

# Bootiful **Kubernetes** Operators



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[#geecon](https://sli.do)

# Bootiful Kubernetes Operators

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# Who We Are



**Tiffany Jernigan**

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# Agenda

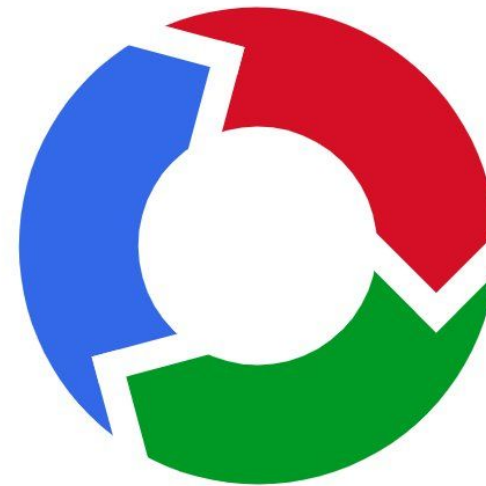
- What is an Operator?
- How does Kubernetes work?
- Custom operators
- Building our own operator

# The Operator pattern

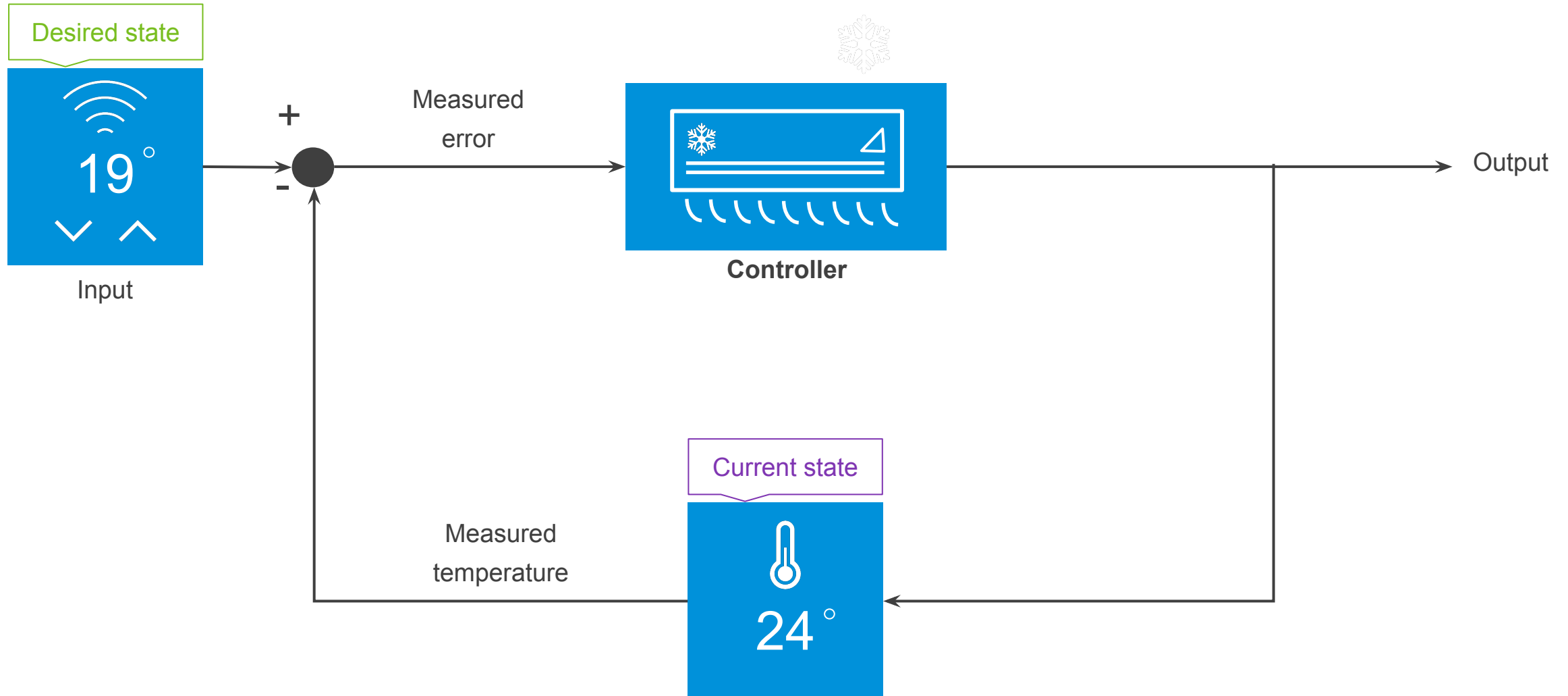


# High level overview

30,000 foot view of Kubernetes architecture



# Control Loop





# Built-in Kubernetes Controllers

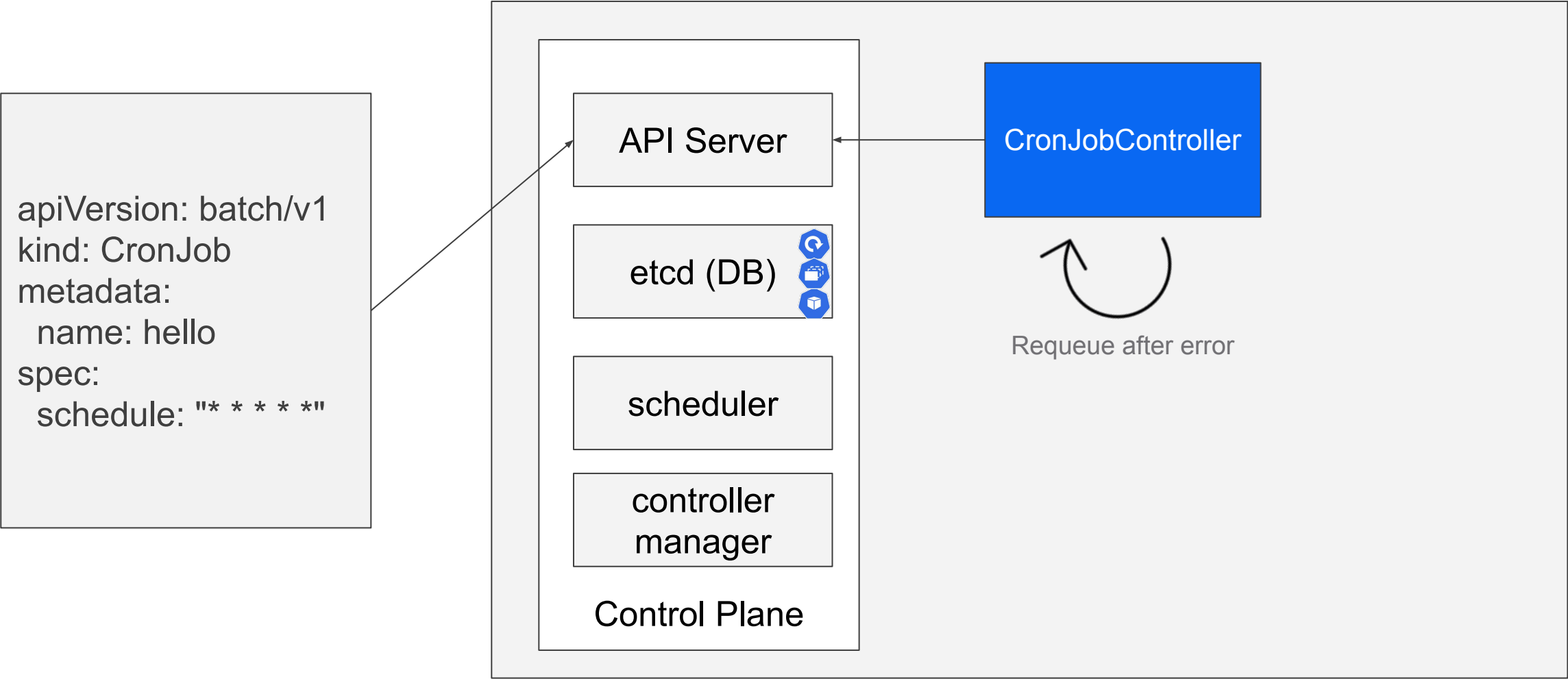
- Deployment
- ReplicaSet
- DaemonSet
- StatefulSet
- Job
- CronJob



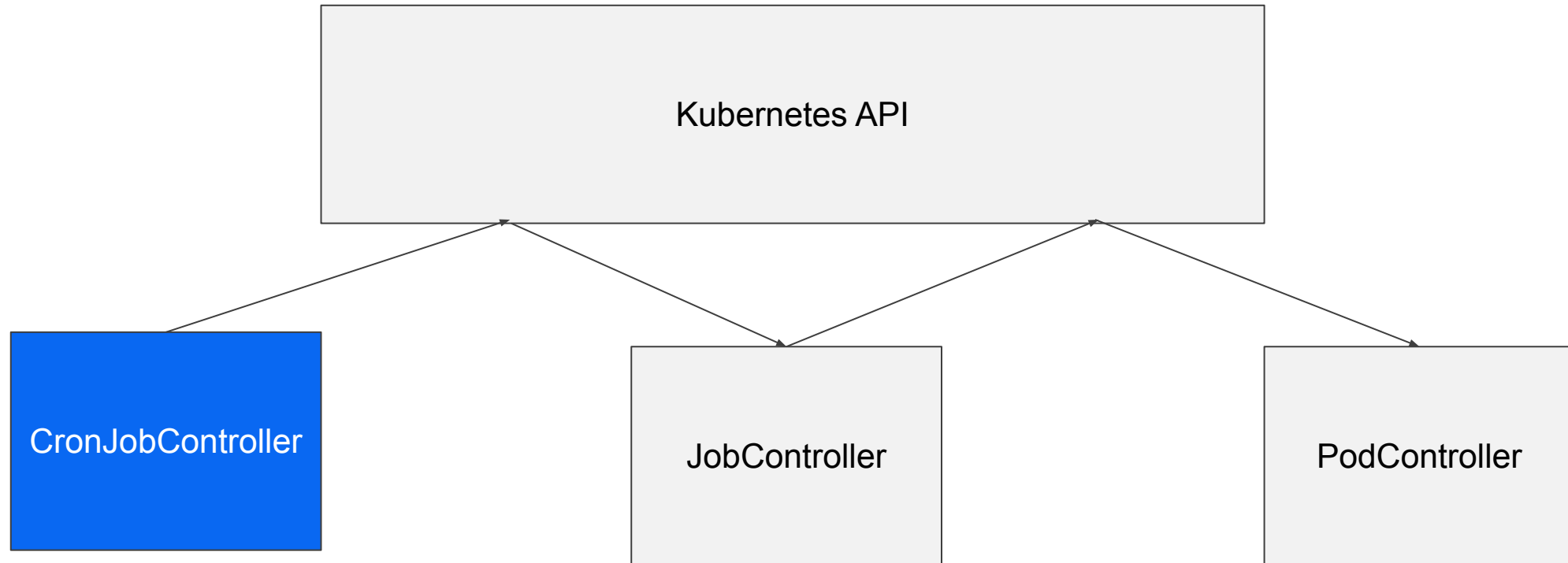
# Kubernetes speak

```
apiVersion: batch/v1
kind: CronJob
metadata:
  name: hello
spec:
  schedule: "* * * * *"
  ...
```

# Kubernetes Controller Pattern



# Operator chaining

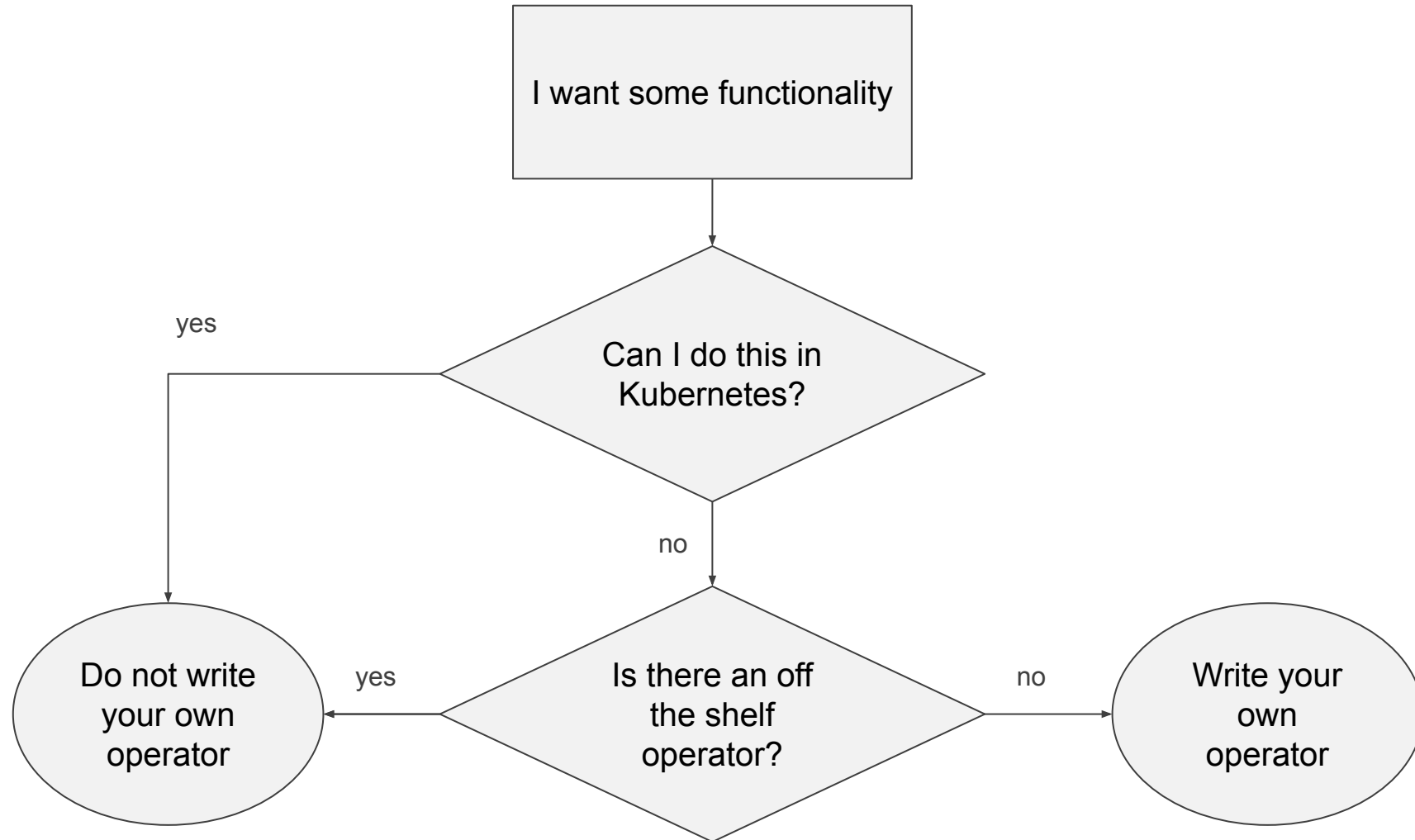


# Custom Operators

<https://spring.io/blog/2021/11/19/get-to-know-a-kubernetes-operator>



# Why write your own operator?



# Why write your own operator?

- Automating (complex) tasks for teams
- Credential management





# Pitfalls

- Out of sync
- Ownership





# Building an Operator

## Examples of Operator frameworks/libraries

- <https://operatorframework.io/>
- <https://kudo.dev/>
- <https://kubebuilder.io/>

## Or just use a REST client

<https://kubernetes.io/docs/reference/using-api/client-libraries/>

## Officially supported:

- C
- dotnet
- Go
- Haskell
- Java
- JavaScript
- Perl
- Python
- Ruby

# Building our own operator

Terminal

Console

Editor

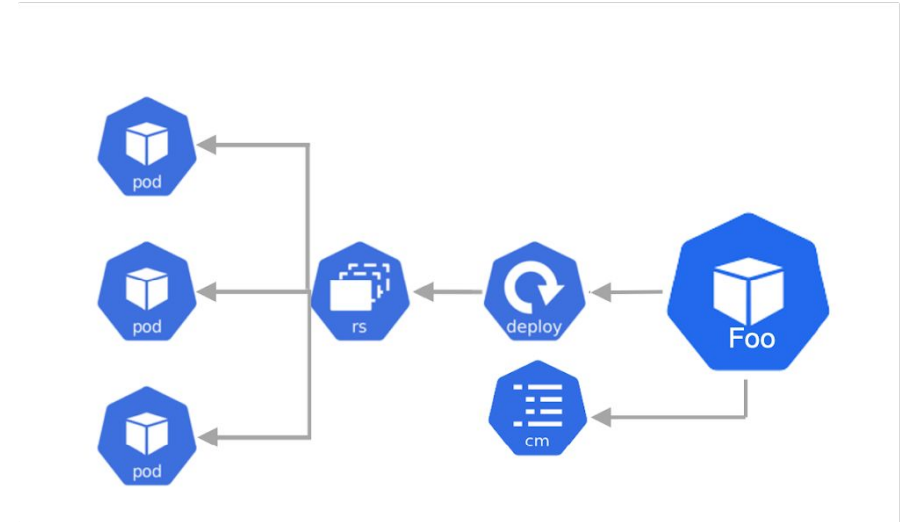
My first Foo

# Hello, Spring



# What will we need

- Custom Resource Definition (CRD)
- Controller
  - Reconciler
- Role bindings
- Deployment





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# Thank You



<https://via.vmw.com/bootiful-k8s-operators>