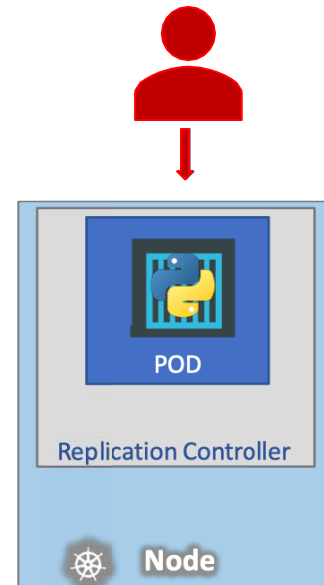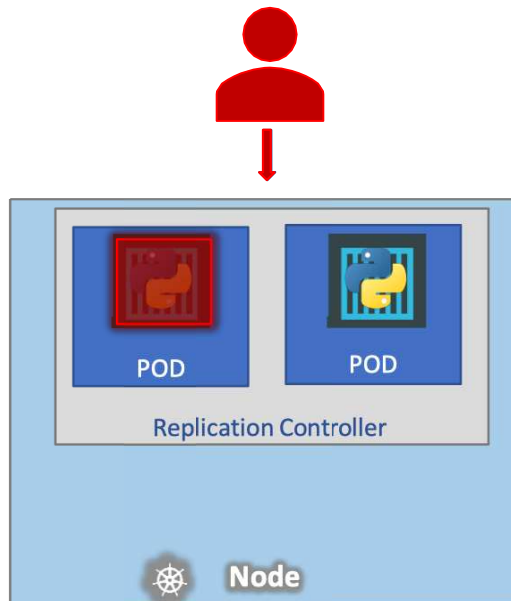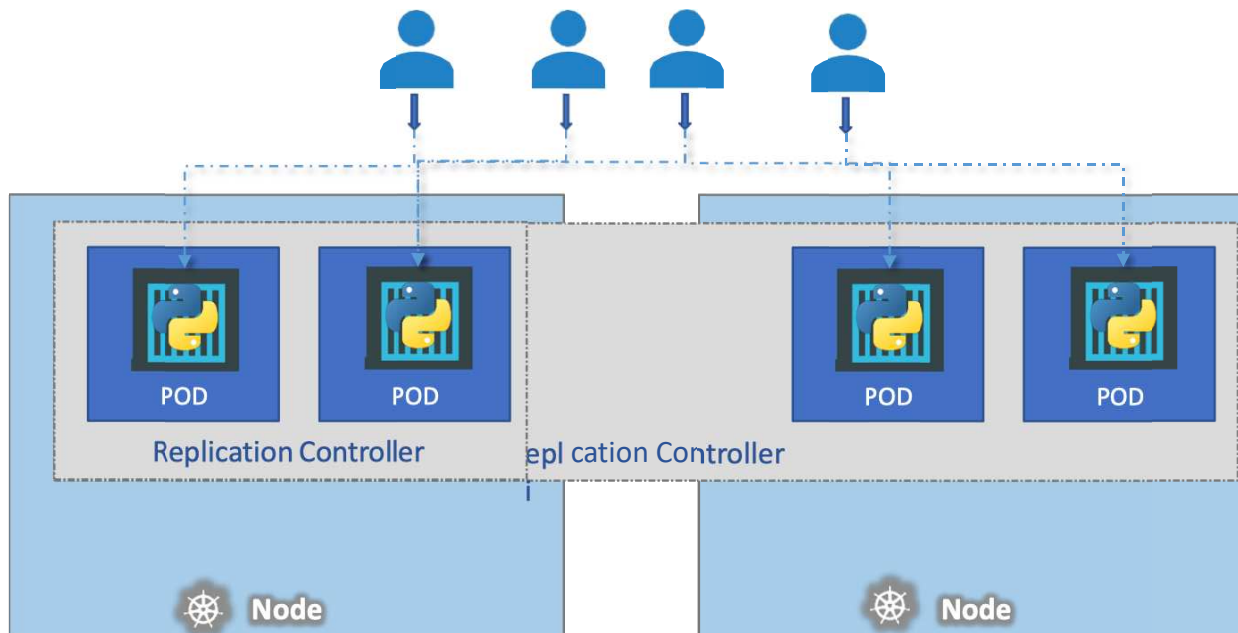# Replication Controller

High Availability

Load Balancing & Scaling

- Replication Controller

Replica Set

```
rc-definition.yml

apiVersion: v1
kind: ReplicationController
metadata:                  ── Replication Controller
  name: myapp-rc
  labels:
    app: myapp
    type: front-end
spec:                      ── Replication Controller
  template:
```

POD ─────── POD

POD

POD ─────── POD

```
  replicas: 3
```

```
pod-definition.yml

apiVersion: v1
kind: Pod

metadata:
  name: myapp-pod
  labels:
    app: myapp
    type: front-end
spec:
  containers:
    - name: nginx-container
      image: nginx
```

```
• > kubectl create –f rc-definition.yml
replicationcontroller "myapp-rc" created
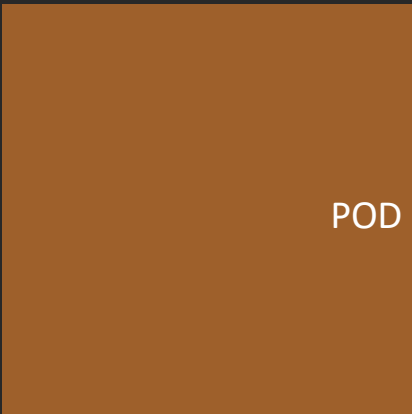```

```
> kubectl get replicationcontroller
NAME        DESIRED   CURRENT   READY   AGE
myapp-rc    3         3         3       19s
```

```
> kubectl get pods
NAME              READY   STATUS    RESTARTS   AGE
myapp-rc-4lvk9    1/1     Running   0          20s
myapp-rc-mc2mf    1/1     Running   0          20s
myapp-rc-px9pz    1/1     Running   0          20s
```

KODEKLOUD

replicaset-definition.yml

```yaml
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: myapp-repl
  labels:
    app: myapp
    type: front-end
spec:
  template:
```

POD

```yaml
  replicas: 3
  selector:
    matchLabels:
      type: front-end
```

pod-definition.yml

```yaml
apiVersion: v1
kind: Pod
    labels:
    app: myapp
    type: front-end
spec:
  containers:
  - name: nginx-container
    image: nginx
```

error: unable to recognize "replicaset-definition.yml": no matches for /, Kind=ReplicaSet

```
• > kubectl create -f replicaset-definition.yml
```
```
replicaset "myapp-replicaset" created
```
```
> kubectl get replicaset
```
```
NAME              DESIRED   CURRENT   READY   AGE
myapp-replicaset  3         3         3       19s
```
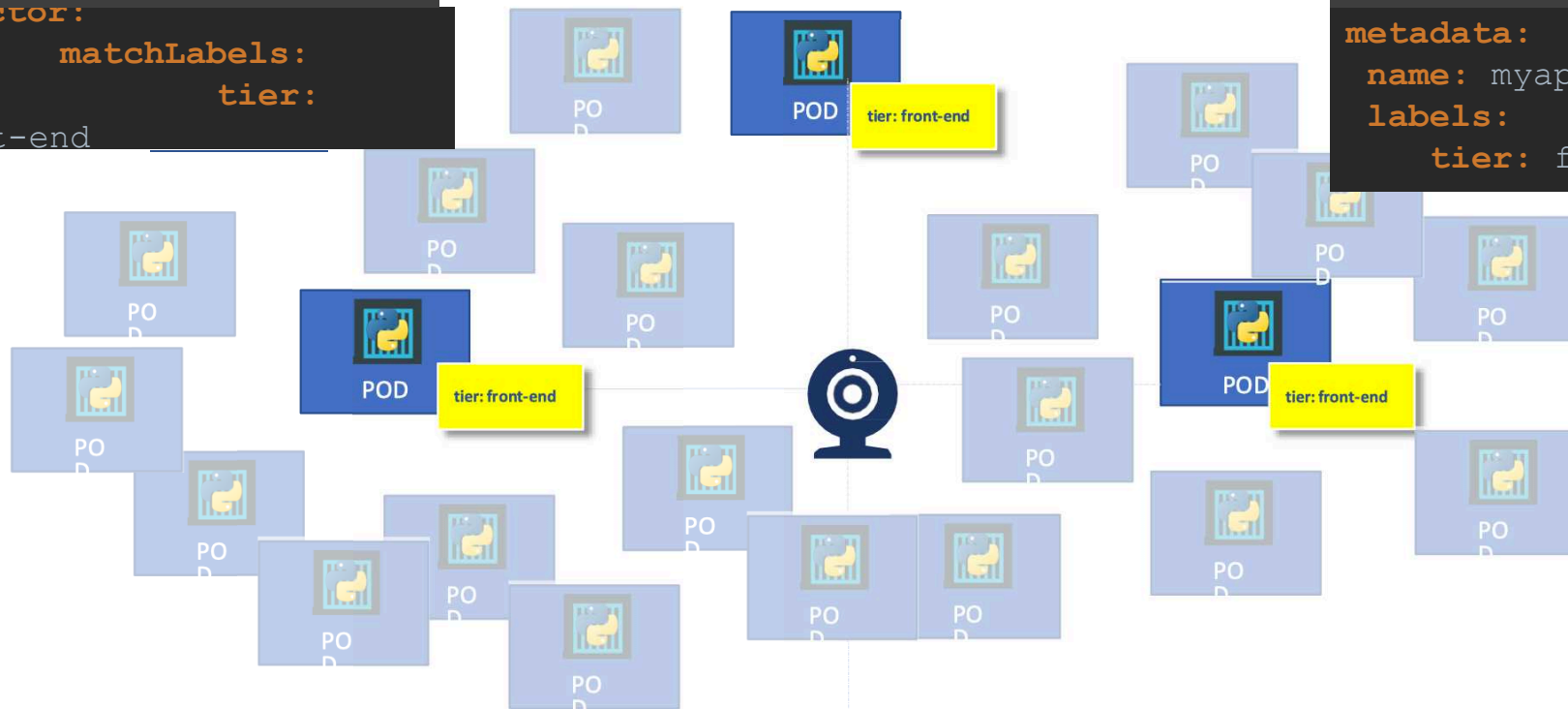```
> kubectl get pods
```
```
NAME   READY   STATUS   RESTARTS   AGE
myapp-replicaset-9ddl9 1/1   Running   0   45s
myapp-replicaset-9jtpx 1/1   Running   0   45s
myapp-replicaset-hq84m 1/1   Running   0   45s
```

Labels and Selectors


```
replicaset-definition.yml
selector:
        matchLabels:
                tier:
front-end
```
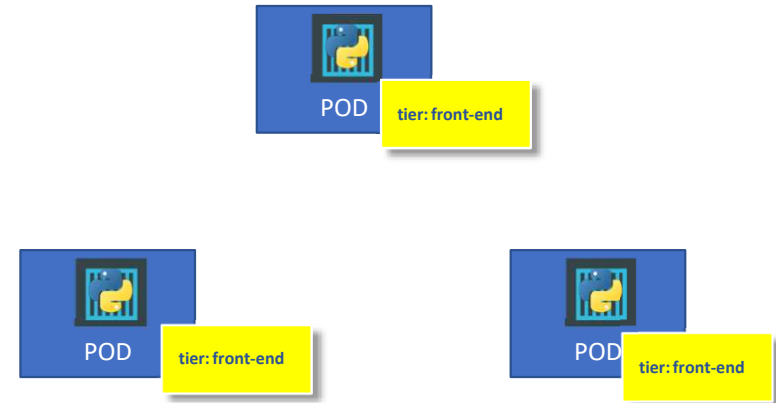
```
pod-definition.yml
metadata:
  name: myapp-pod
  labels:
        tier: front-end
```

tier: front-end

tier: front-end

tier: front-end

KODEKLOUD

```
replicaset-definition.yml

apiVersion: apps/v1
kind: ReplicaSet
metadata:
 name: myapp-replicaset
 labels:
     app: myapp
     type: front-end
spec:
  template:
    metadata:
     name: myapp-pod
     labels:
         app: myapp
         type: front-end
     spec:
       containers:
       - name: nginx-container
         image: nginx

 replicas: 3
 selector:
    matchLabels:
        type: front-end
```

Template

POD   tier: front-end

POD   tier: front-end

POD   tier: front-end

KODEKLOUD

Scale

```
> kubectl replace -f replicaset-definition.yml
```

```
> kubectl scale --replicas=6 -f replicaset-definition.yml
```

```
> kubectl scale --replicas=6 replicaset myapp-replicaset
```
            TYPE   NAME

replicaset-definition.yml

```yaml
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: myapp-replicaset
  labels:
      app: myapp
      type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
          app: myapp
          type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 6
  selector:
    matchLabels:
        type: front-end
```

commands

```
> kubectl create –f replicaset-definition.yml
```

```
> kubectl get replicaset
```

```
> kubectl delete replicaset myapp-replicaset
```
*Also deletes all underlying PODs

```
> kubectl replace -f replicaset-definition.yml
```
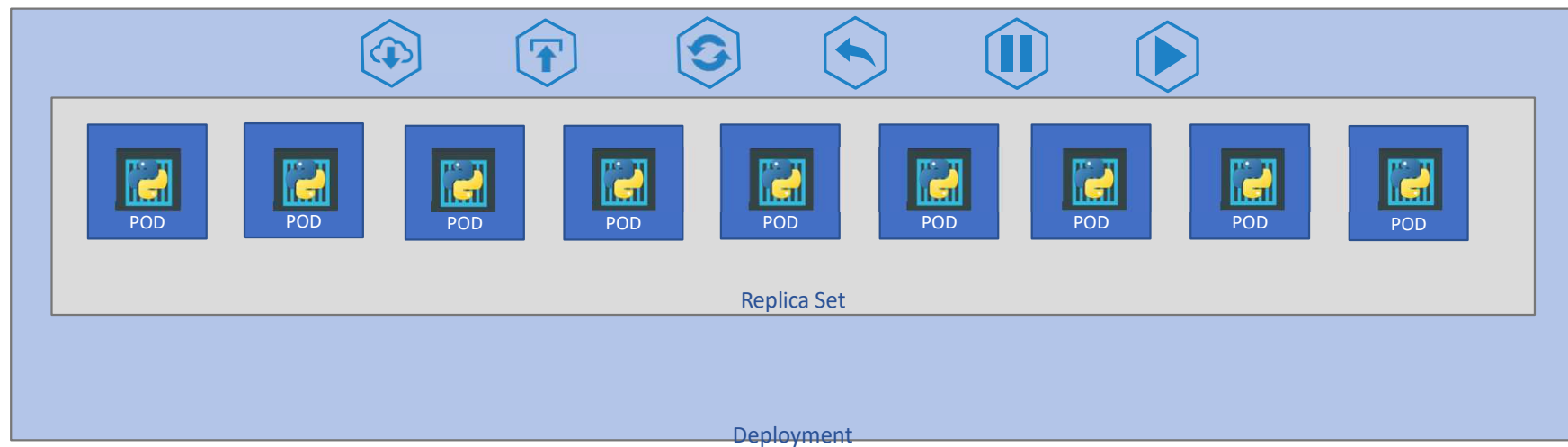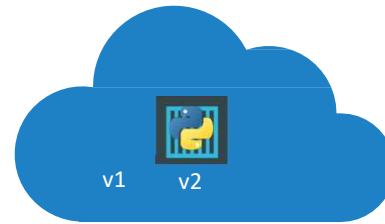
```
> kubectl scale --replicas=6 -f replicaset-definition.yml
```

Deployment

Deployment

v1   v2

POD   POD   POD   POD   POD   POD   POD   POD   POD

Replica Set

Deployment

KODEKLOUD

Definition

```
> kubectl create –f deployment-definition.yml
deployment "myapp-deployment" created
```

```
> kubectl get deployments
NAME                DESIRED    CURRENT    UP-TO-DATE    AVAILABLE    AGE
myapp-deployment    3          3          3             3            21s
```

```
> kubectl get replicaset
NAME                        DESIRED    CURRENT    READY    AGE
myapp-deployment-6795844b58    3          3          3        2m
```

```
> kubectl get pods
NAME                              READY    STATUS     RESTARTS    AGE
myapp-deployment-6795844b58-5rbjl    1/1      Running    0           2m
myapp-deployment-6795844b58-h4w55    1/1      Running    0           2m
myapp-deployment-6795844b58-lfjhv    1/1      Running    0           2m
```

deployment-definition.yml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
  labels:
    app: myapp
    type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
        app: myapp
        type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 3
  selector:
    matchLabels:
      type: front-end
```

KODEKLOUD

commands

```
> kubectl get all

NAME                          DESIRED   CURRENT   UP-TO-DATE   AVAILABLE   AGE
deploy/myapp-deployment       3         3         3            3           9h

NAME                          DESIRED   CURRENT   READY     AGE
rs/myapp-deployment-6795844b58  3       3         3         9h

NAME                                   READY     STATUS    RESTARTS   AGE
po/myapp-deployment-6795844b58-5rbjl   1/1       Running   0          9h
po/myapp-deployment-6795844b58-h4w55   1/1       Running   0          9h
po/myapp-deployment-6795844b58-lfjhv   1/1       Running   0          9h
```