1/1       Running   0          12m       10.240.2.148    node2     <none>
```

```
[srinath@master ~]$ gcloud compute instances list
NAME                                    ZONE           MACHINE_TYPE   PREEMPTIBLE  INTERNAL_IP  EXTERNAL_IP      STATUS
master                                  us-central1-c  n1-standard-1               10.128.0.3   146.148.106.58   RUNNING
node1                                   us-central1-c  n1-standard-1               10.128.0.5   35.225.164.250   RUNNING
node2                                   us-central1-c  n1-standard-1               10.128.0.7   35.193.47.186    RUNNING
```



NodePort - Cleanup

```
[srinath@master ~]$ kubectl delete svc my-service
service "my-service" deleted
```

```
[srinath@master ~]$ kubectl get pods
No resources found.
```

Summary

Concept

a. Why we need?
b. nodePort
c. Port Types
d. Scenarios

Review Demo

a. Manifest file
b. Create and display
c. Test use cases
d. Clean up

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Coming up...

Demo

nodePort

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