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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.

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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.

A decorative wavy line in a light blue-grey color, spanning the width of the slide at the bottom.

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:

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1.

Create Blue Deployment

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



1.

Create Blue Deployment

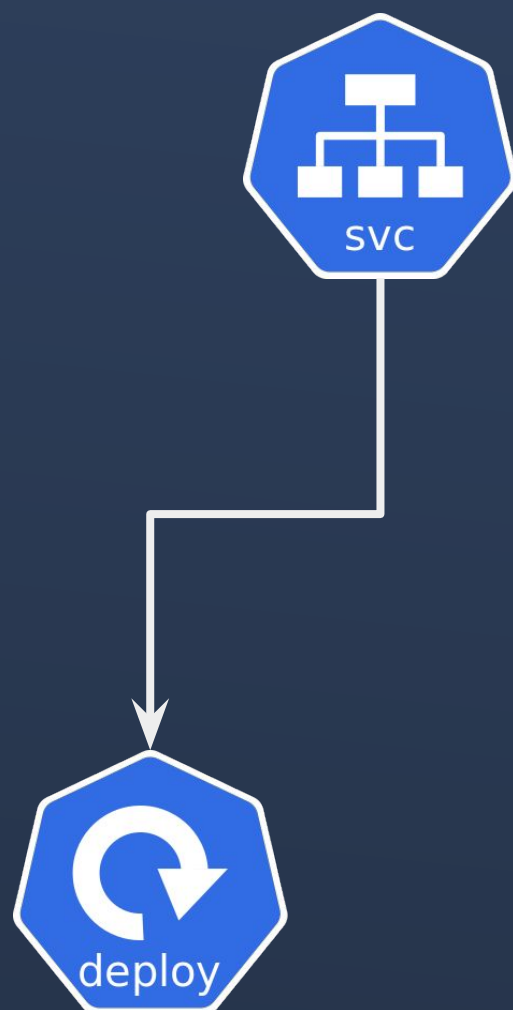
Notice two labels, app and track, their values and the image tag.

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



2.

Expose it with a Service



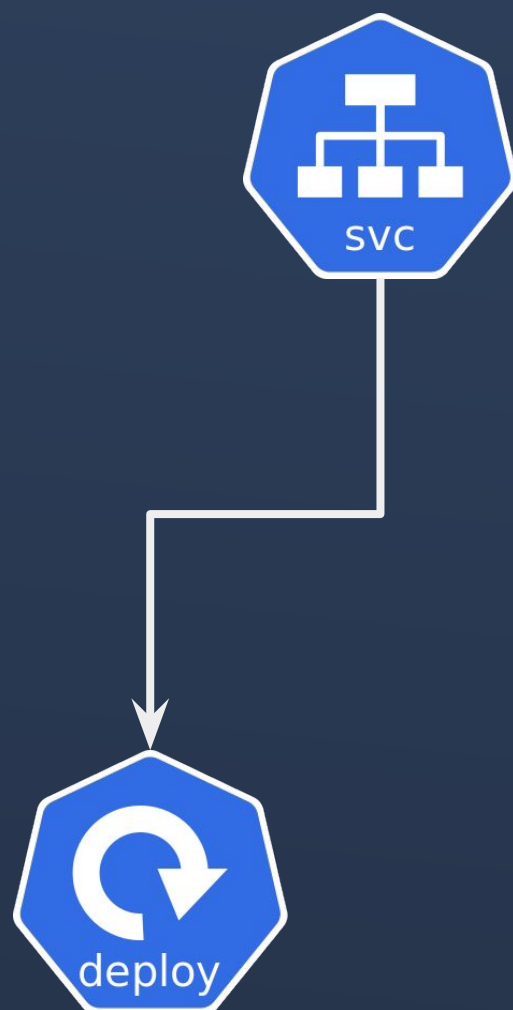
```
replicas: 3
...
labels:
  app: myapp
  track: blue
image: myapp:v1
```

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

2.

Expose it with a Service

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

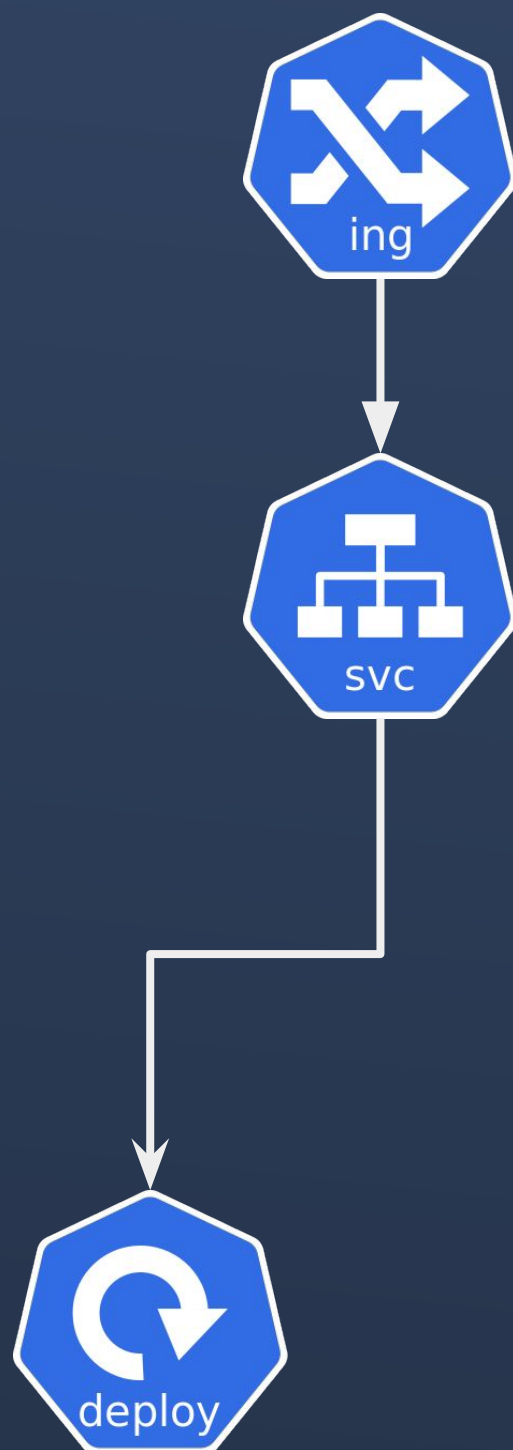


```
name: myservice
selector:
  app: myapp
  track: blue
```

```
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
```



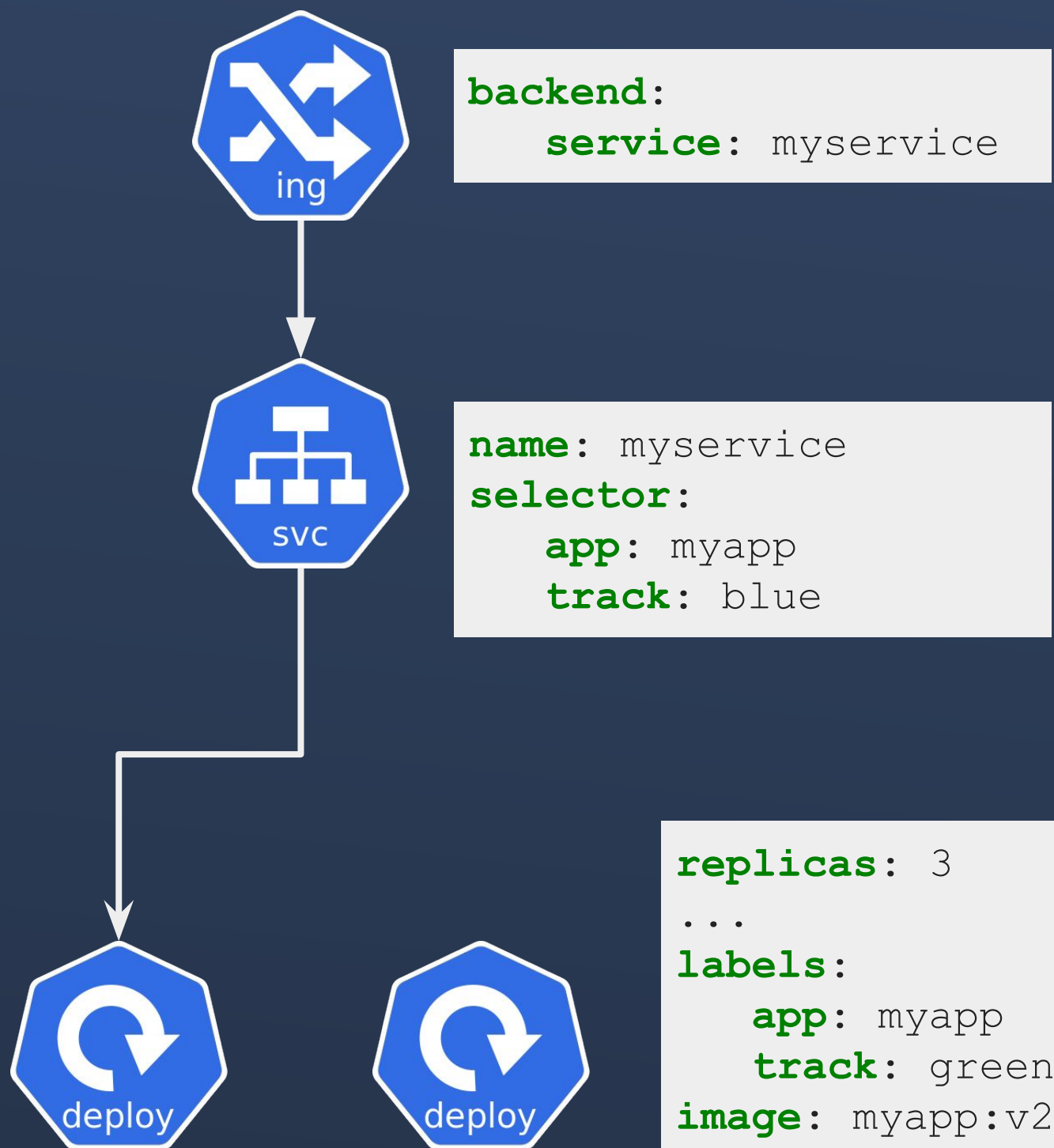
```
name: myservice  
selector:  
  app: myapp  
  track: blue
```



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

4.

Add Green Deployment



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
```

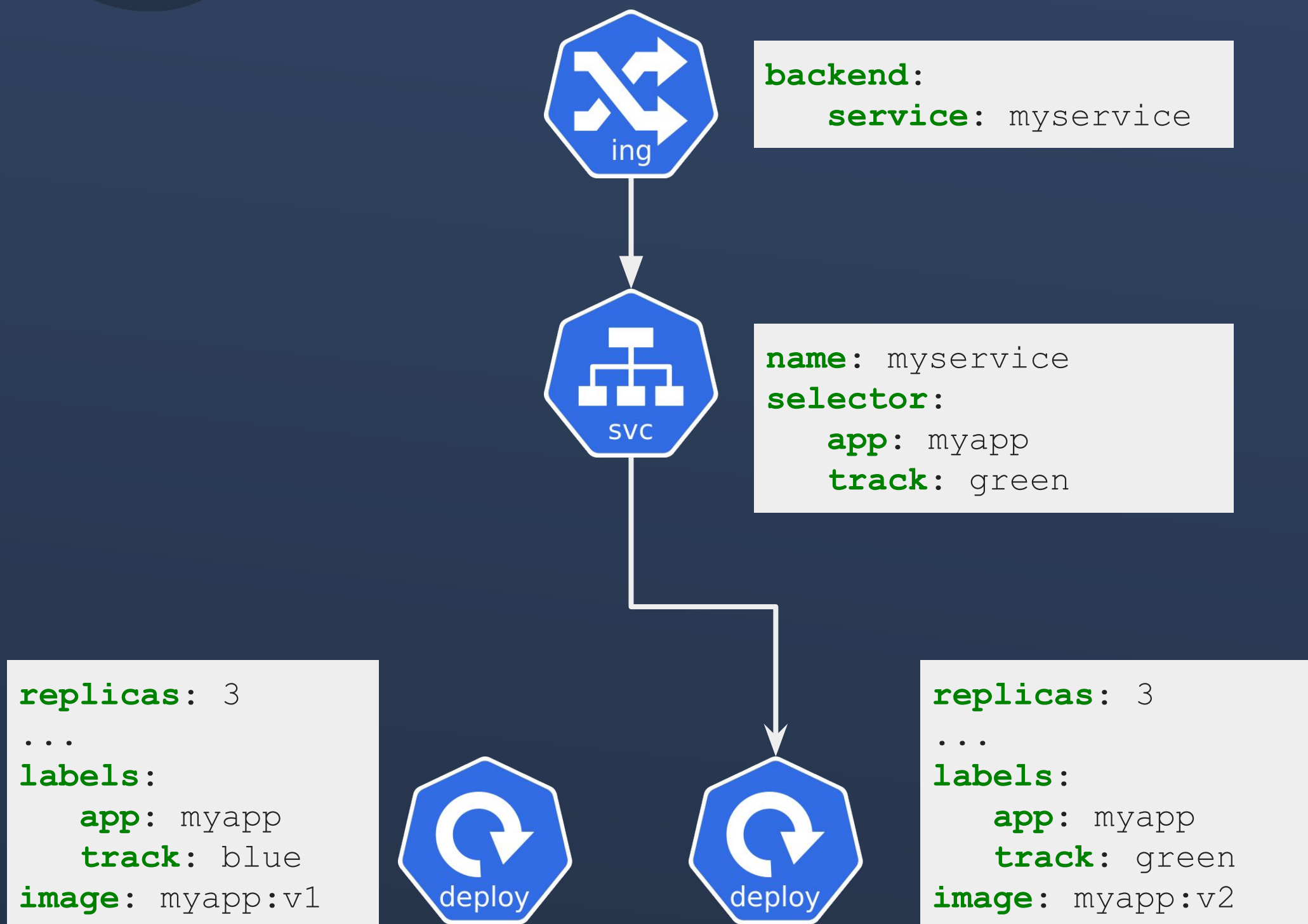
```
replicas: 3  
...  
labels:  
  app: myapp  
  track: blue  
image: myapp:v1
```



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

5.

Switch to Green Deployment



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.



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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?