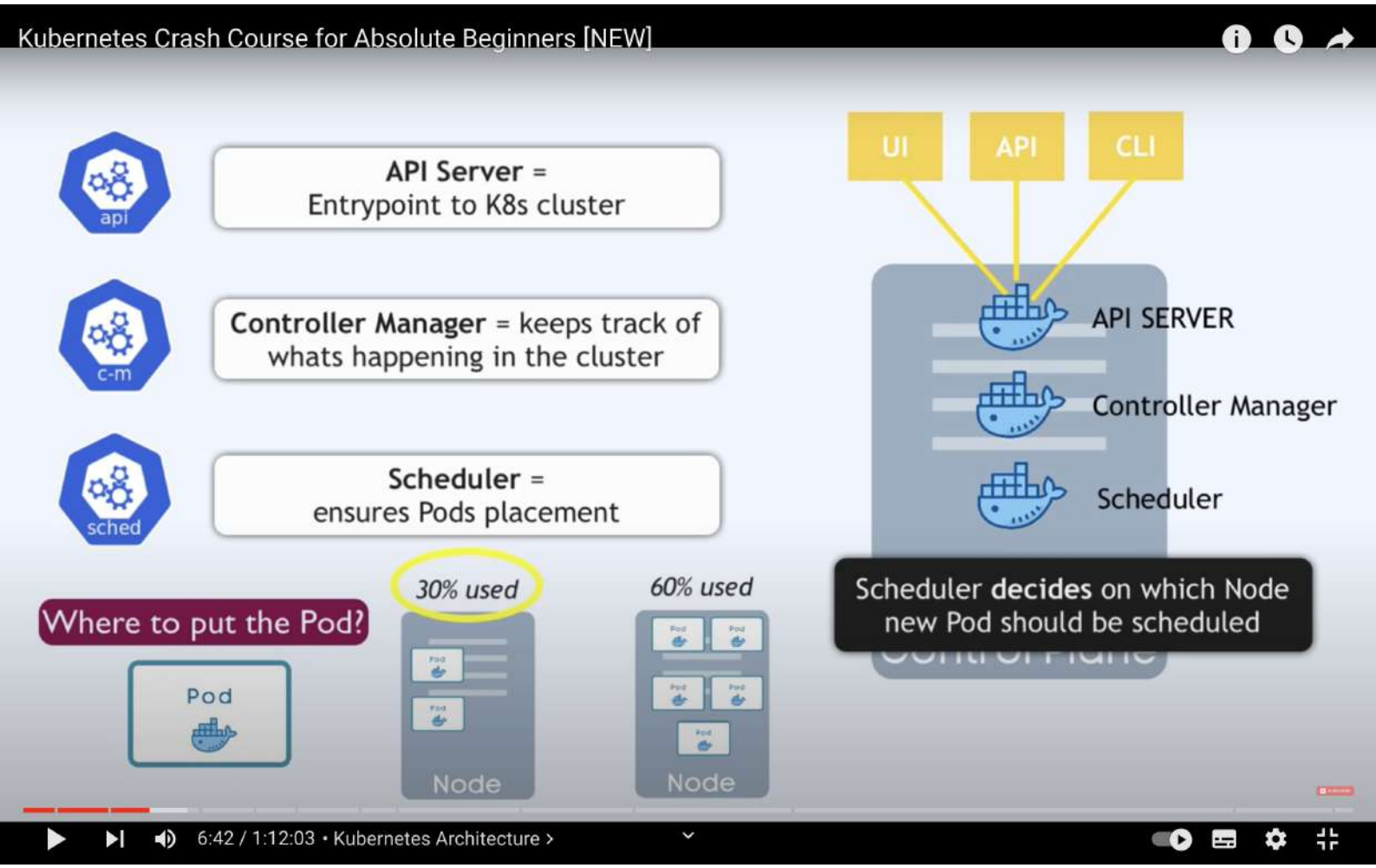
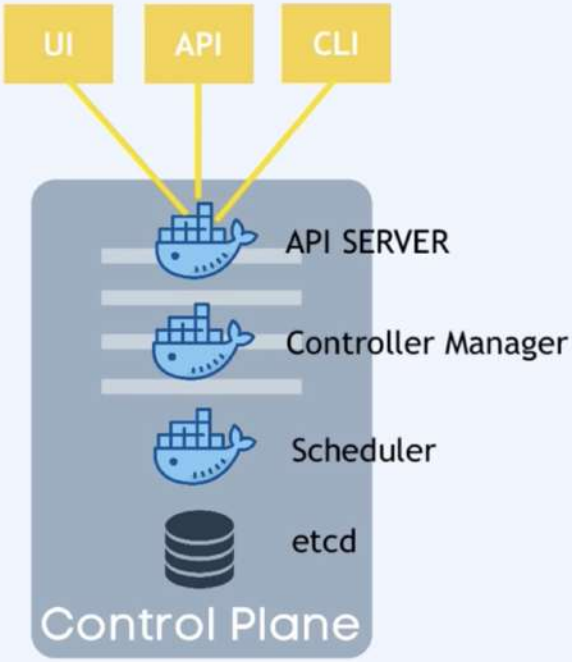

Kubernetes Crash Course for Absolute Beginners [NEW]
api
API Server = Entrypoint to K8s cluster
c-m
Controller Manager = keeps track of whats happening in the cluster
sched
Scheduler = ensures Pods placement
Where to put the Pod?
Pod
30% used
Node
60% used
Node
UI
API
CLI
API SERVER
Controller Manager
Scheduler
Scheduler decides on which Node new Pod should be scheduled
6:42 / 1:12:03 • Kubernetes Architecture ›

API Server =
Entrypoint to K8s cluster

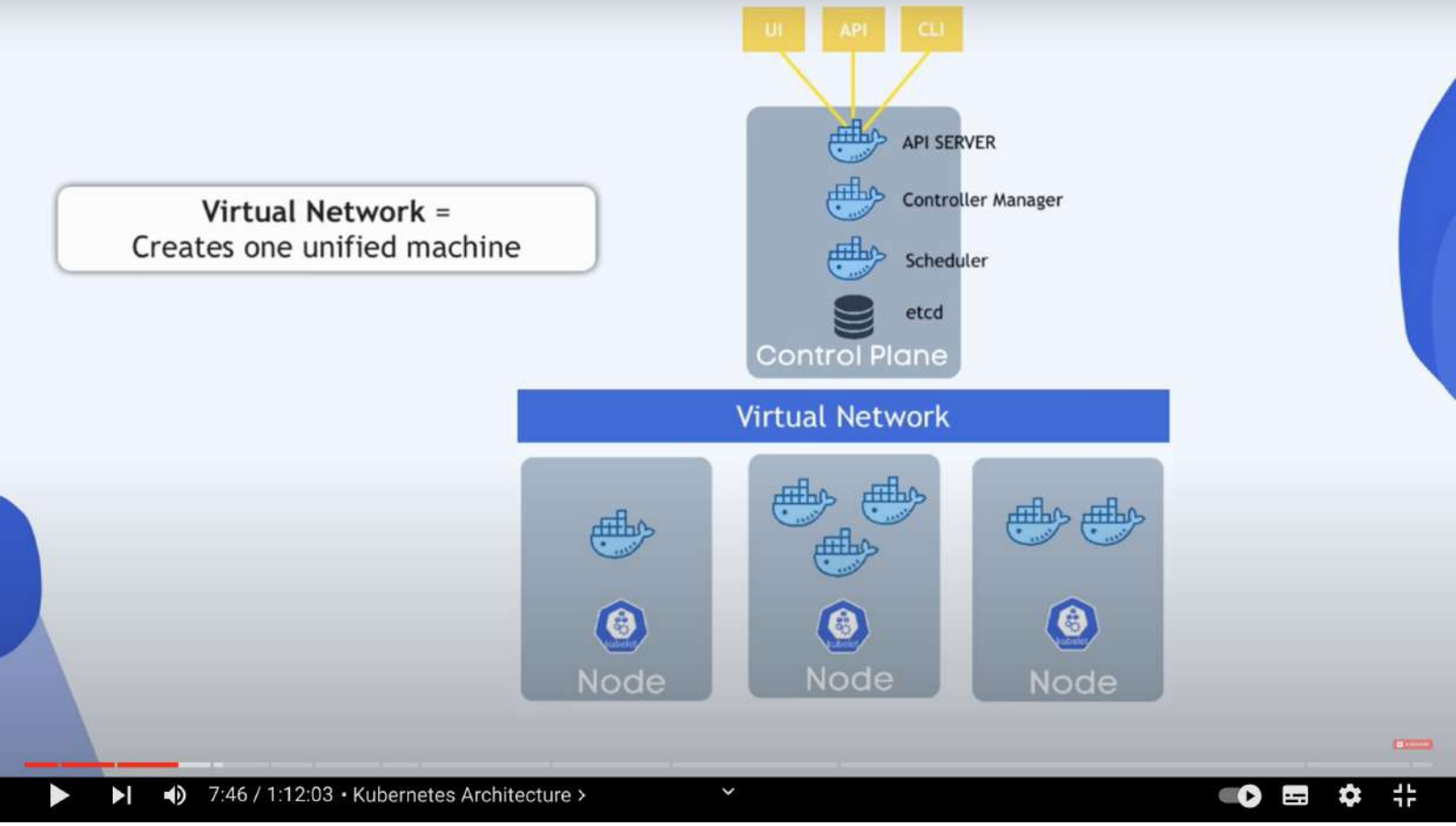
Controller Manager = keeps track of whats happening in the cluster

Scheduler =
ensures Pods placement

etcd =
Kubernetes backing store



Kubernetes Crash Course for Absolute Beginners [NEW]

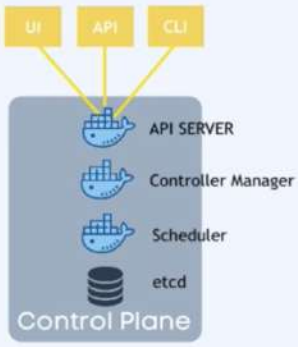


7:46 / 1:12:03 • Kubernetes Architecture ›

Control Plane Nodes

handful of master processes

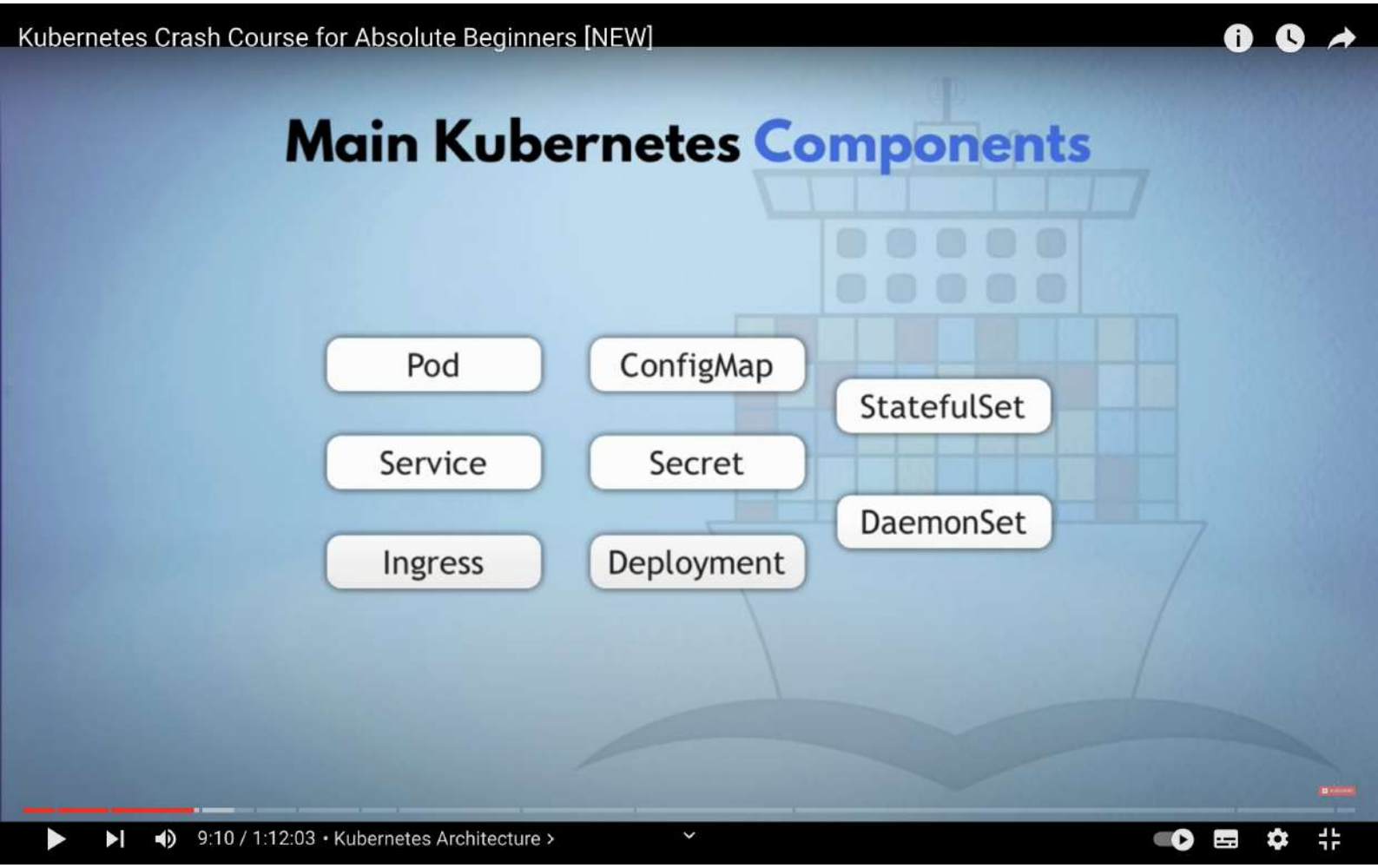
much **more important**

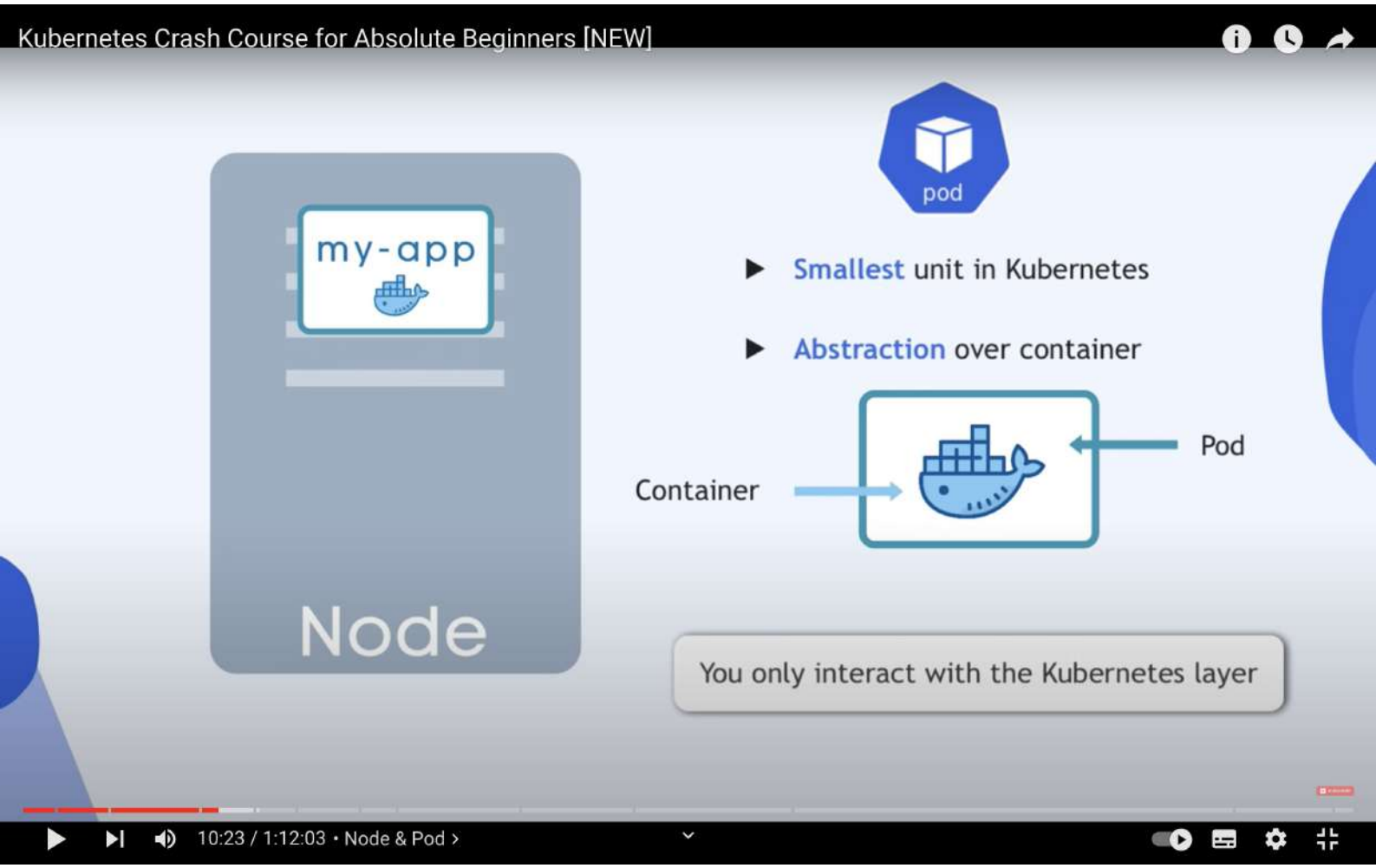


Worker Nodes

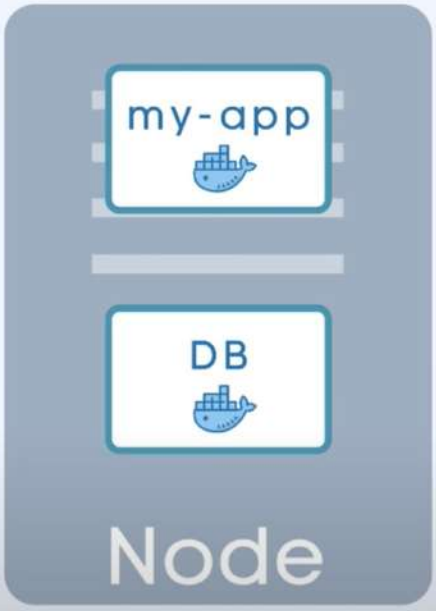
higher workload

much bigger and more resources


Kubernetes Crash Course for Absolute Beginners [NEW]
Main Kubernetes Components
Pod
ConfigMap
StatefulSet
Service
Secret
DaemonSet
Ingress
Deployment
9:10 / 1:12:03 • Kubernetes Architecture ›

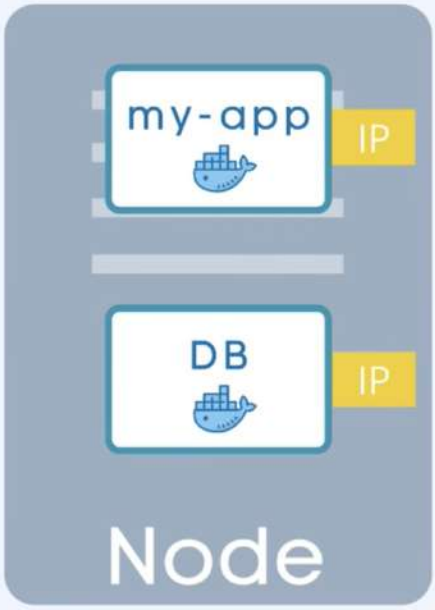

Kubernetes Crash Course for Absolute Beginners [NEW]
my-app
Node
pod
Smallest unit in Kubernetes
Abstraction over container
Container
Pod
You only interact with the Kubernetes layer
10:23 / 1:12:03 • Node & Pod ›

Kubernetes Crash Course for Absolute Beginners [NEW]

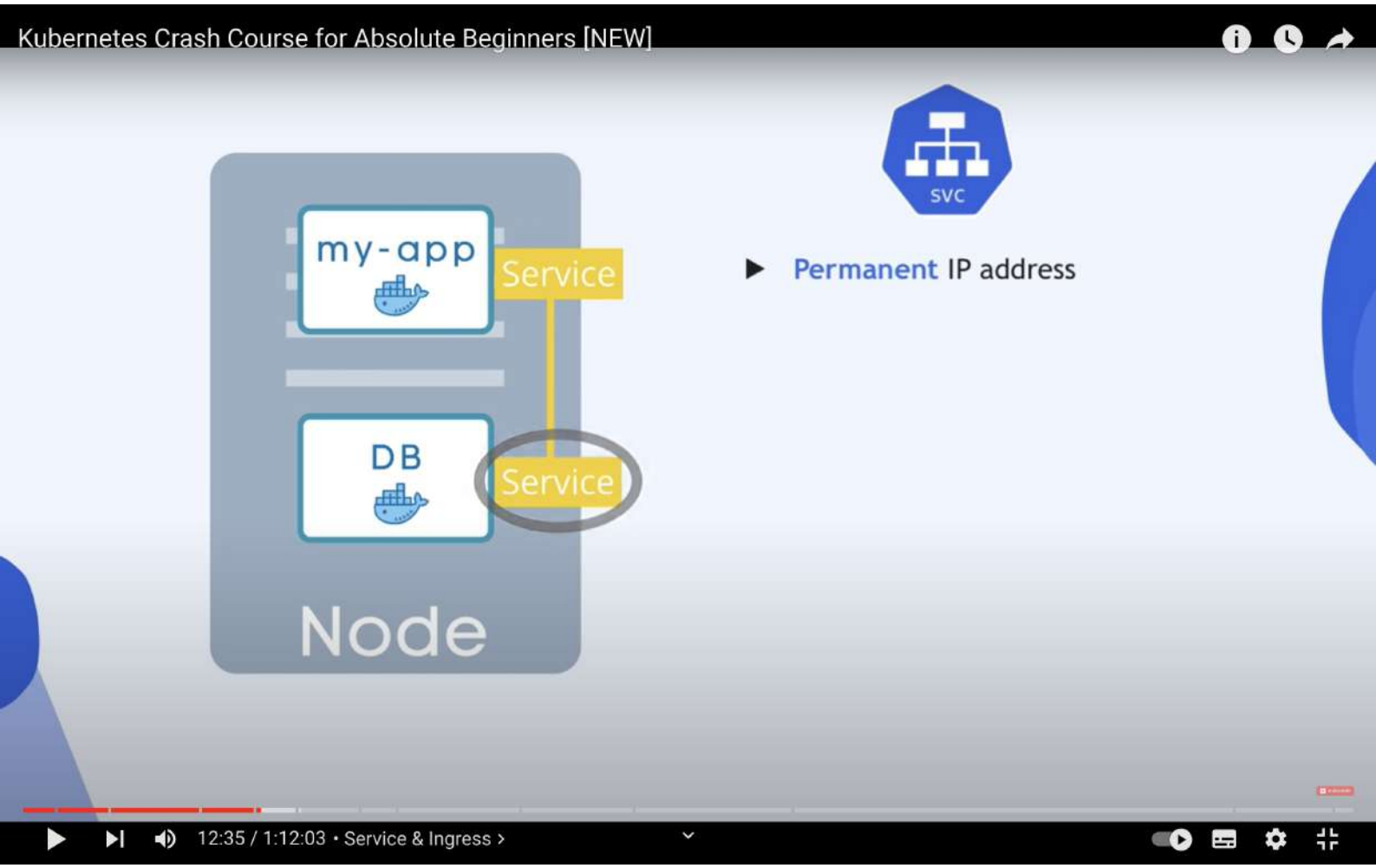


- Smallest unit in Kubernetes
- Abstraction over container
- Usually 1 Application per Pod

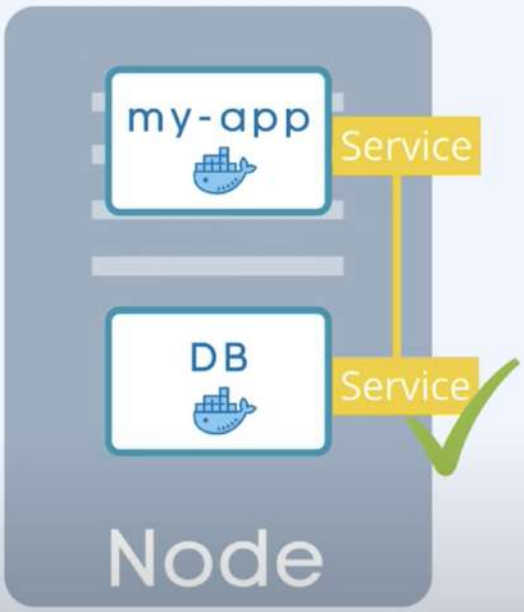
11:04 / 1:12:03 • Node & Pod ›



- **Smallest** unit in Kubernetes
- **Abstraction** over container
- Usually **1 Application** per Pod
- Each Pod gets its **own IP address**
- **New IP address** on re-creation

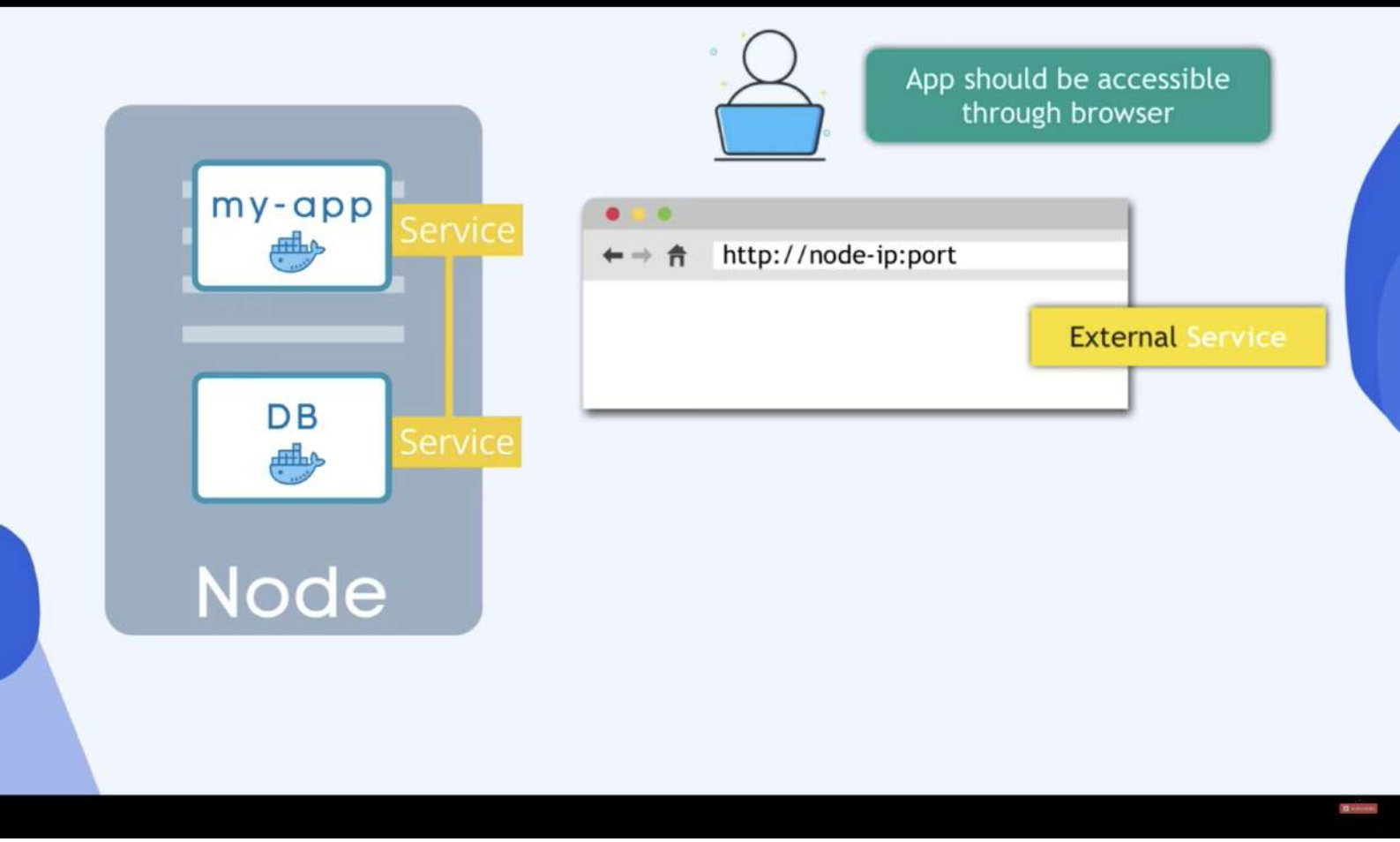

Kubernetes Crash Course for Absolute Beginners [NEW]
my-app
Service
DB
Service
Node
SVC
Permanent IP address
12:35 / 1:12:03 • Service & Ingress ›

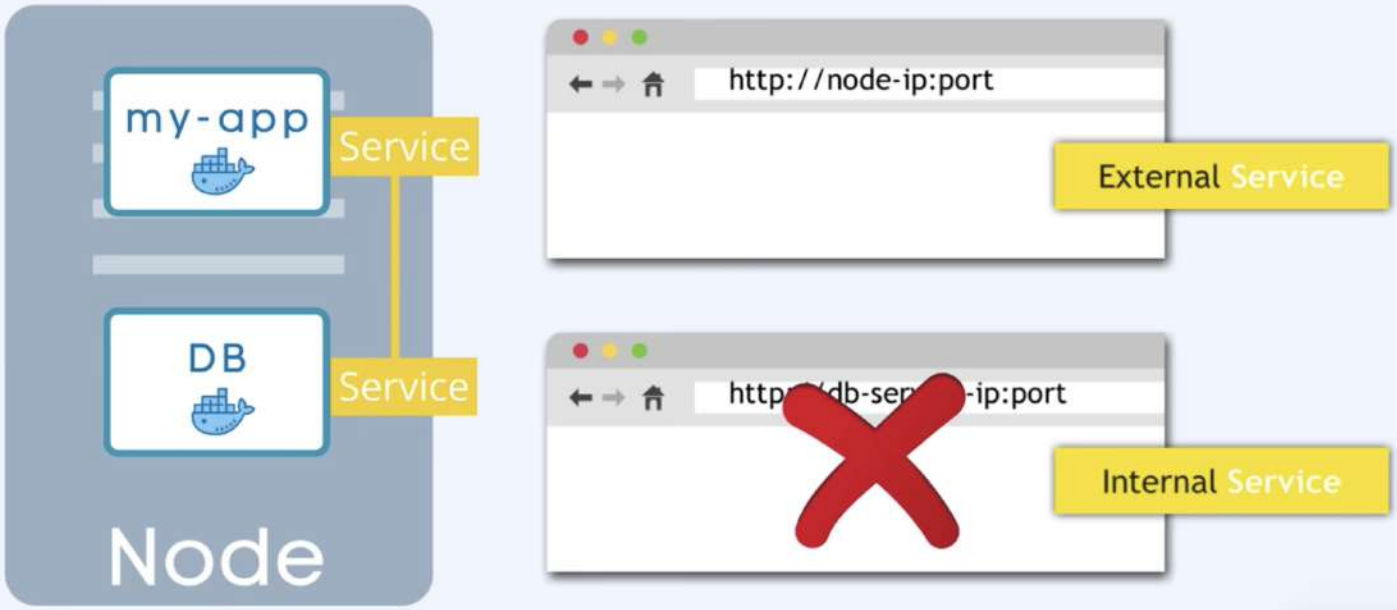
Kubernetes Crash Course for Absolute Beginners [NEW]



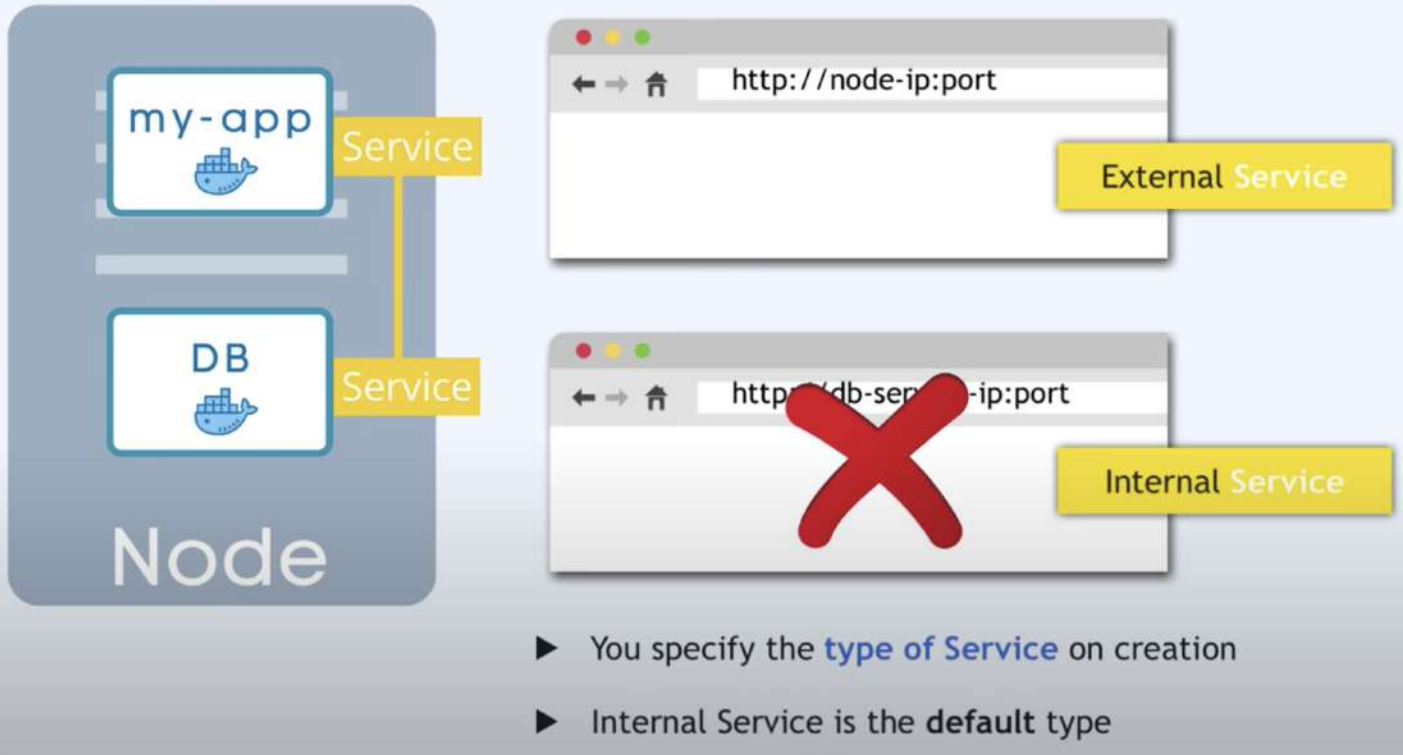
- Permanent IP address
- Lifecycle of Pod and Service not connected

12:48 / 1:12:03 • Service & Ingress ›

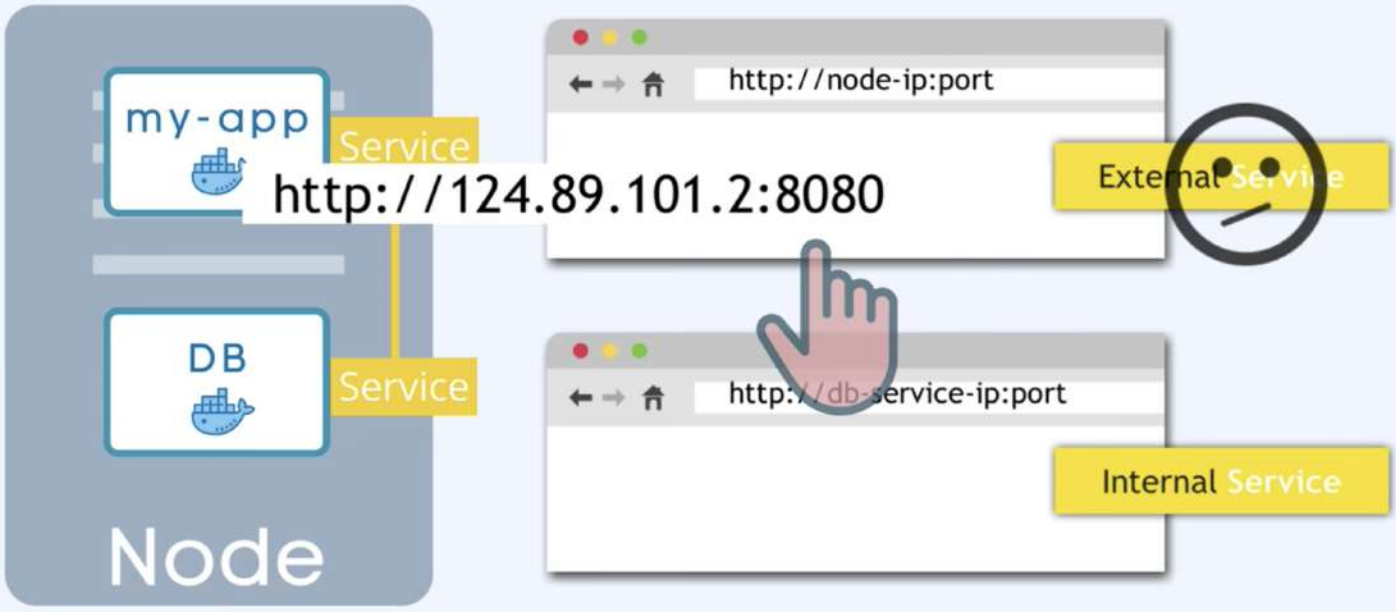

App should be accessible through browser
my-app
Service
DB
Service
Node
http://node-ip:port
External Service

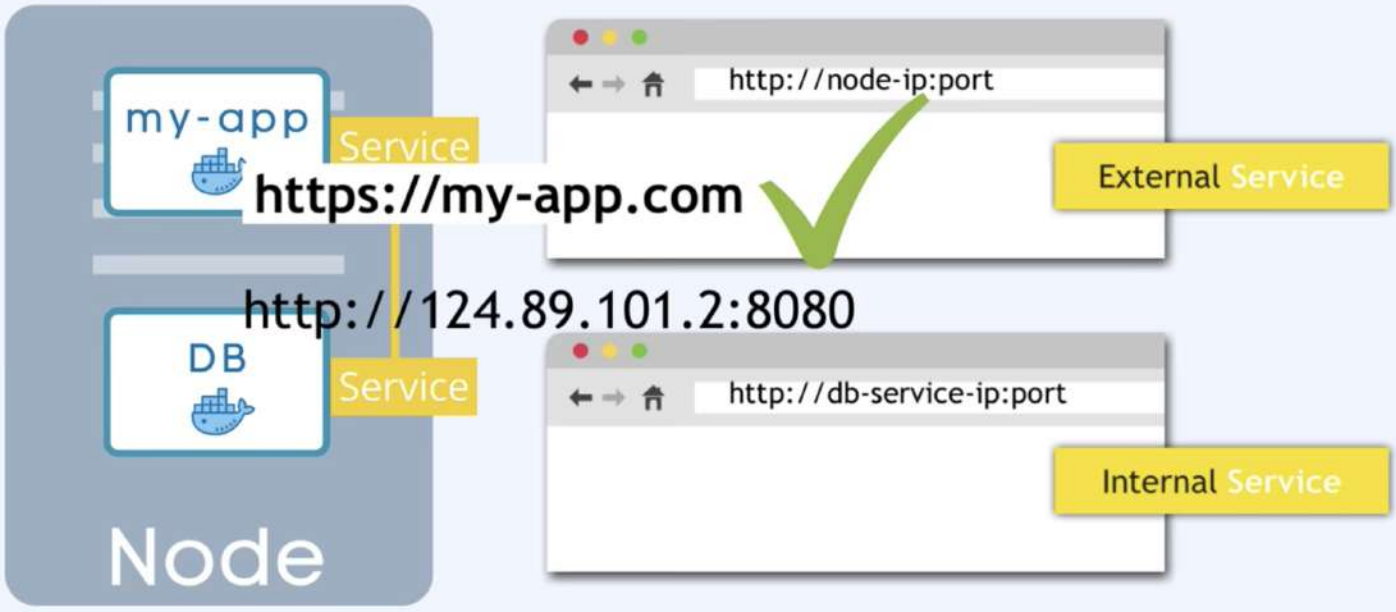


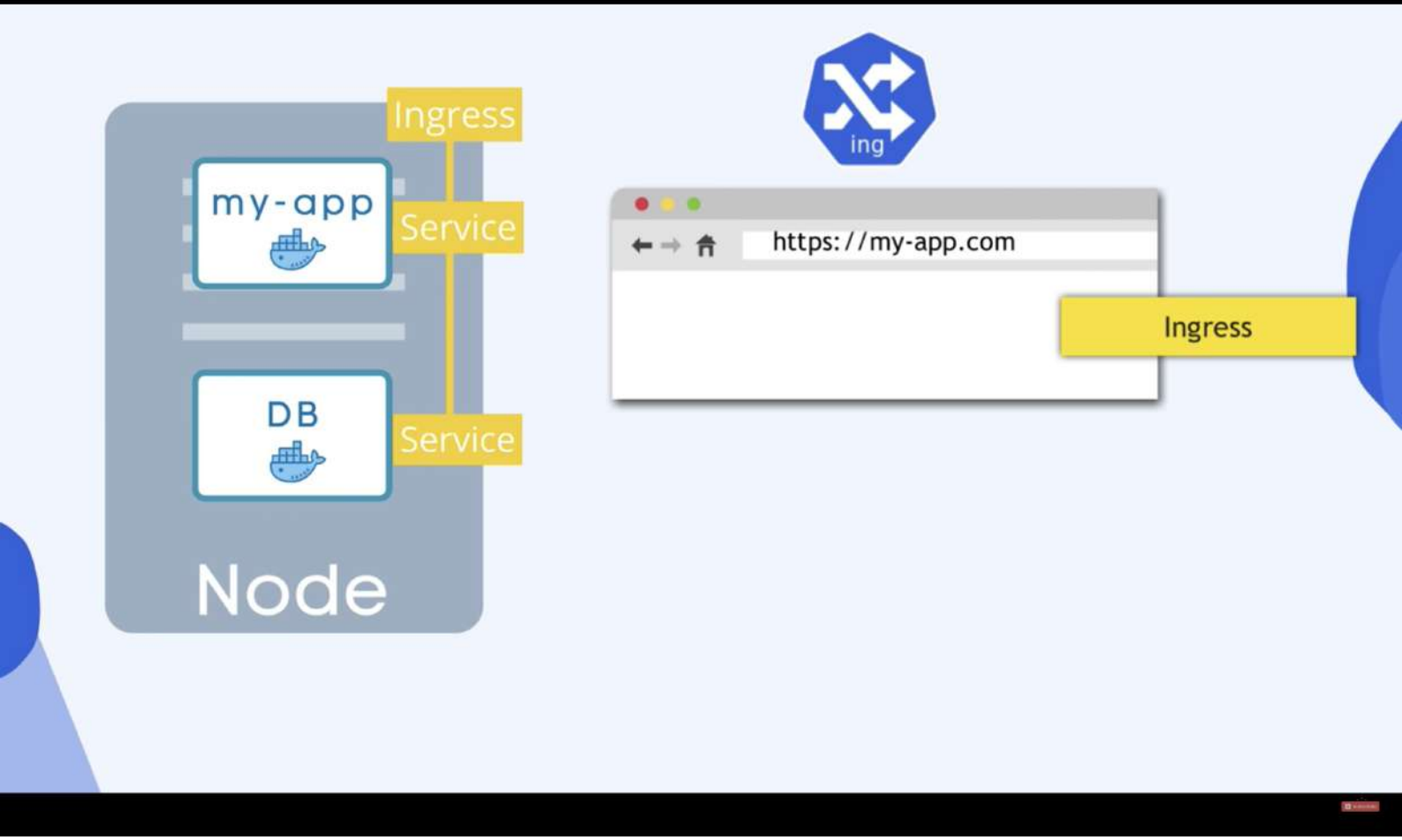
- You specify the type of Service on creation
- Internal Service is the default type



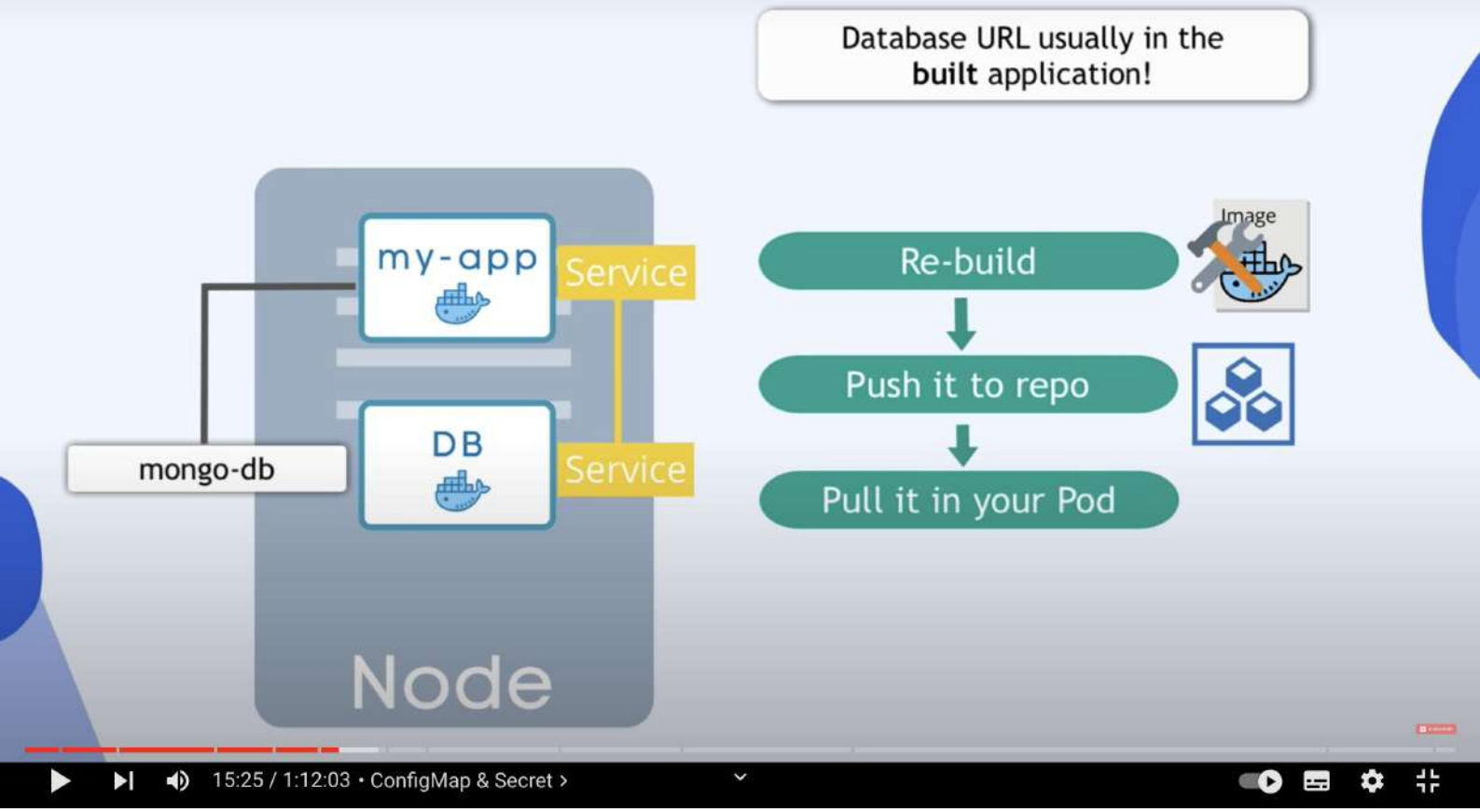
- You specify the type of Service on creation
- Internal Service is the **default** type


my-app
Service
http://124.89.101.2:8080
DB
Service
Node
http://node-ip:port
External Service
http://db-service-ip:port
Internal Service

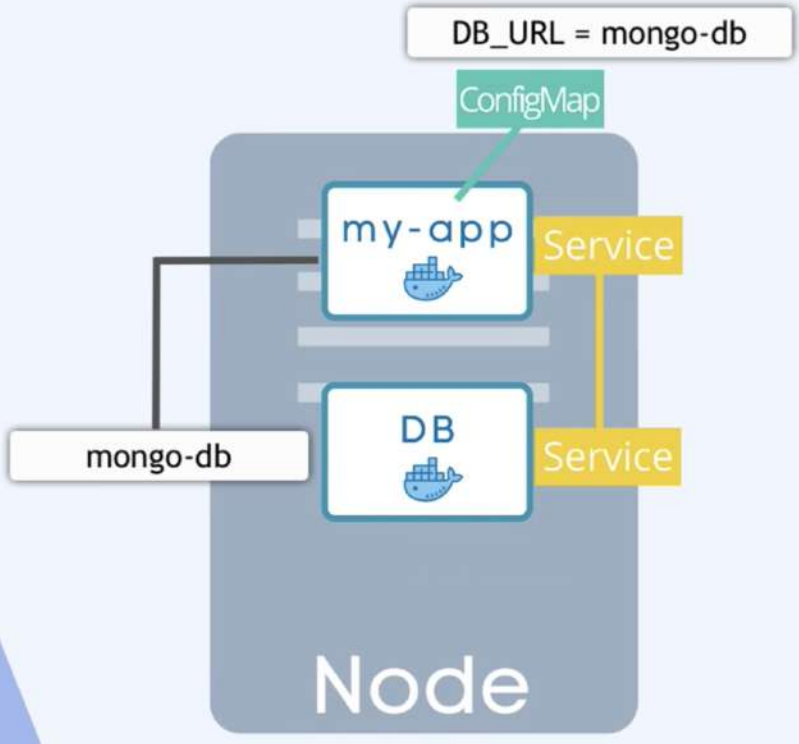

my-app
Service
https://my-app.com
http://124.89.101.2:8080
DB
Service
Node
http://node-ip:port
External Service
http://db-service-ip:port
Internal Service


Ingress
my-app
Service
DB
Service
Node
ing
https://my-app.com
Ingress

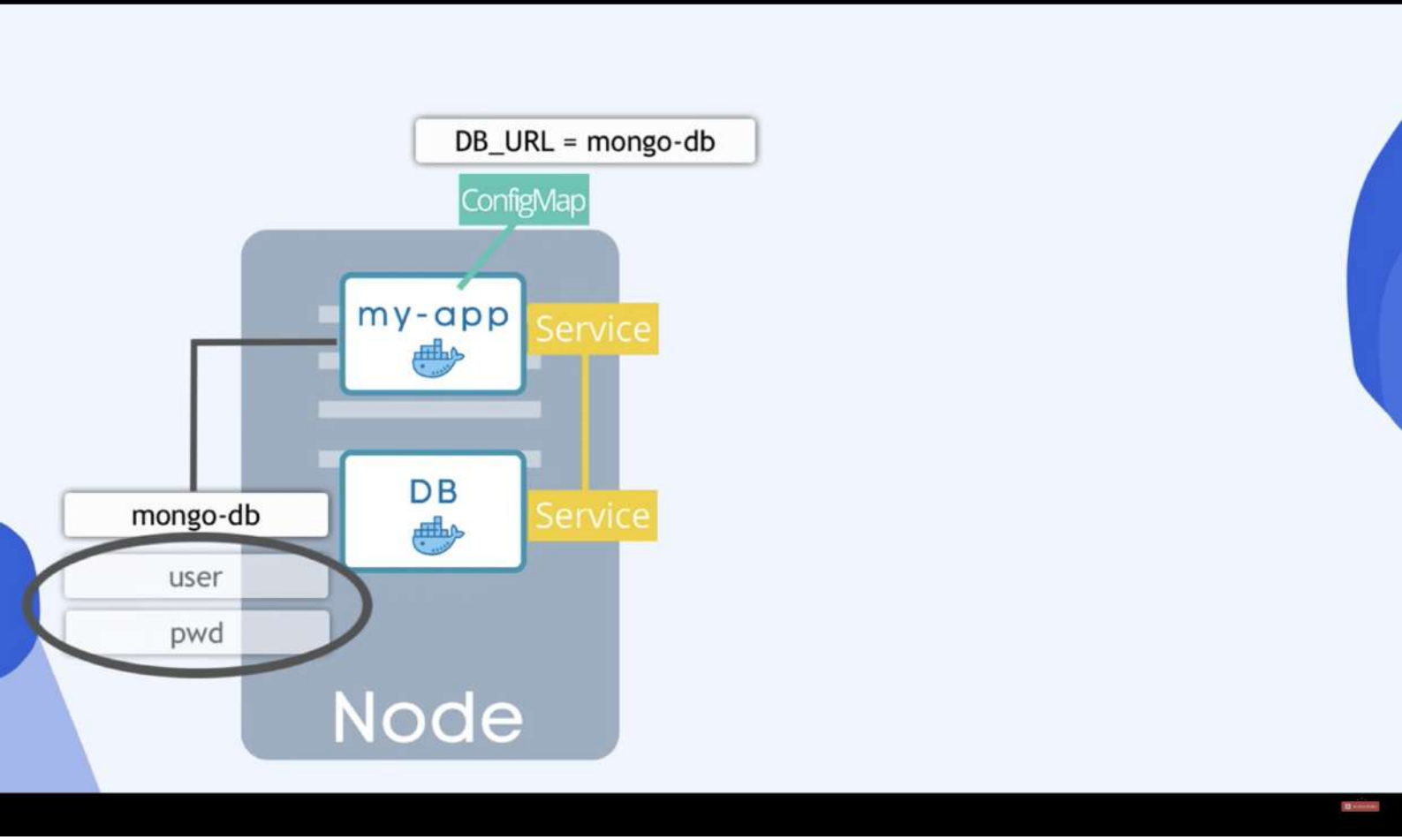
Kubernetes Crash Course for Absolute Beginners [NEW]

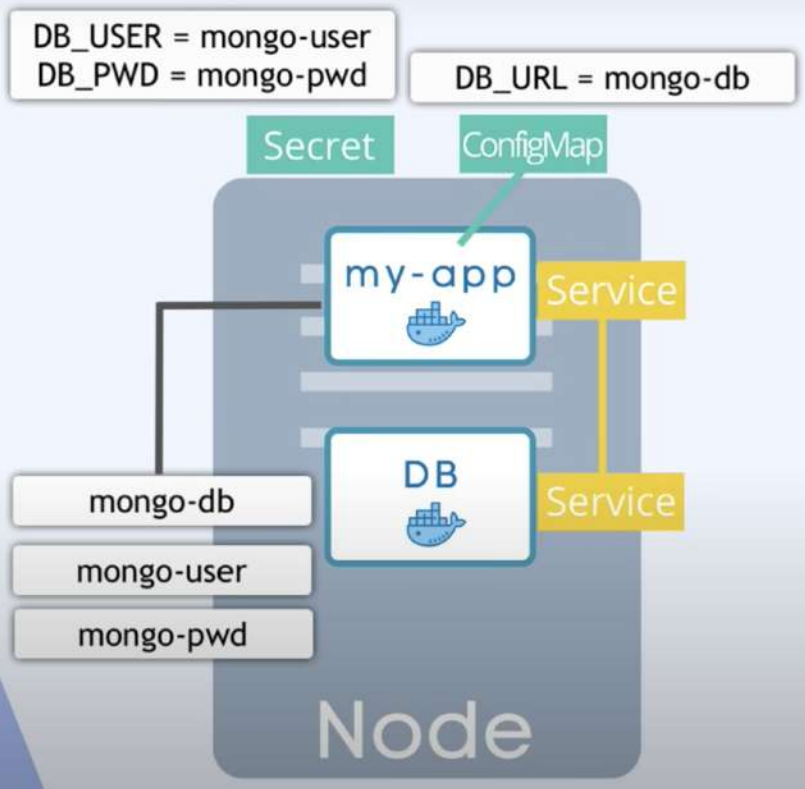


15:25 / 1:12:03 • ConfigMap & Secret ›



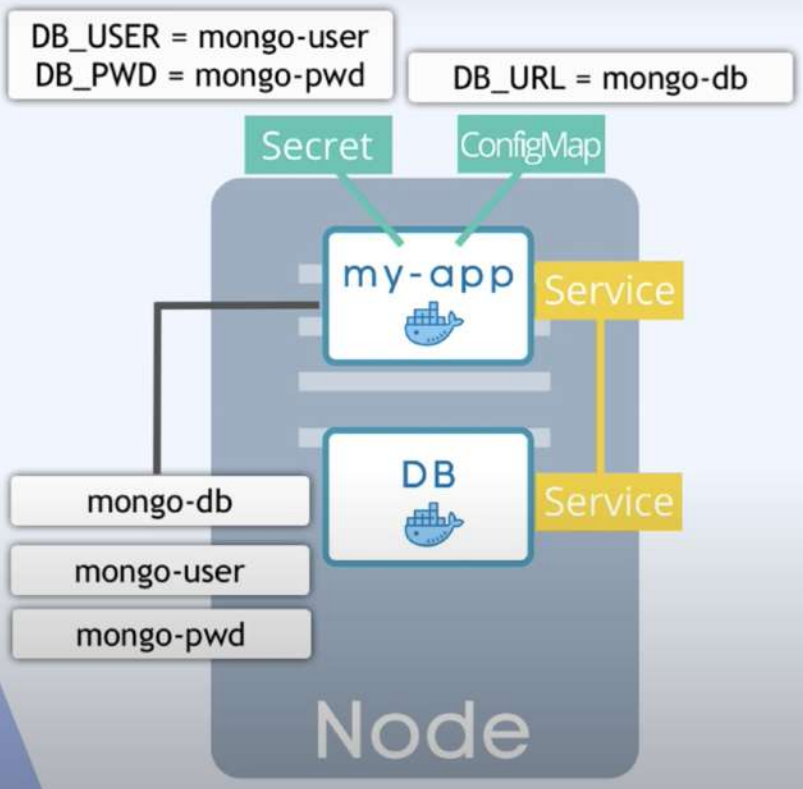
- **External** Configuration of your application


DB_URL = mongo-db
ConfigMap
my-app
Service
DB
Service
mongo-db
user
pwd
Node



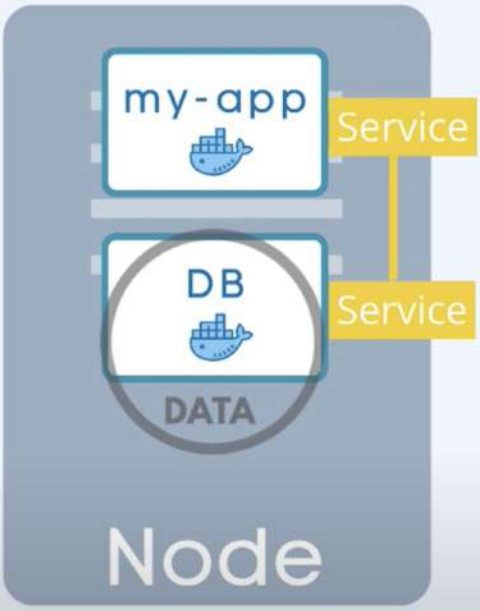
- Used to store secret data

Kubernetes Crash Course for Absolute Beginners [NEW]

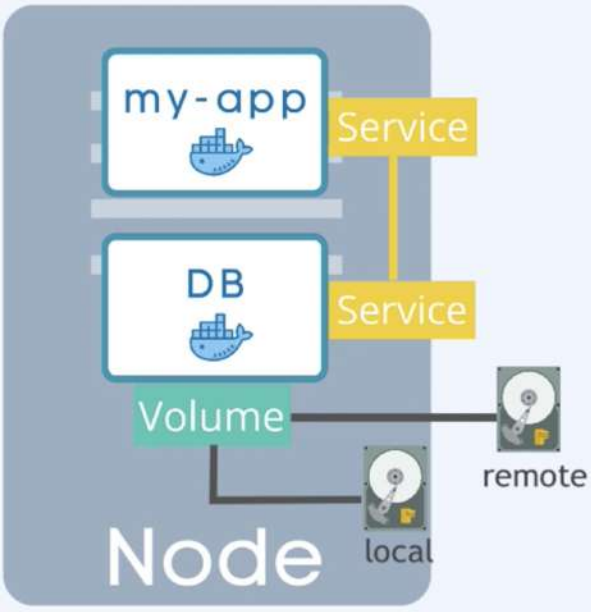


- Used to store secret data
- Reference Secret in Deployment/Pod

Kubernetes Crash Course for Absolute Beginners [NEW]

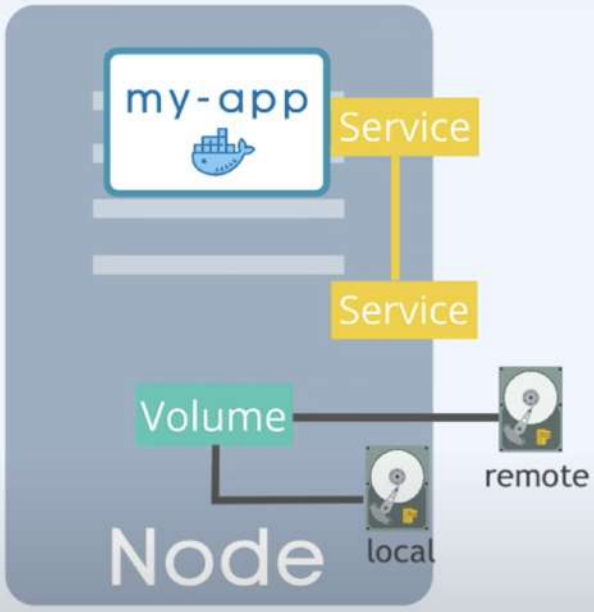


18:04 / 1:12:03 • Volume >



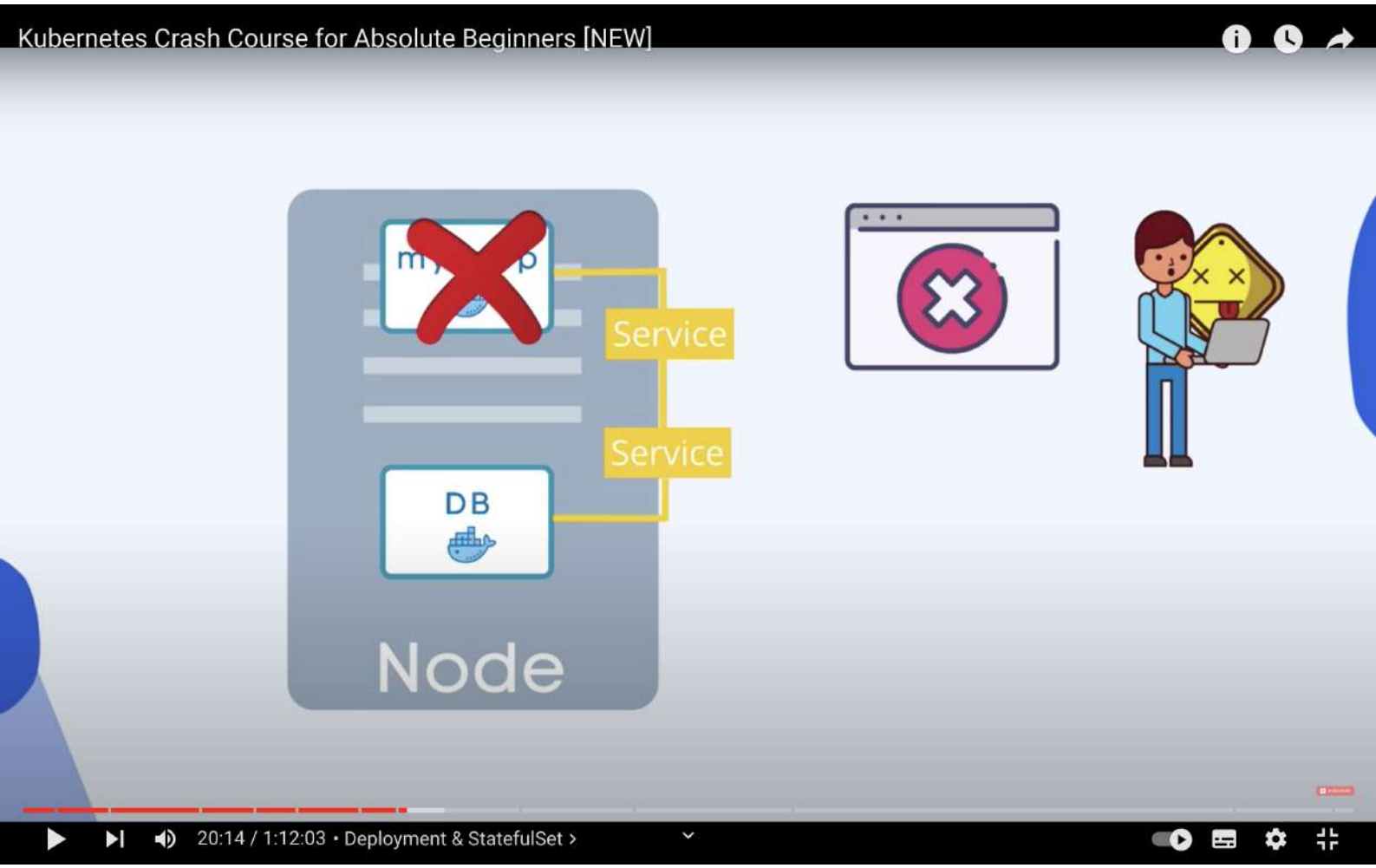
- Storage on **local** machine
- Or **remote**, outside of the K8s cluster

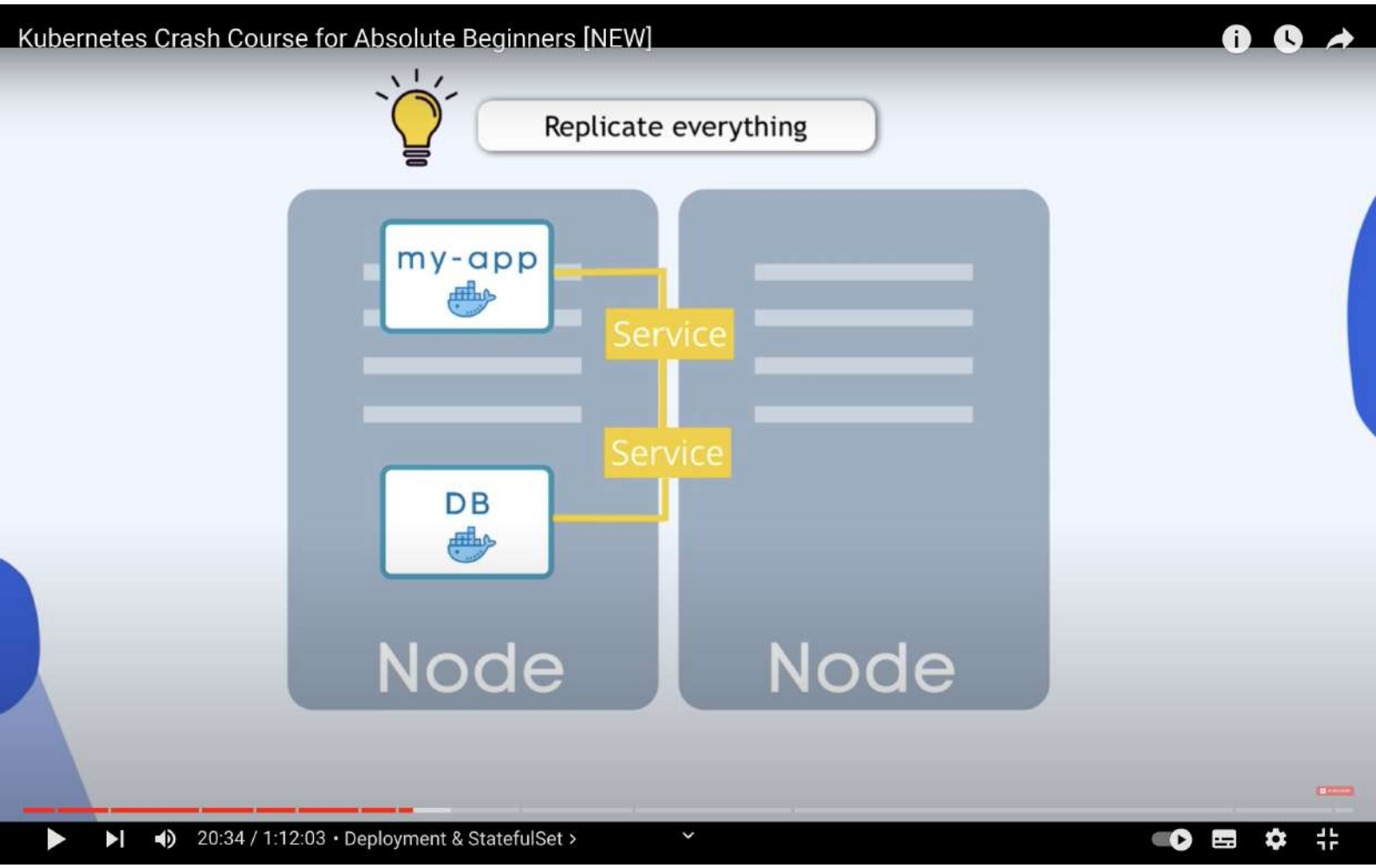
Kubernetes Crash Course for Absolute Beginners [NEW]

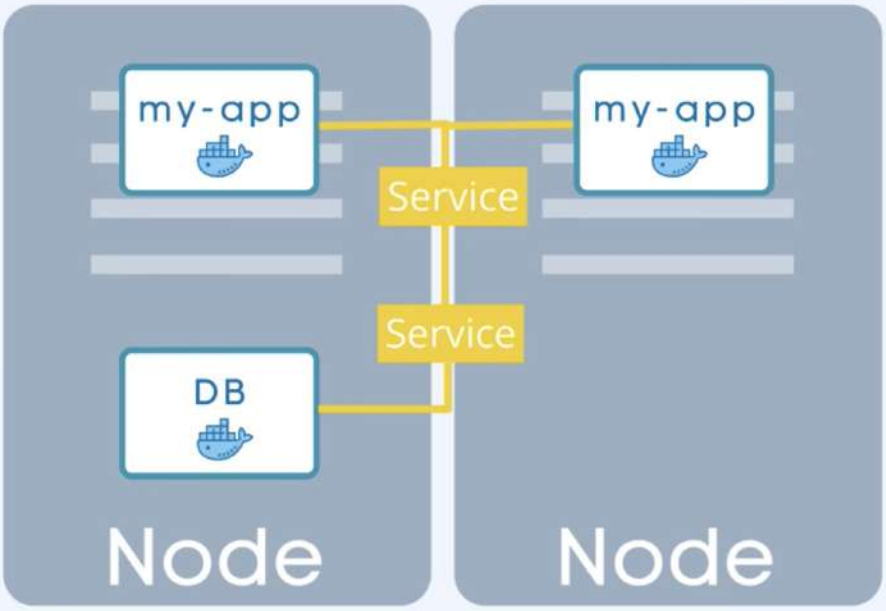


- Storage on local machine
- Or remote, outside of the K8s cluster

19:02 / 1:12:03 • Volume >


Kubernetes Crash Course for Absolute Beginners [NEW]
Service
Service
DB
Node
20:14 / 1:12:03 • Deployment & StatefulSet ›

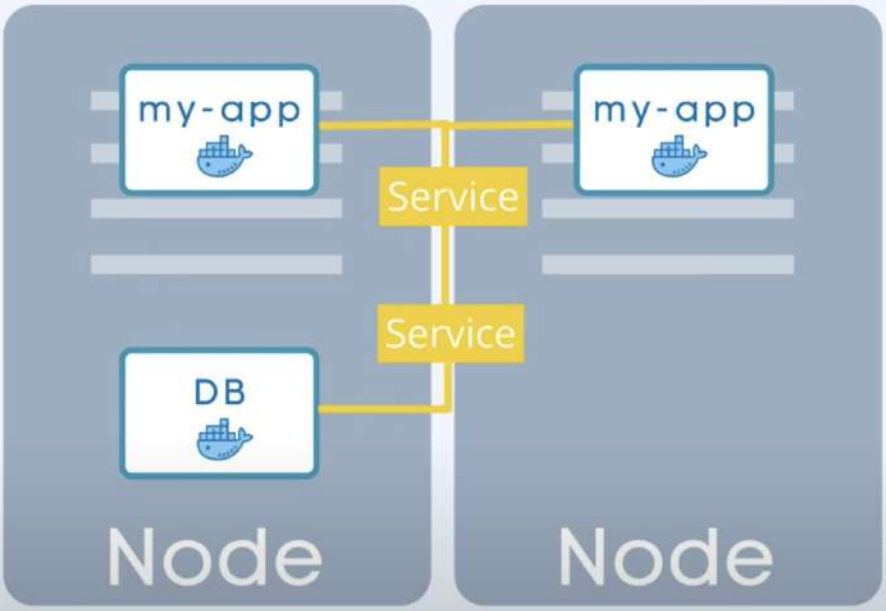

Kubernetes Crash Course for Absolute Beginners [NEW]
Replicate everything
my-app
DB
Service
Service
Node
Node
20:34 / 1:12:03 • Deployment & StatefulSet ›



Define **blueprint** for Pods

- Specify how many replicas you want to have

Kubernetes Crash Course for Absolute Beginners [NEW]



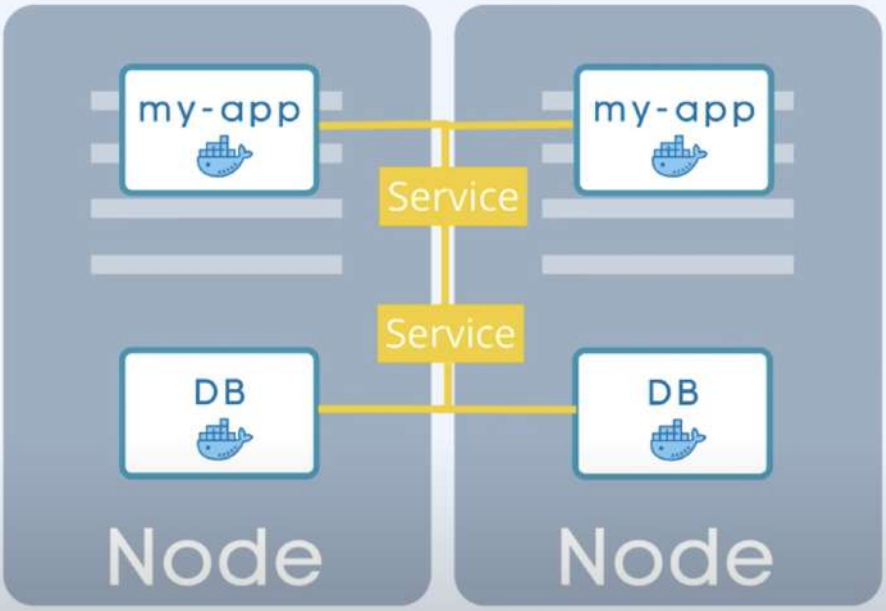
DEPLOYMENT

deploy

- Blueprint for "my-app" Pods
- You create Deployments
- Abstraction of Pods

22:00 / 1:12:03 • Deployment & StatefulSet ›

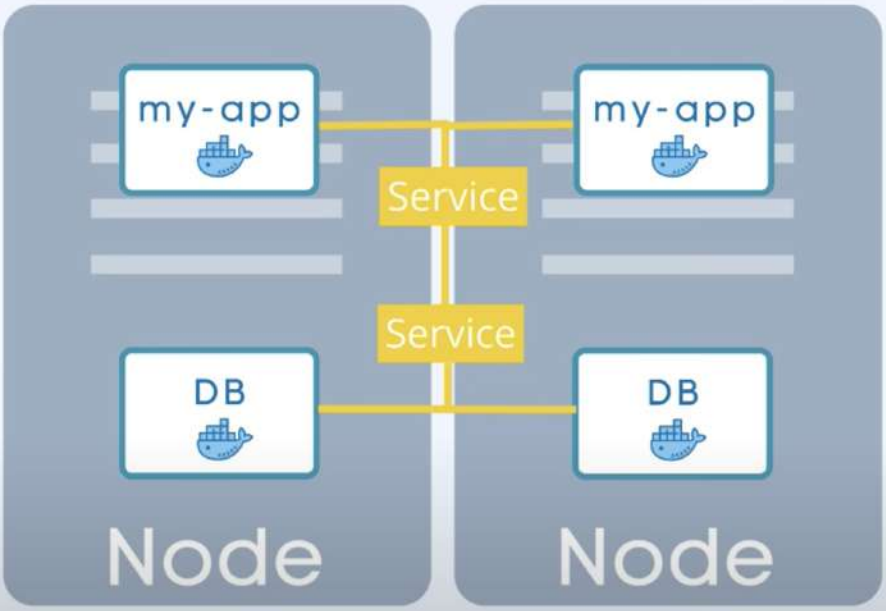
Kubernetes Crash Course for Absolute Beginners [NEW]



Deployment =
for stateLESS Apps

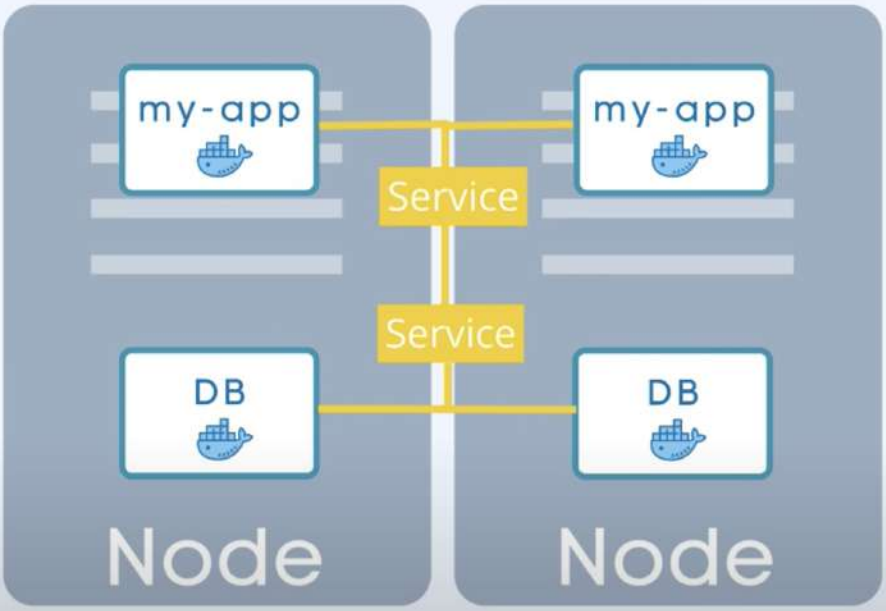
StatefulSet =
for stateFUL Apps or Databases

Kubernetes Crash Course for Absolute Beginners [NEW]



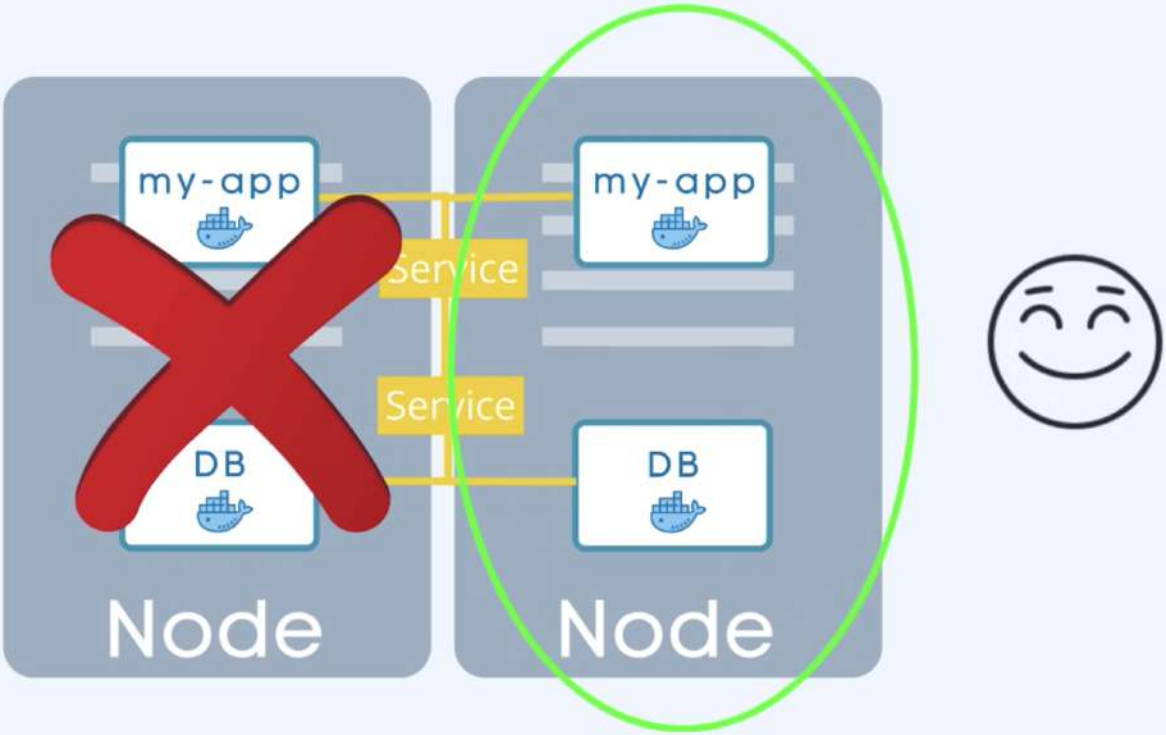
24:06 / 1:12:03 • Deployment & StatefulSet >

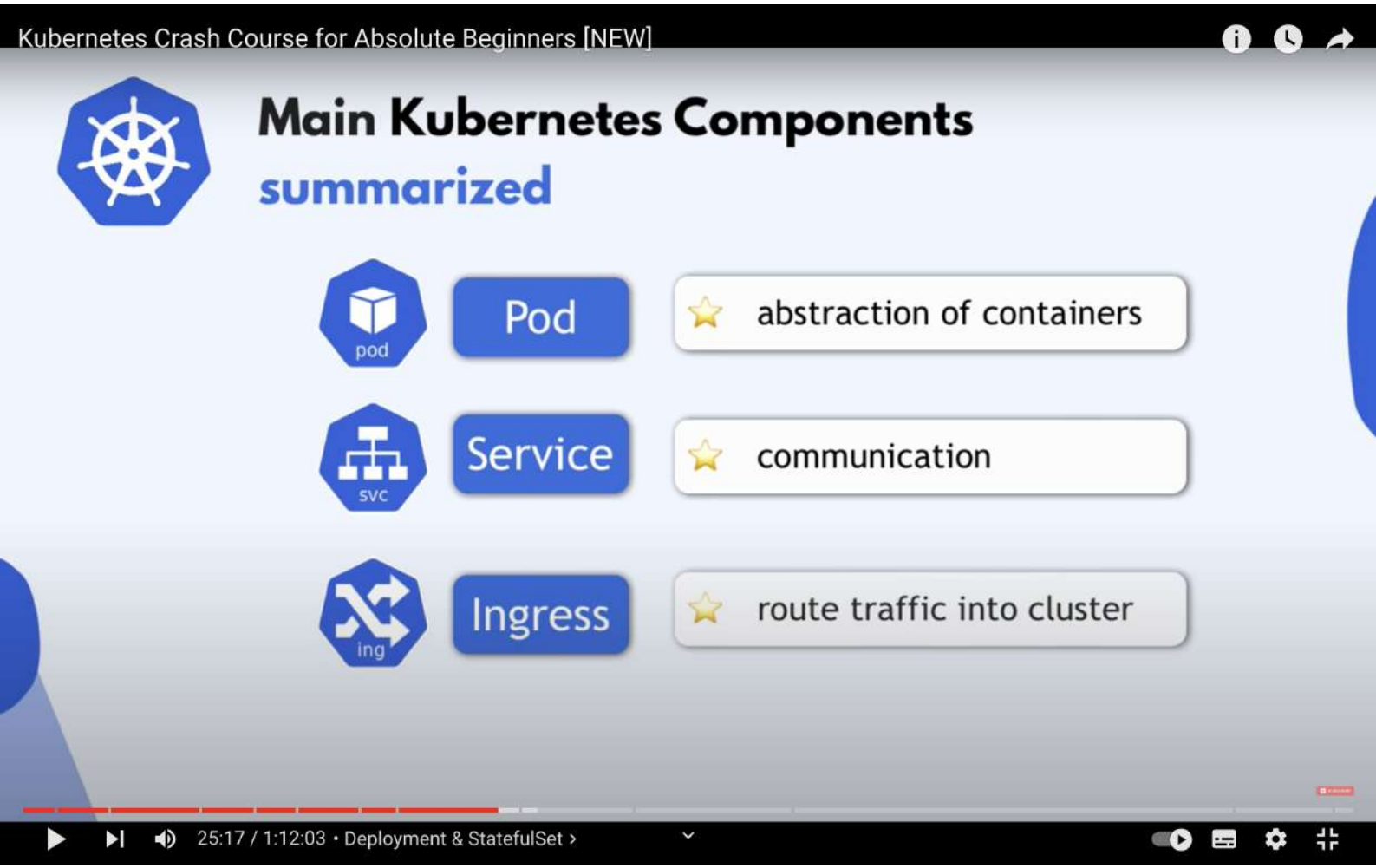
Kubernetes Crash Course for Absolute Beginners [NEW]



DB are often hosted outside of Kubernetes cluster

24:15 / 1:12:03 • Deployment & StatefulSet >


my-app
DB
Service
Service
my-app
DB
Node
Node


Kubernetes Crash Course for Absolute Beginners [NEW]
Main Kubernetes Components
summarized
pod
Pod
abstraction of containers
svc
Service
communication
ing
Ingress
route traffic into cluster
25:17 / 1:12:03 • Deployment & StatefulSet ›

Kubernetes Configuration

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-app
  labels:
    app: my-app
spec:
  replicas: 2
  selector:
    matchLabels:
      app: my-app
  template:
    metadata:
      labels:
        app: my-app
    spec:
      containers:
        - name: my-app
          image: my-image
          env:
            - name: SOME_ENV
              value: $SOME_ENV
          ports:
            - containerPort: 8080
```