

A Very Brief Introduction to Kubernetes



Marcus Noble

 @Marcus_Noble_

“Production-Grade Container Orchestration”



“Production-Grade Container Orchestration”

“Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications.”



“Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications.”



Think of Kubernetes as the captain
of a container ship

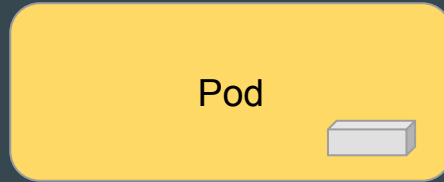




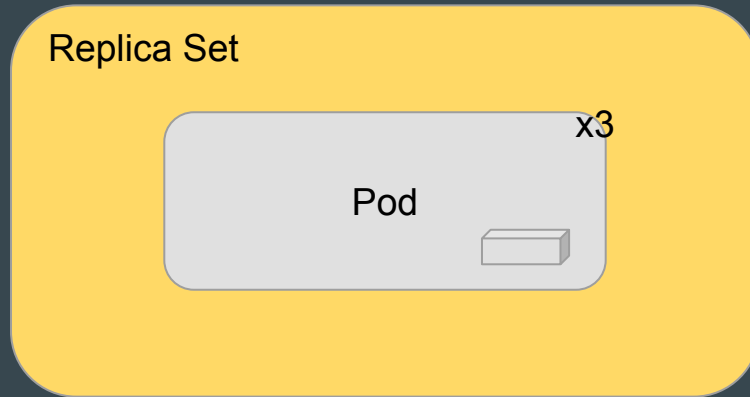
Think of Kubernetes as the ~~captain~~
~~of a container ship fleet~~
commander



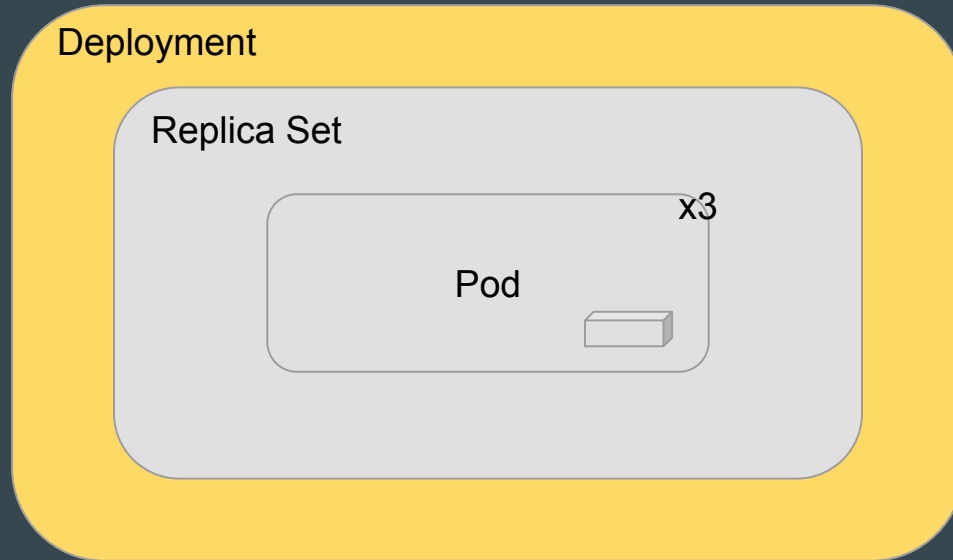
Core Concepts



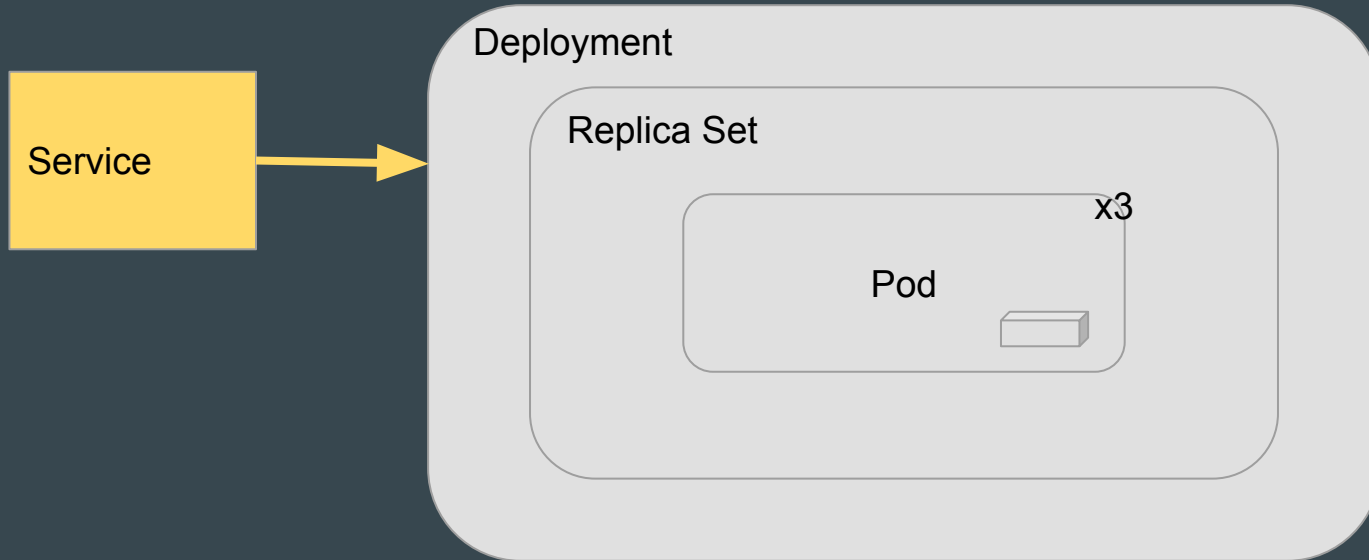
Core Concepts



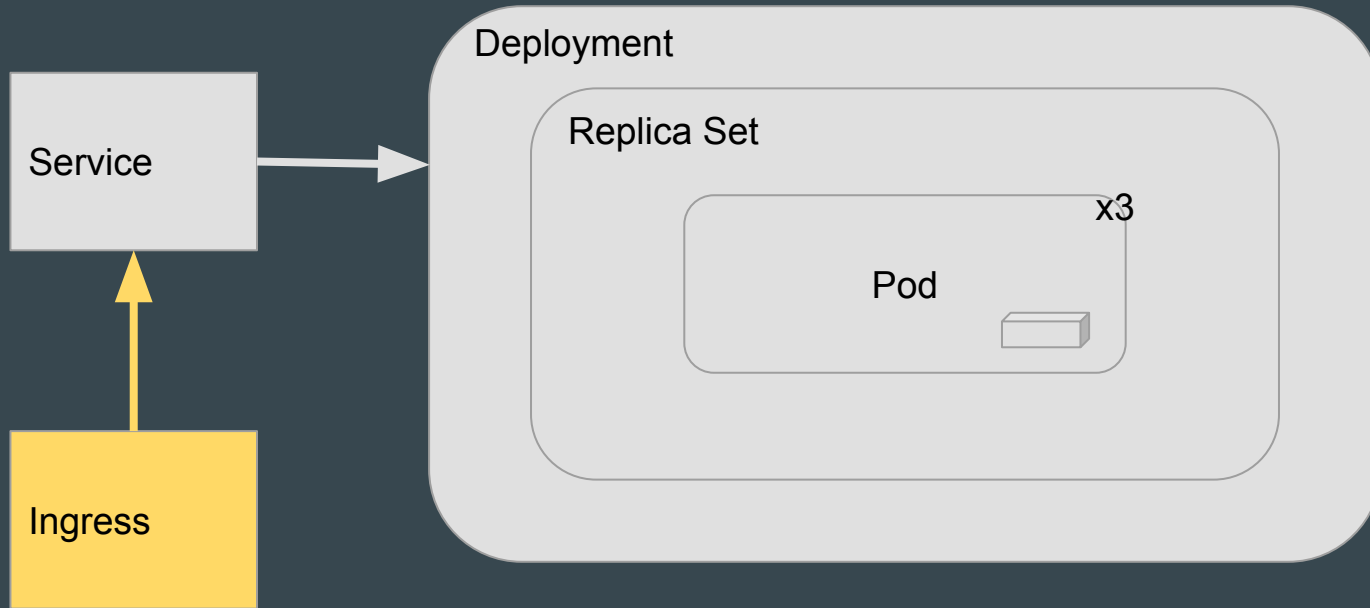
Core Concepts



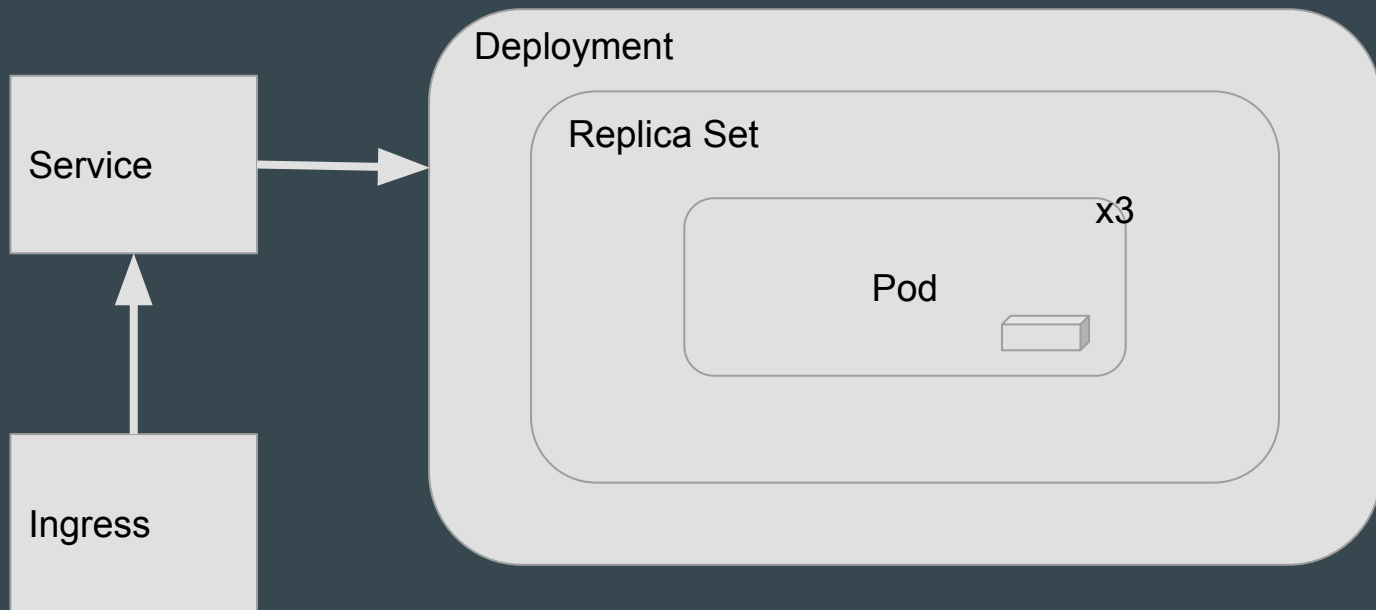
Core Concepts



Core Concepts



Core Concepts



Yaml - The language of Kubernetes

(JSON is also allowed)

```
1 apiVersion: apps/v1
2 kind: Deployment
3 metadata:
4   name: hello-world
5 spec:
6   replicas: 3
7   selector:
8     matchLabels:
9       app: hello-world
10  template:
11    metadata:
12      labels:
13        app: hello-world
14    spec:
15      containers:
16        - name: hello-world
17          image: hello/world:latest
18          ports:
19            - containerPort: 8080
```

Replica
Set

Pod

```
1 apiVersion: v1
2 kind: Service
3 metadata:
4   name: hello-world
5 spec:
6   ports:
7     - port: 80
8       targetPort: 8080
9   selector:
10    app: hello-world
11 ---
12 ---
13 ---
14 apiVersion: extensions/v1beta1
15 kind: Ingress
16 metadata:
17   name: hello-world
18 spec:
19   rules:
20     - host: hello-world.com
21       http:
22         paths:
23           - path: /
24             backend:
25               serviceName: hello-world
26               servicePort: 80
```

Kubernetes
manifests make
up the “desired
state” of your
cluster

“

Marcus, this sounds
totally
cool, really, but...
why use it?

”

Benefits

- **Self-healing** - replacement of pods to meet desired state
- **Scaling** - up and down by using replicaset / deployments
- **Cost saving** - through better resource utilisation
- **Service discovery & load balancing** - DNS and services
- **Portability** - Migrate between cloud providers

Thank You