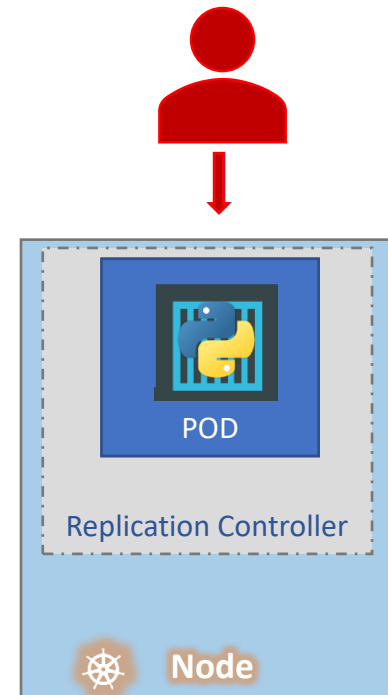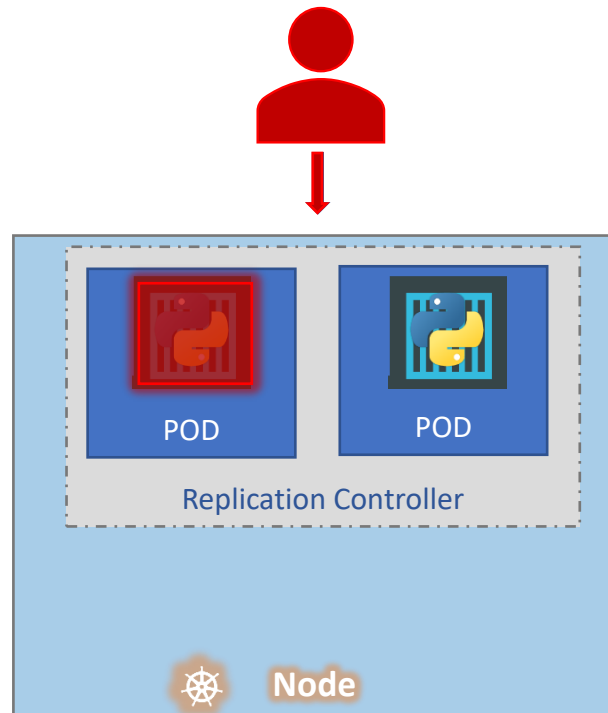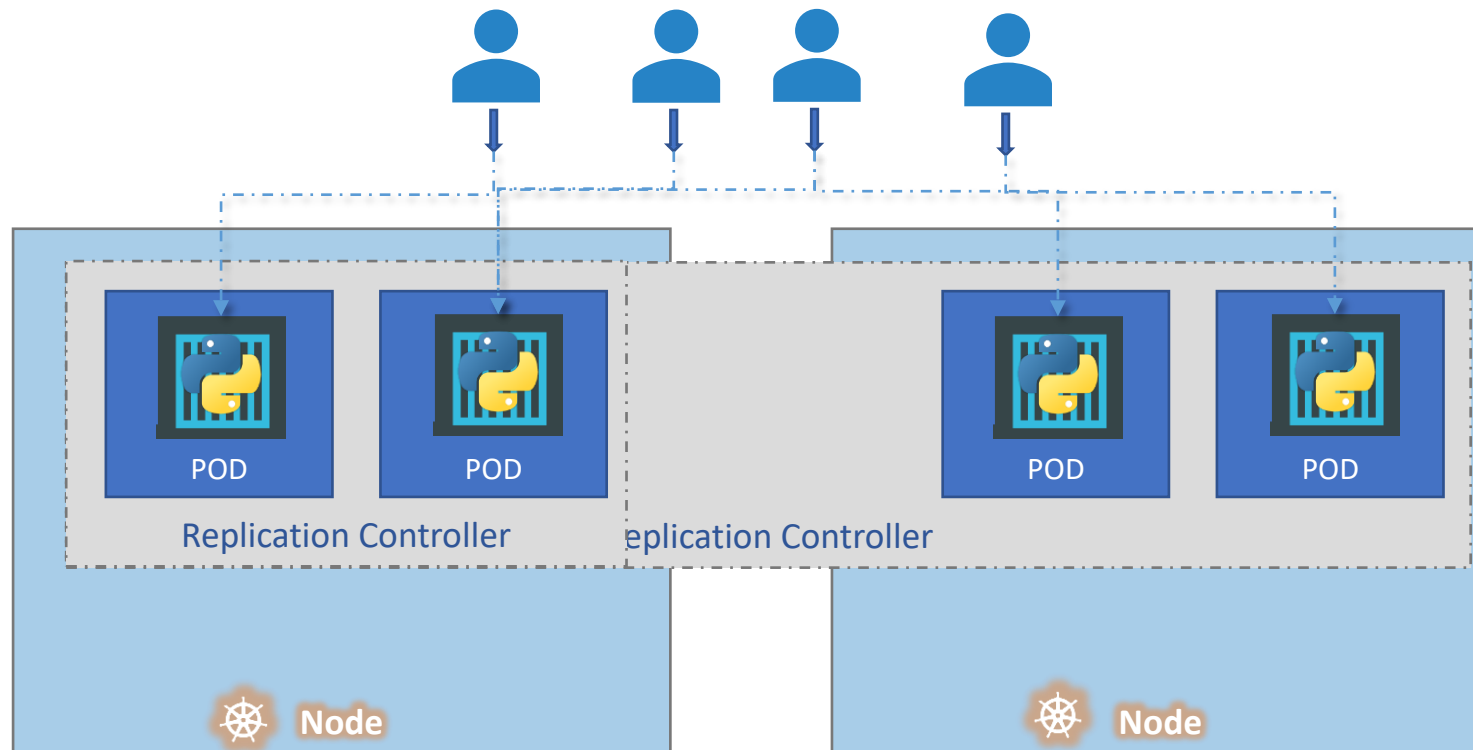KODEKLOUD

Replication Controller

High Availability

Load Balancing & Scaling

- Replication Controller

Replica Set

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

POD

```
replicas: 3
```

```
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

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

spec:
  template:
```

```
                    POD
```

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

pod-definition.yml

```
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
```
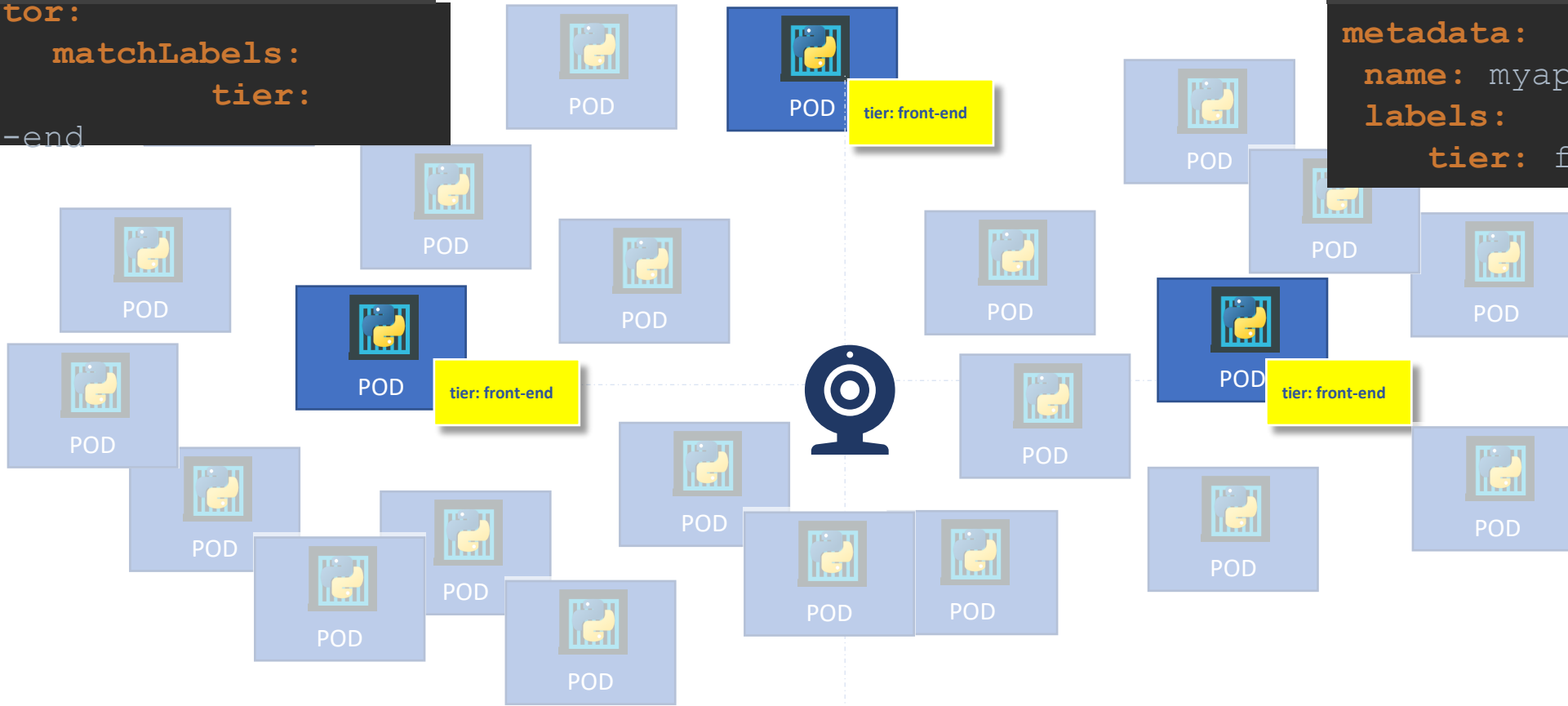
Labels and Selectors


```
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
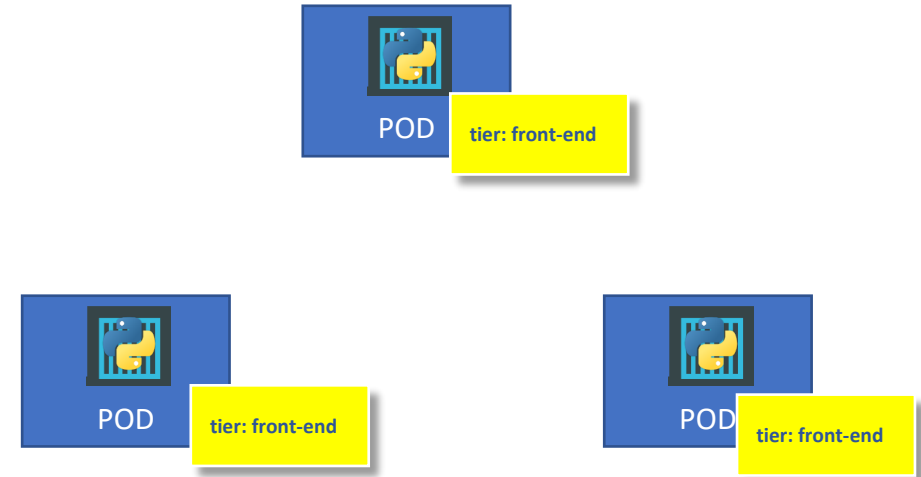
Scale

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

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

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

```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
```

KODEKLOUD

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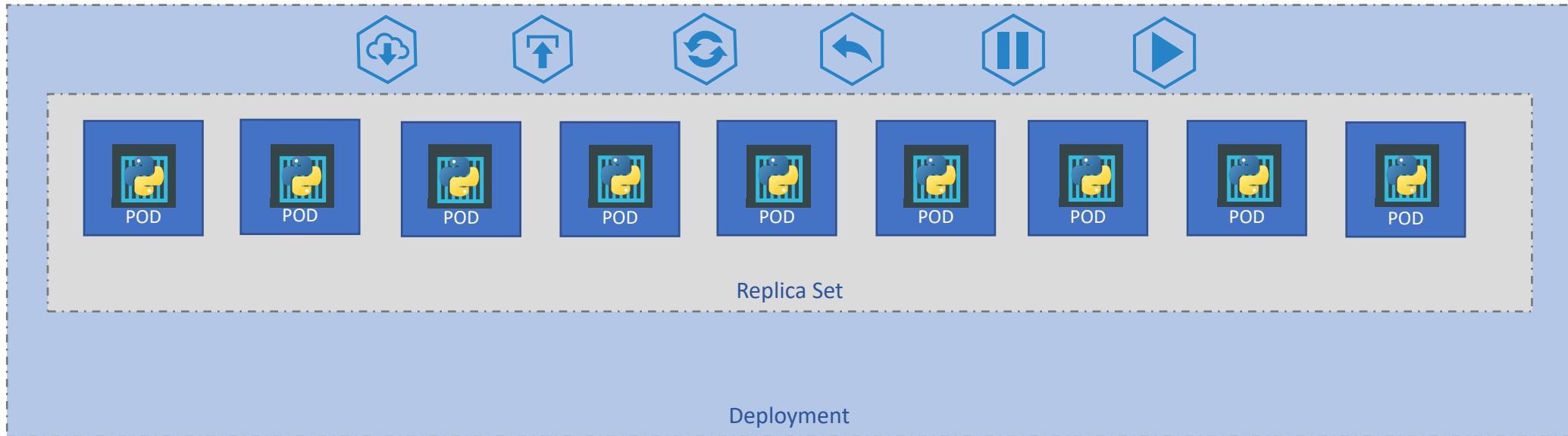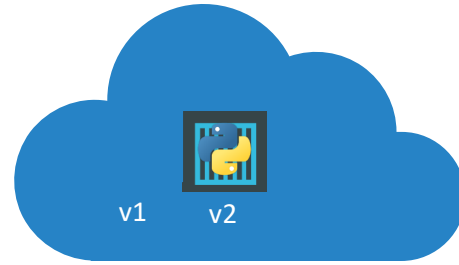
```
> kubectl scale –replicas=6 -f replicaset-definition.yml
```

Deployment

Deployment

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
```

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
```