JAKUB KRZYWDA

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How to perform BLUE–GREEN DEPLOYMENTS using only Kubernetes Primitives?

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
```

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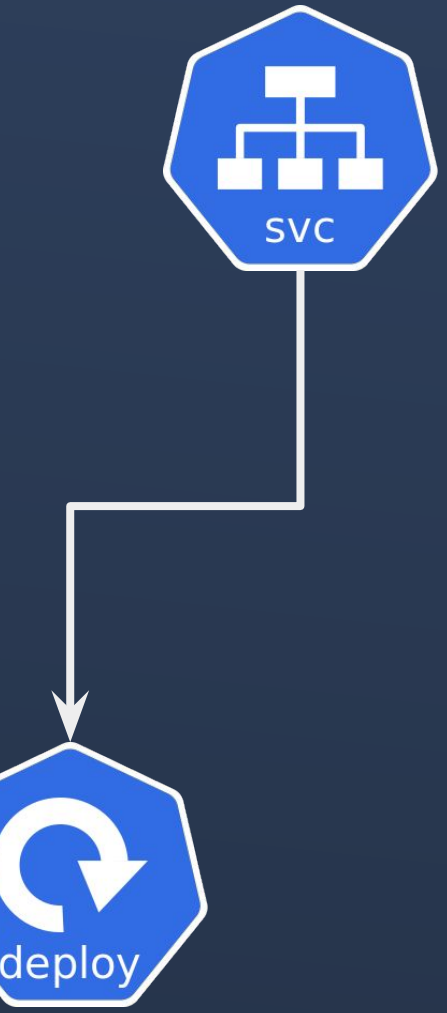
Create Blue Deployment

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

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

2.

Expose it with a Service




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

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

2.

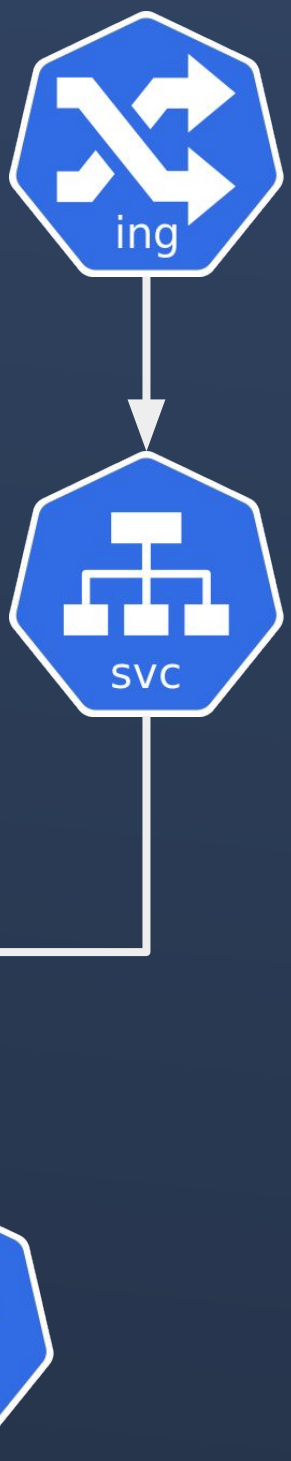
Expose it with a Service

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

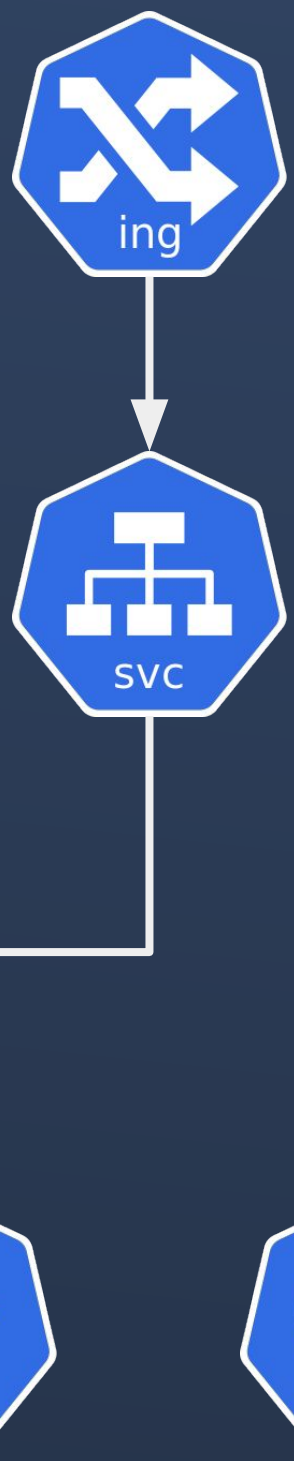
Ingress is optional but useful to expose application outside the cluster.


```
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

Notice different values of track label and image tag.

The number of replicas is identical since the green deployment should take over the whole workload.

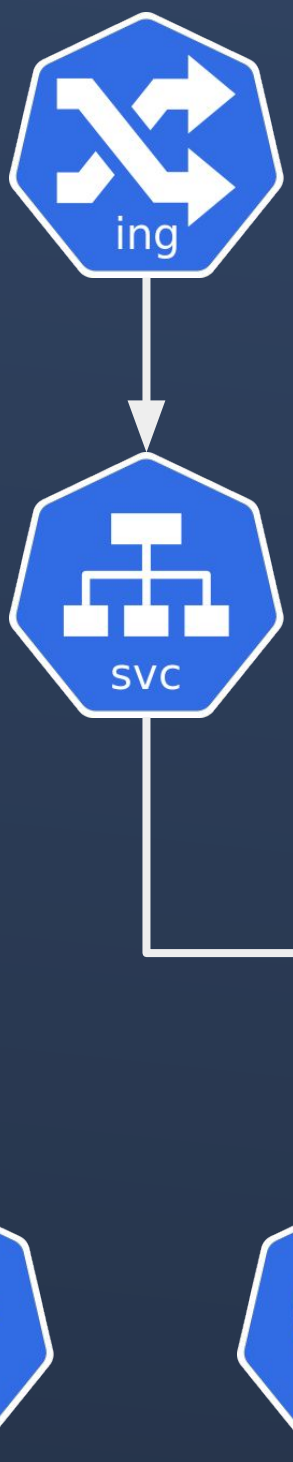

```
backend:
    service: myservice
```

```
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
```

5. Switch to Green Deployment




```
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
```

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

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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

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WHAT DO YOU THINK?

Do you utilize blue-green deployments?

If so, do you use any automation tools for that or follow the steps I outlined in this post?