elastisys.com

JAKUB KRZYWDA

@jakubkrzywda

How to perform

BLUE–GREEN DEPLOYMENTS

using only Kubernetes Primitives?

Cloud Native Technologies

basic level

Blue–green deployment refers to running **two** application **environments** in parallel **in** a **production** cluster.

The first environment (**blue**) is running the **stable** application version and the second environment (**green**) is running the **new** version.

By **default**, Kubernetes performs a **rolling update** of a deployment.

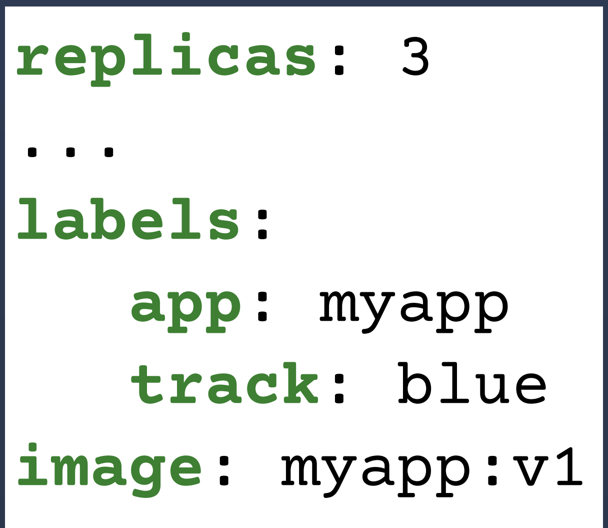
The old version is **replaced** by the new one during the rollout.

However, in case of some applications we want to keep the old version “on stand-by” for a while after the new rollout.

Luckily, it is **possible** to perform **blue-green** deployments using only **Kubernetes** primitives!

Here I show you how to do it in five easy steps:

1. Create Blue Deployment



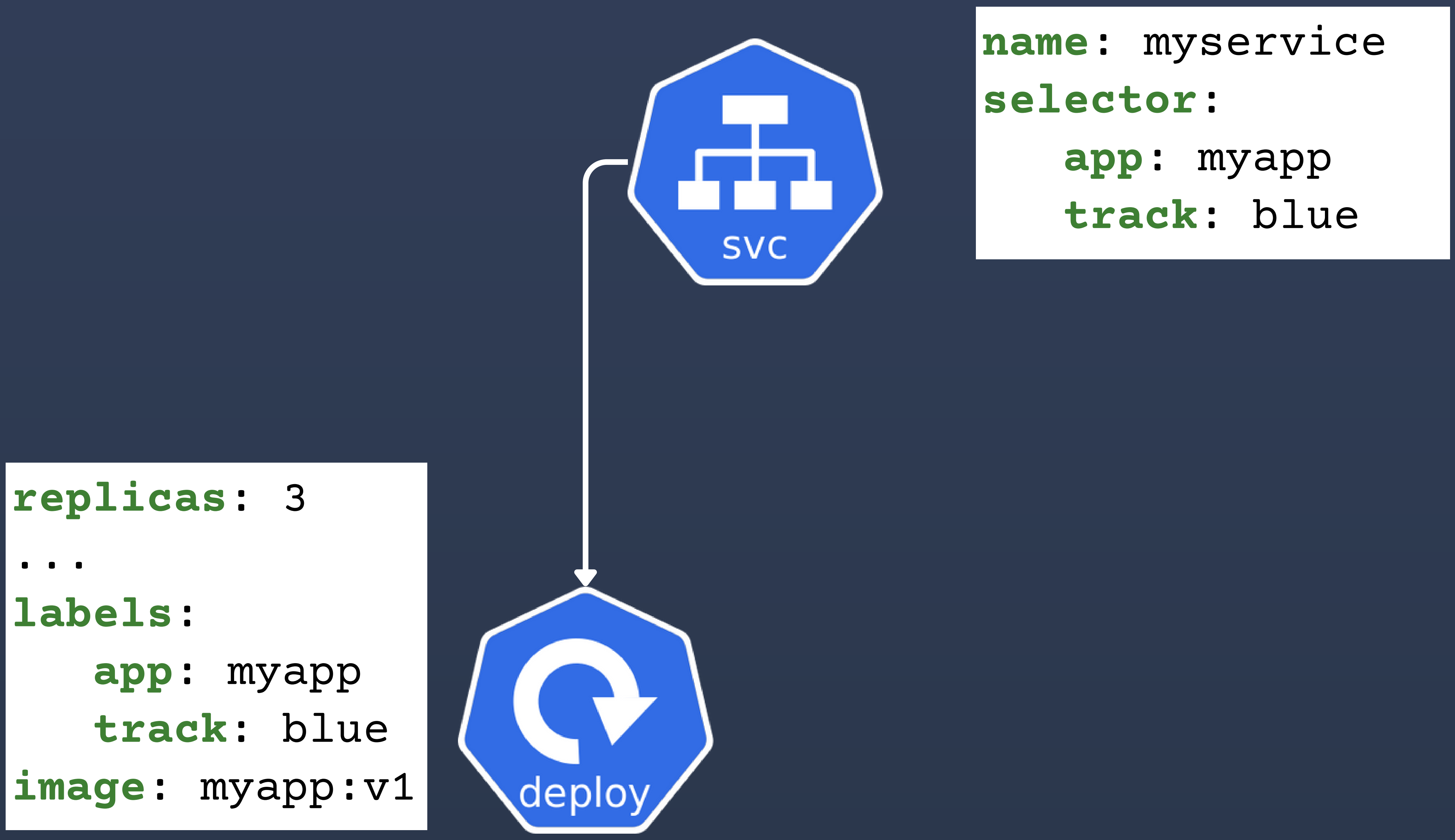
```
replicas: 3
...
labels:
   app: myapp
   track: blue
image: myapp:v1
```

1. Create Blue Deployment

Notice two labels, app and track, their values and the image tag.

```yaml
replicas: 3
...
labels:
   app: myapp
   track: blue
image: myapp:v1
```

2. Expose it with a Service

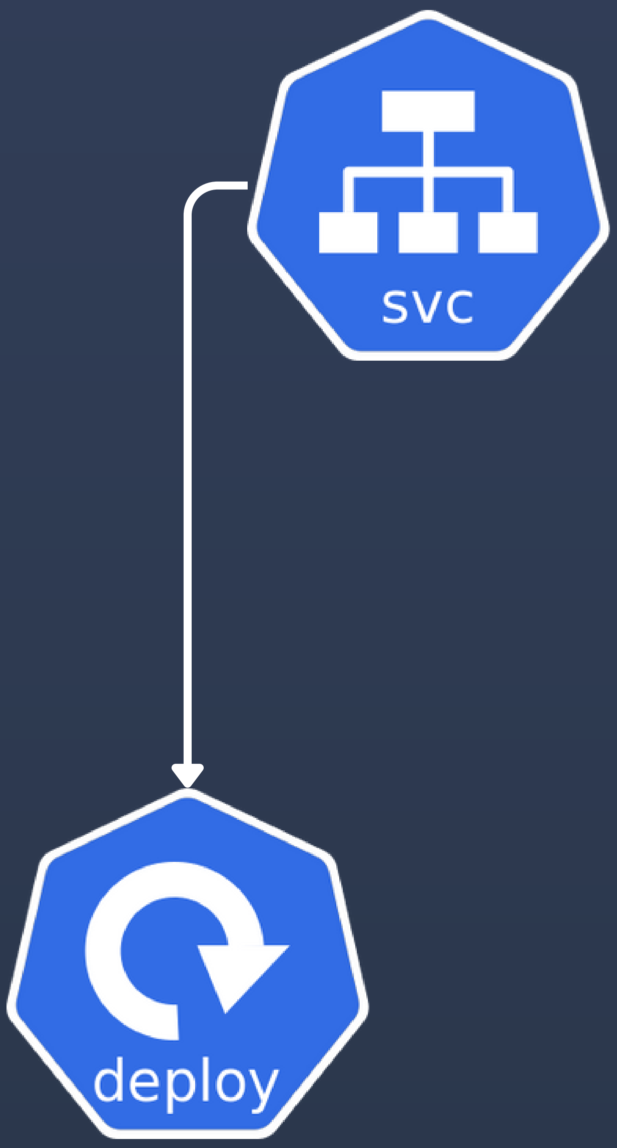


```
name: myservice
selector:
    app: myapp
    track: blue
```

```
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

2. Expose it with a Service

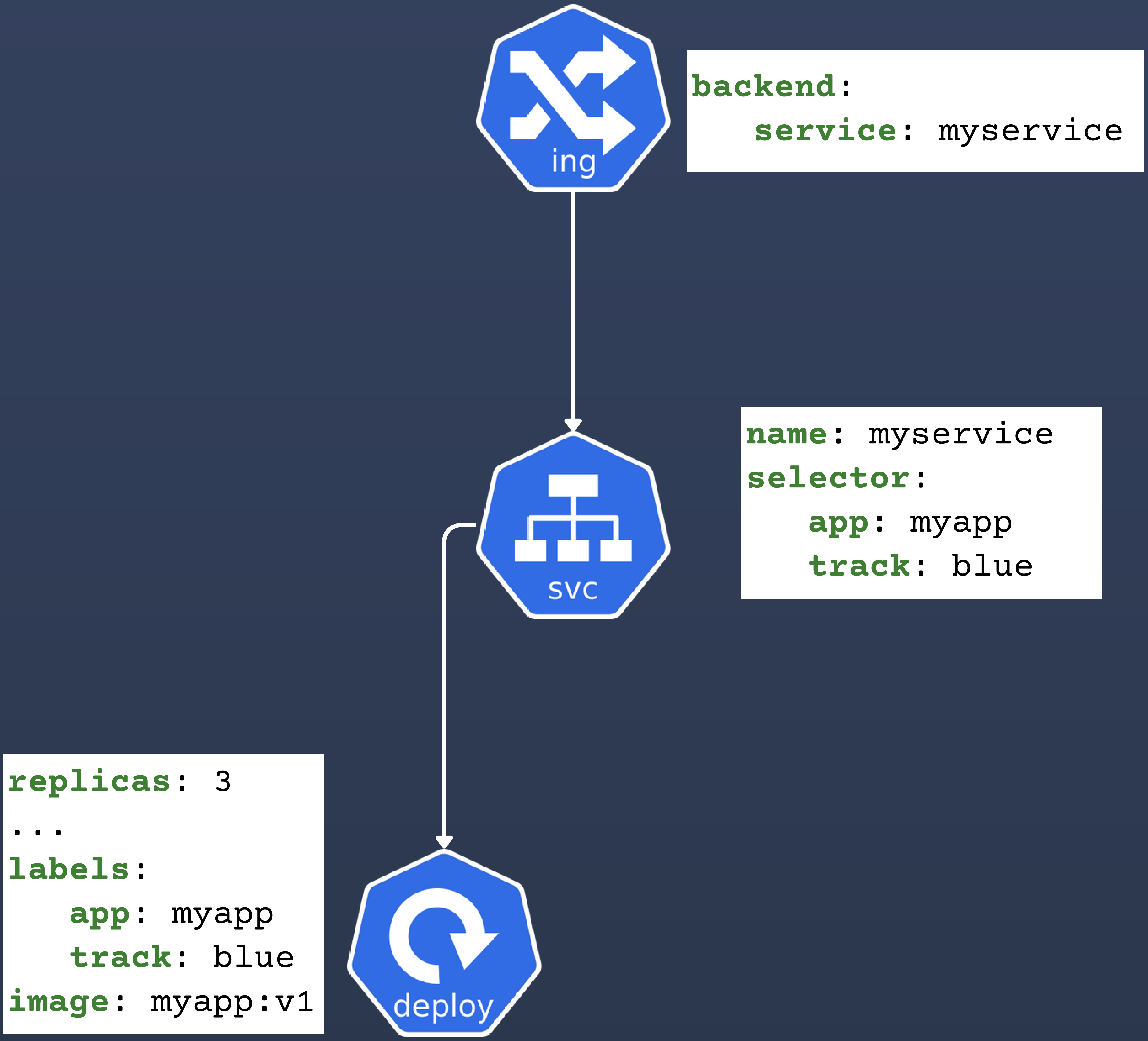
Service selector uses both labels – app and track. Therefore, it precisely matches the blue deployment!



```
name: myservice
selector:
    app: myapp
    track: blue
```

```
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

3. Add an Ingress



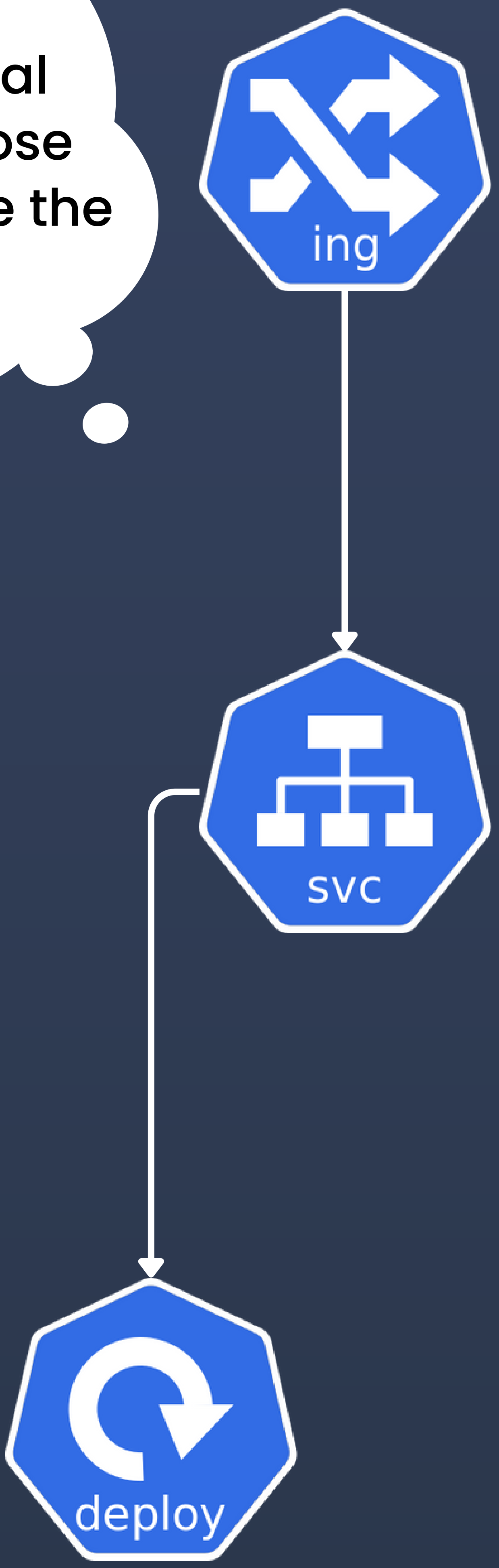
```
backend:
   service: myservice
```

```
name: myservice
selector:
   app: myapp
   track: blue
```

```
replicas: 3
...
labels:
   app: myapp
   track: blue
image: myapp:v1
```

3. Add an Ingress

Ingress is optional but useful to expose application outside the cluster.

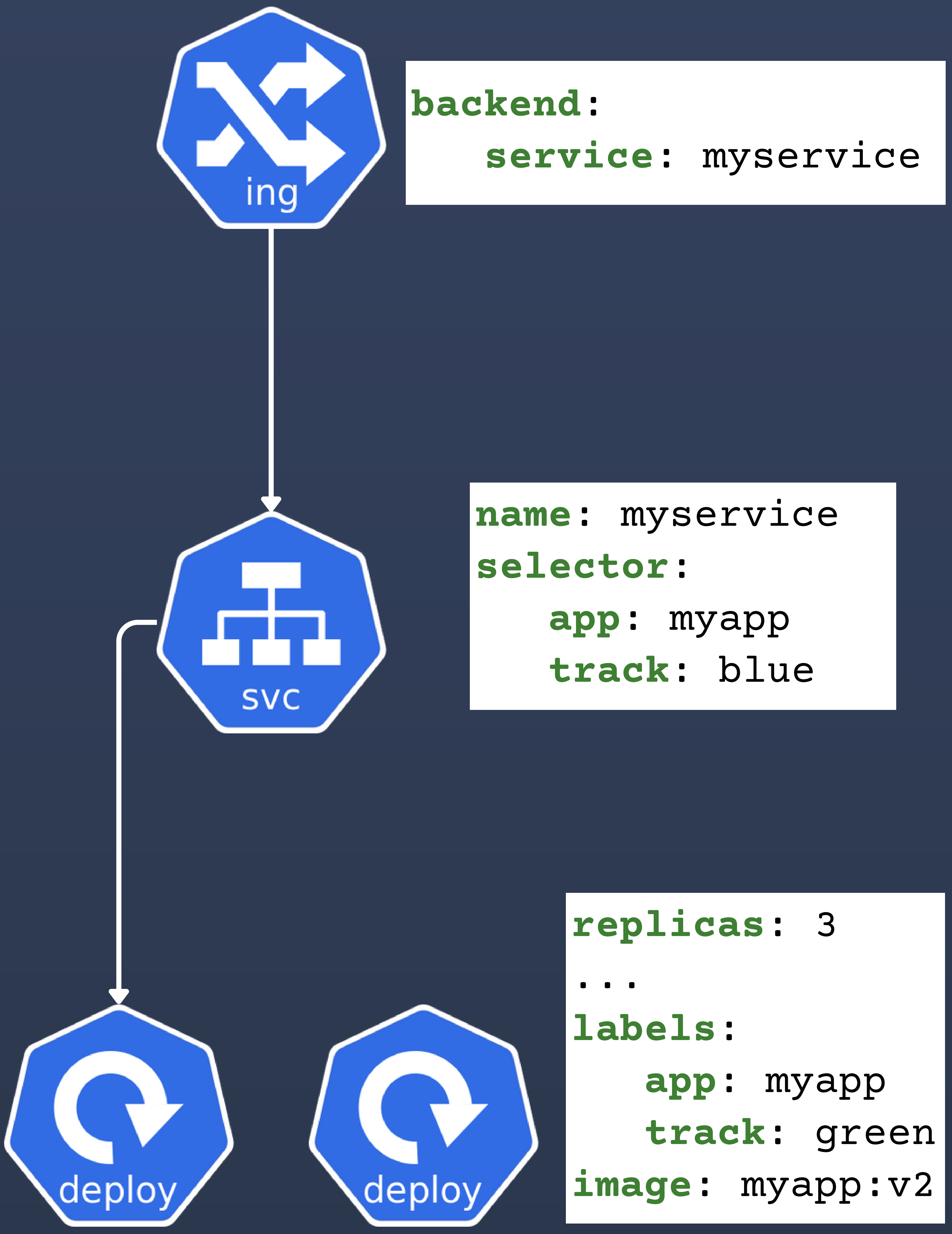


```
backend:
    service: myservice
```

```
name: myservice
selector:
    app: myapp
    track: blue
```

```
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

4. Add Green Deployment



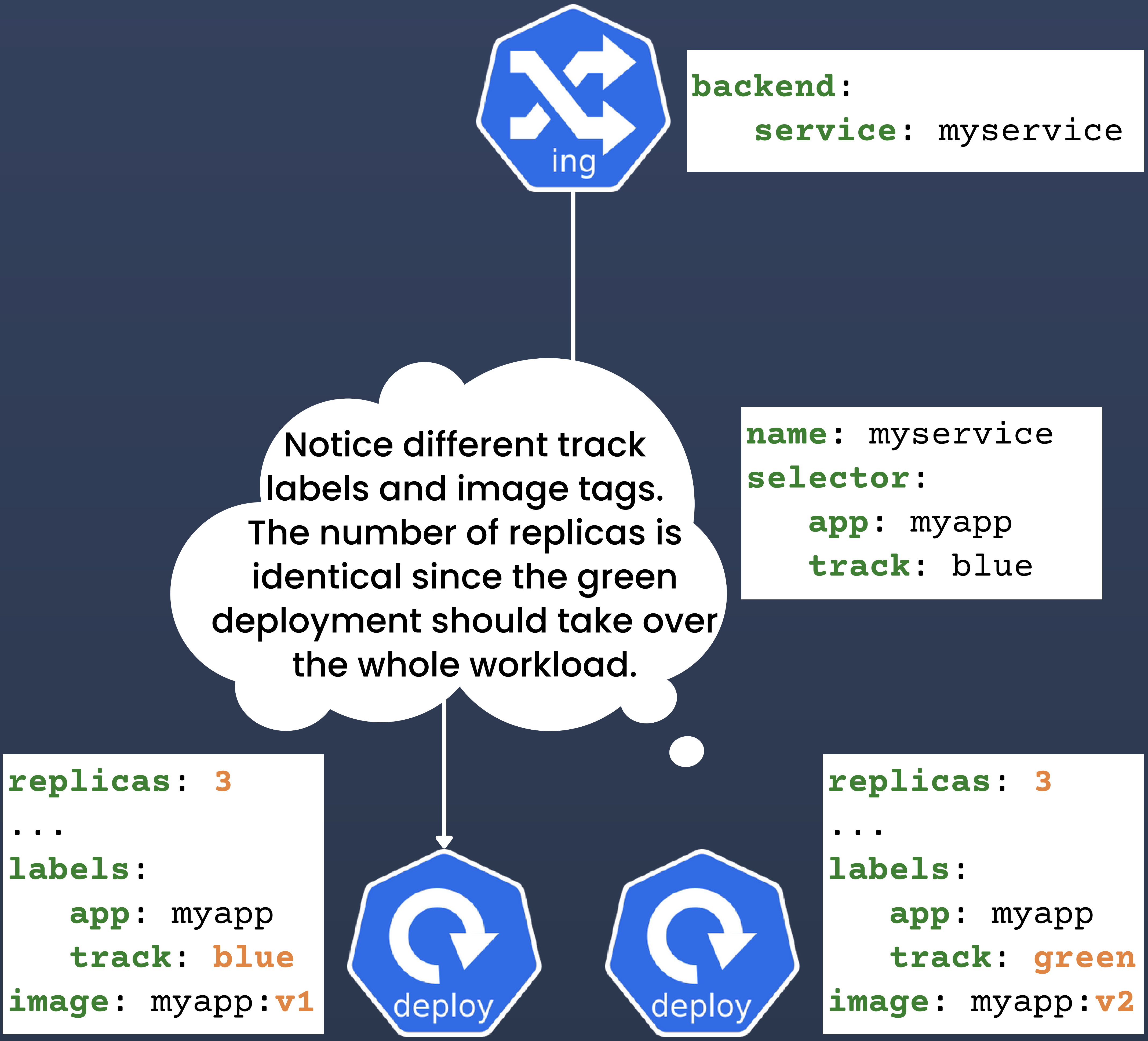
```
backend:
    service: myservice
```

```
name: myservice
selector:
    app: myapp
    track: blue
```

```
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

```
replicas: 3
...
labels:
    app: myapp
    track: green
image: myapp:v2
```

4. Add Green Deployment



```
backend:
   service: myservice
```

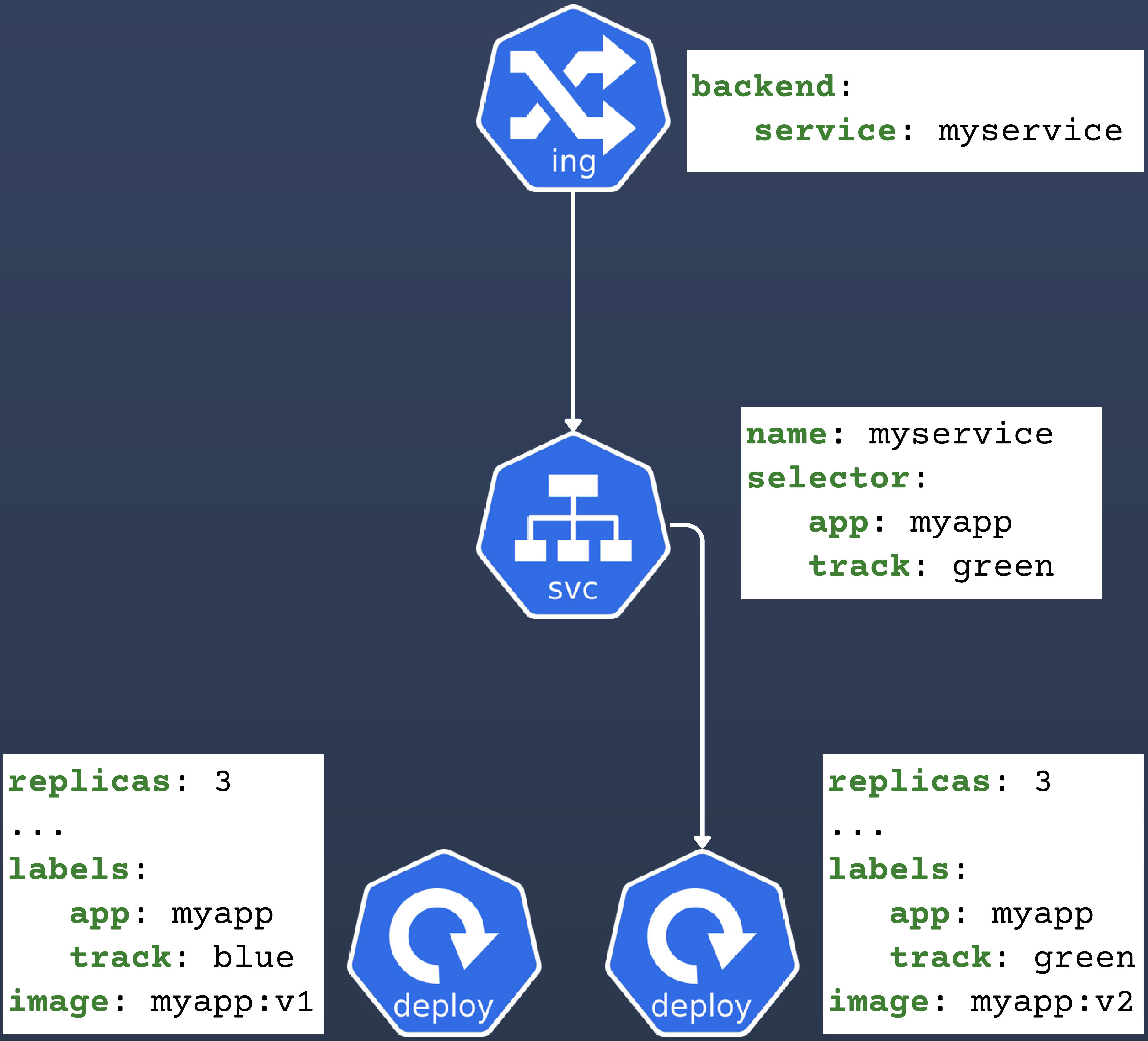
Notice different track labels and image tags. The number of replicas is identical since the green deployment should take over the whole workload.

```
name: myservice
selector:
   app: myapp
   track: blue
```

```
replicas: 3
...
labels:
   app: myapp
   track: blue
image: myapp:v1
```

```
replicas: 3
...
labels:
   app: myapp
   track: green
image: myapp:v2
```

5. Switch to Green Deployment



```yaml
backend:
    service: myservice
```

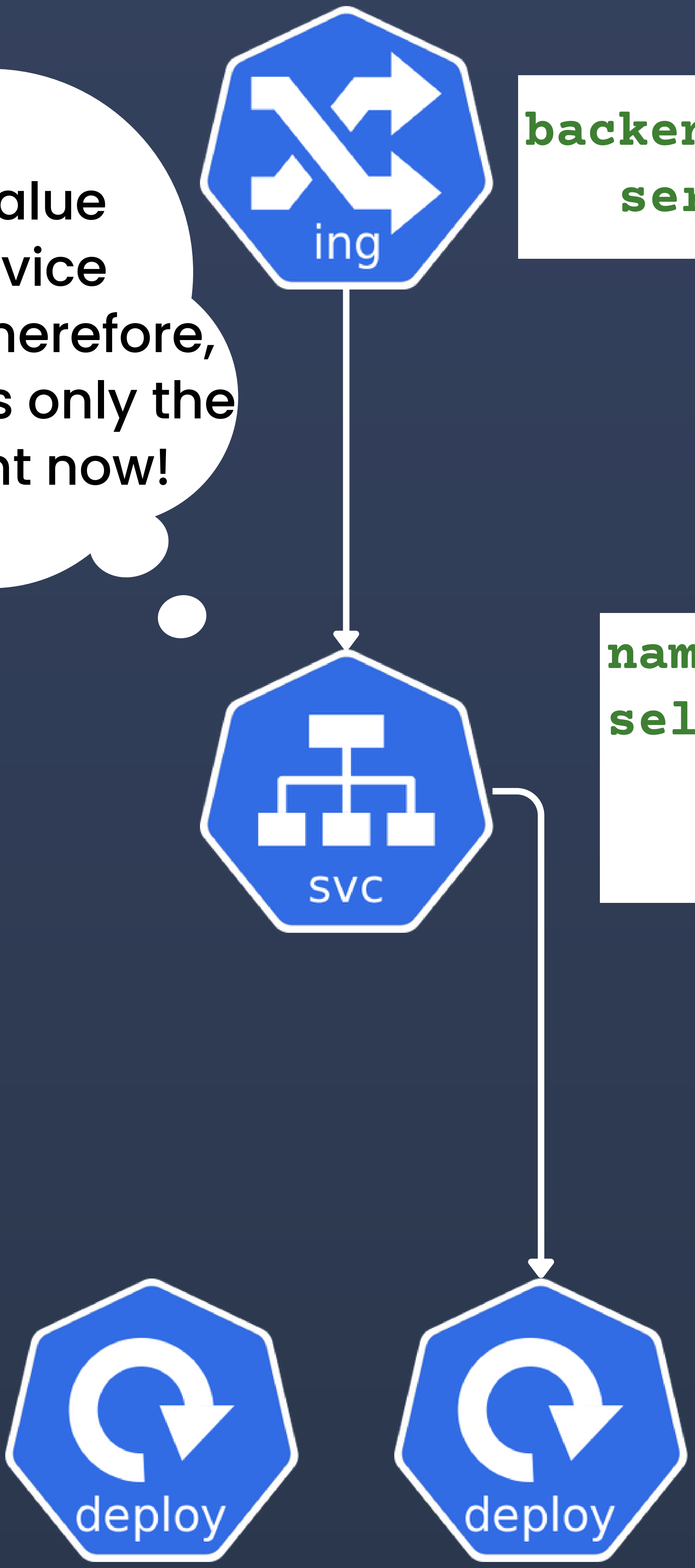
```yaml
name: myservice
selector:
    app: myapp
    track: green
```

```yaml
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

```yaml
replicas: 3
...
labels:
    app: myapp
    track: green
image: myapp:v2
```

5. Switch to Green Deployment

Notice a new value of the track service selector – green. Therefore, the service matches only the green deployment now!



```
backend:
    service: myservice
```

```
name: myservice
selector:
    app: myapp
    track: green
```

```
replicas: 3
...
labels:
    app: myapp
    track: blue
image: myapp:v1
```

```
replicas: 3
...
labels:
    app: myapp
    track: green
image: myapp:v2
```

JAKUB KRZYWDA

@jakubkrzywda

THAT'S IT FOR TODAY!

My name is Jakub Krzywda.

I'm a Senior Cloud Native Engineer and Kubernetes Trainer.

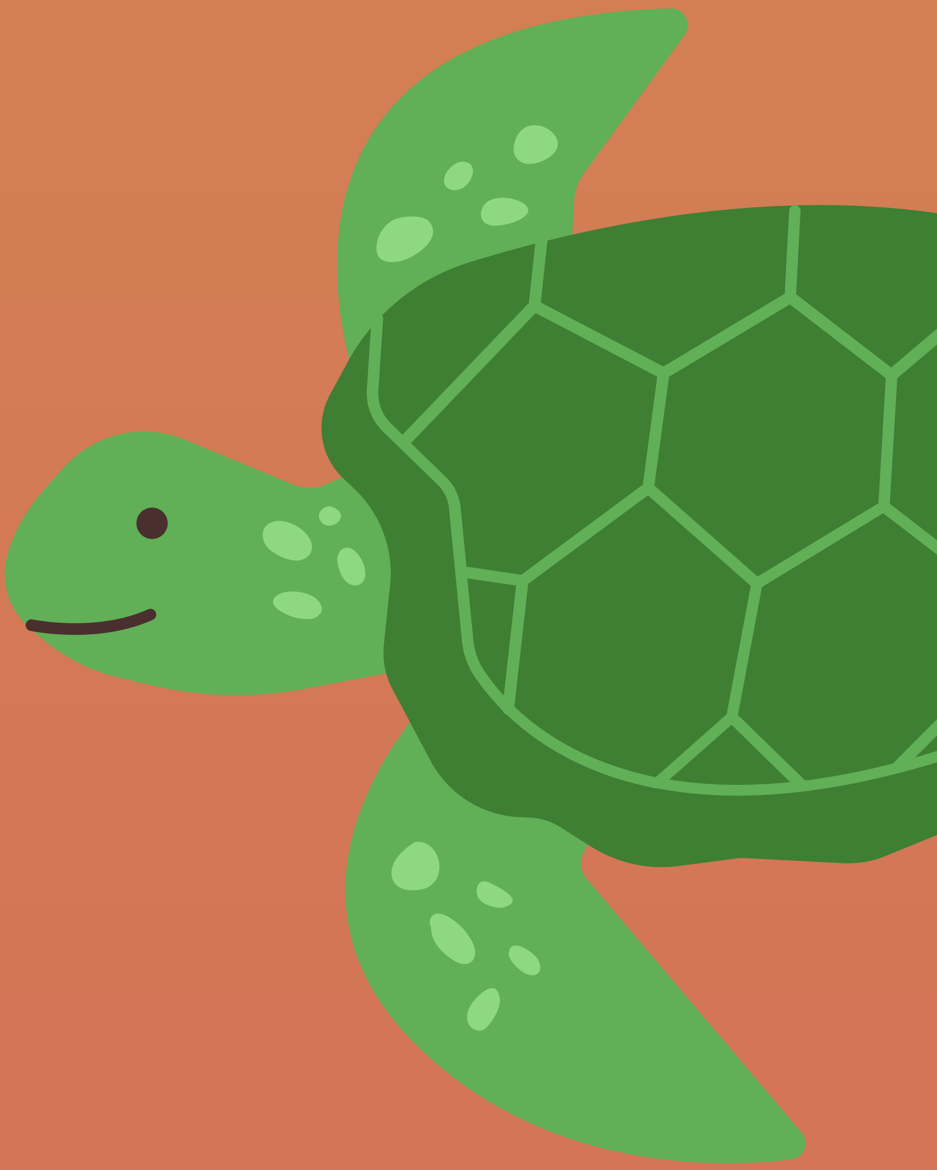
I post about Kubernetes, Cloud Native technologies and DevOps practices.

JAKUB KRZYWDA

@jakubkrzywda

WHAT DO YOU THINK?

Would you like to learn more about automation tools for blue-green deployments in Kubernetes?



Remember to click follow + 🔔