



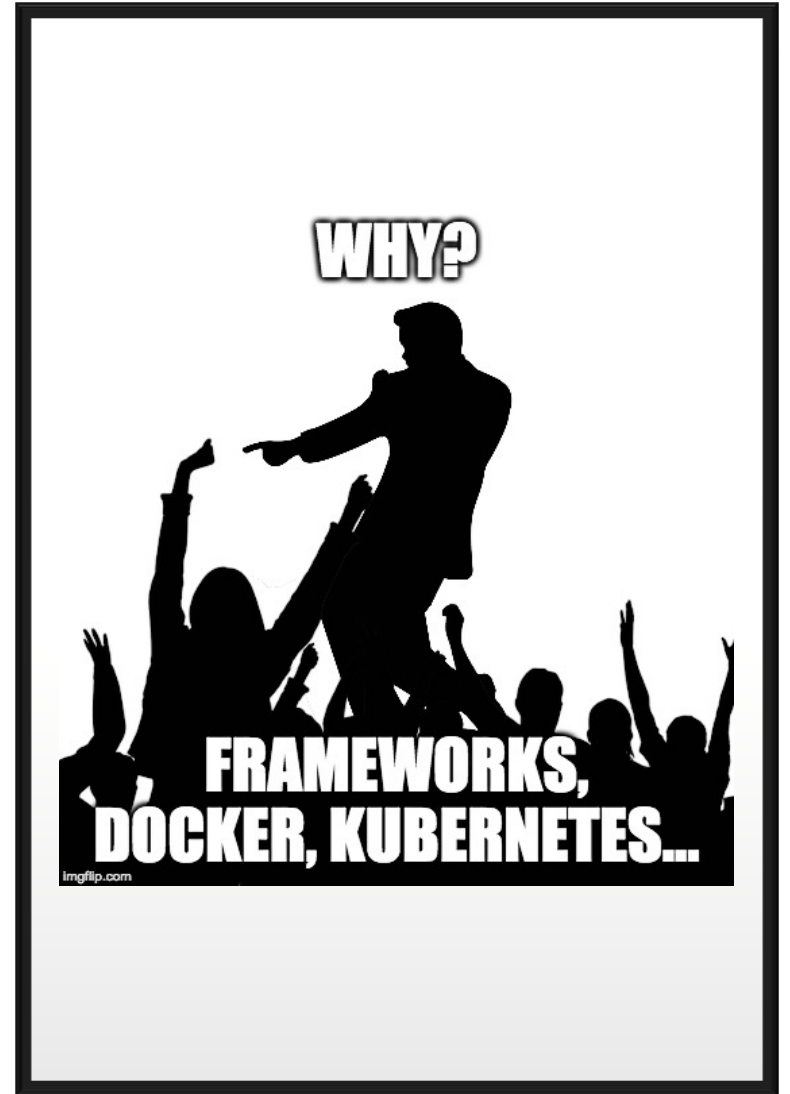
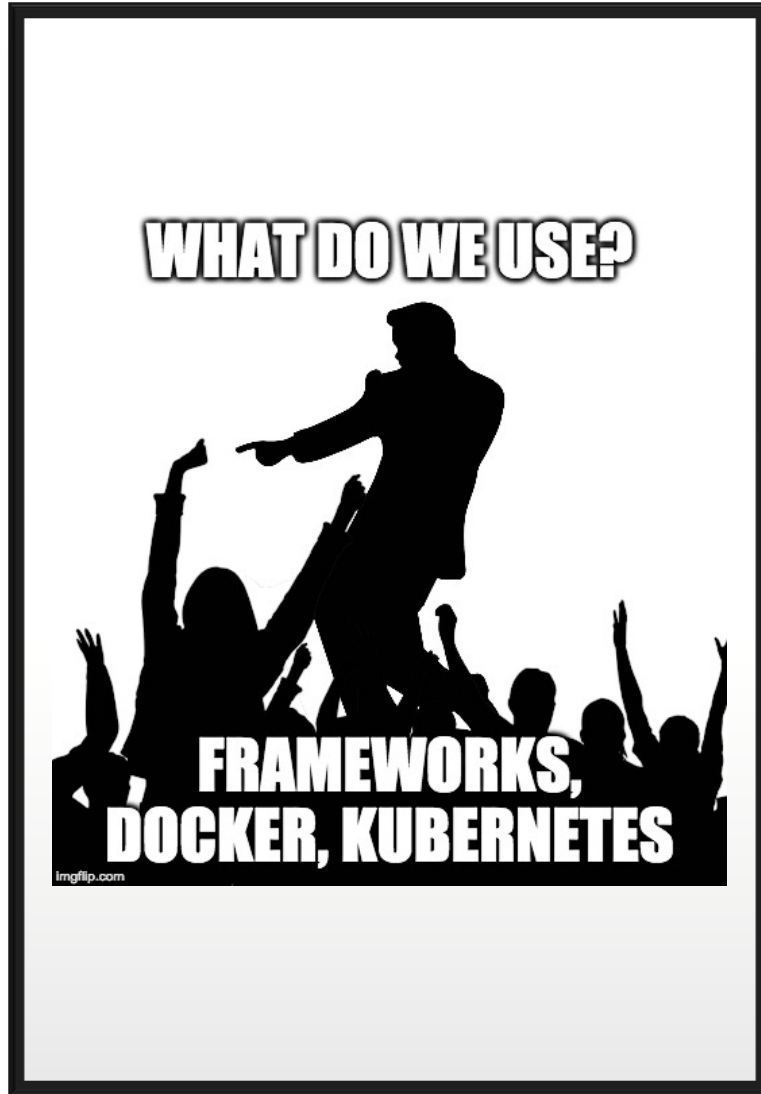
# THE AUTOMATION CHALLENGE KUBERNETES OPERATORS VS HELM CHARTS

# HELLO!



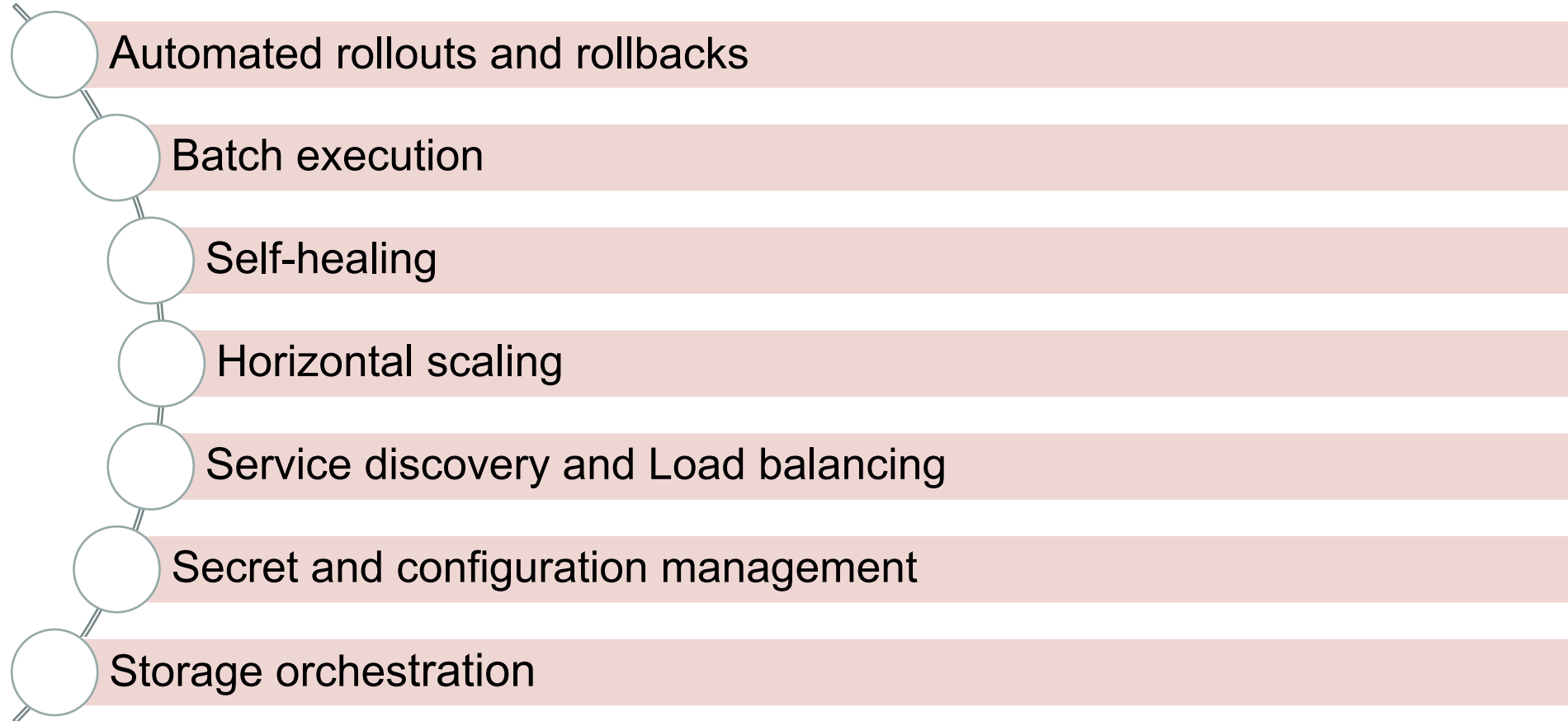
**I am Ana**

Java Champion, Solutions Architect @ IBM  
Co-founder of Bucharest Software Craftsmanship  
Community





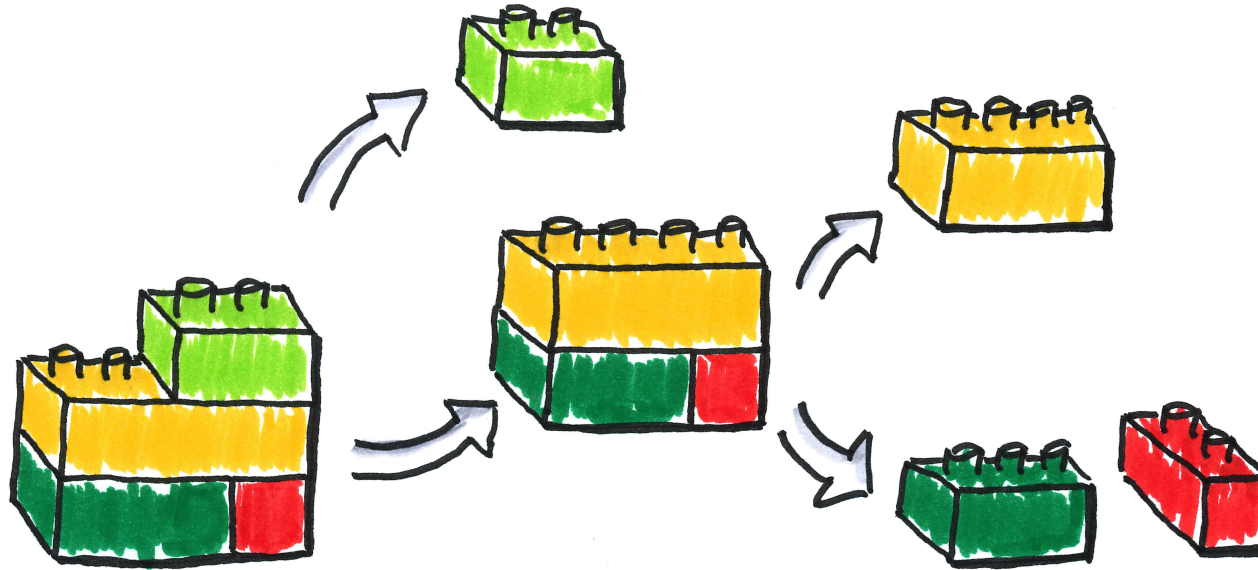
# (Some) Kubernetes Features





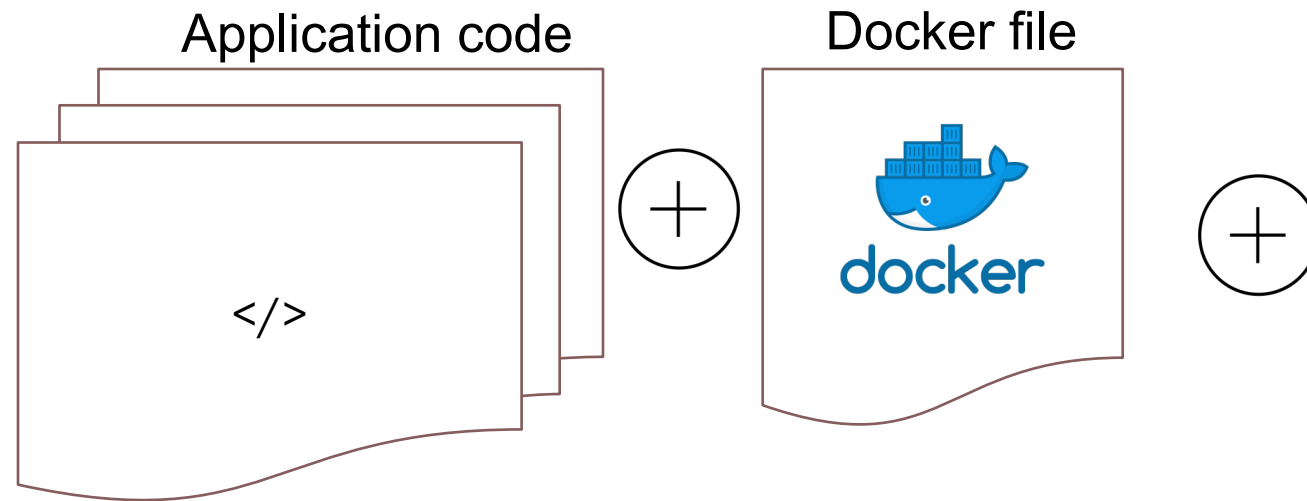
# Microservices ↔ Kubernetes

*Divide et Impera* architecture

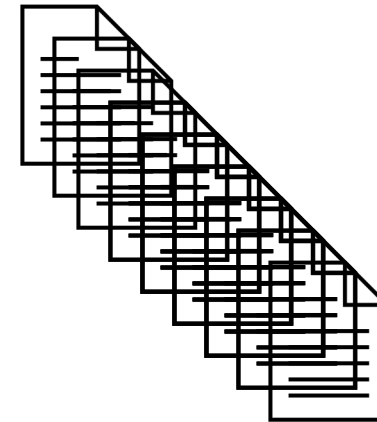


Source: <https://www.flickr.com/photos/otacke/10080909435>

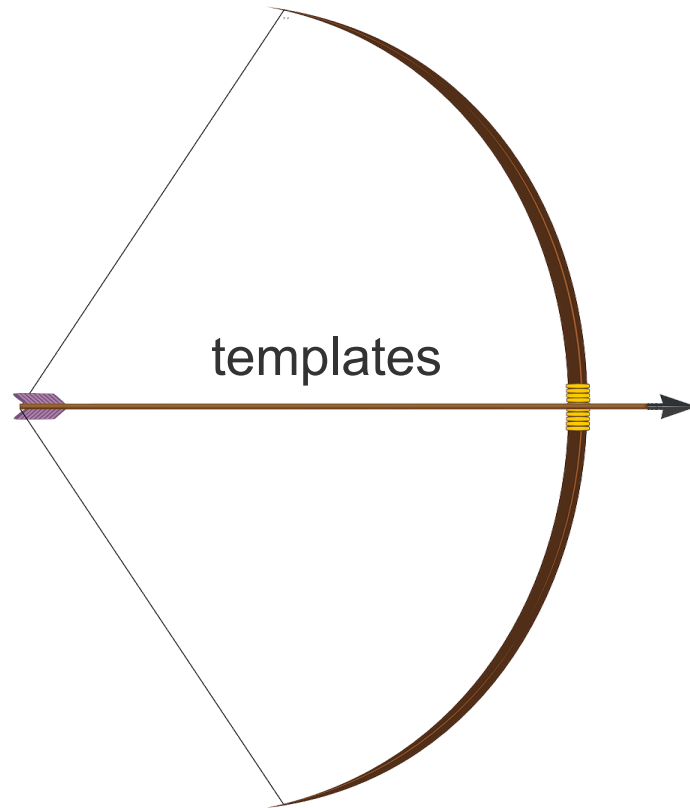
# The story of a Microservice



Kubernetes objects  
in yaml format



# Kubernetes Package Manager



Manage and update multiple  
Kubernetes configurations



Deploy many configs as a SINGLE  
application

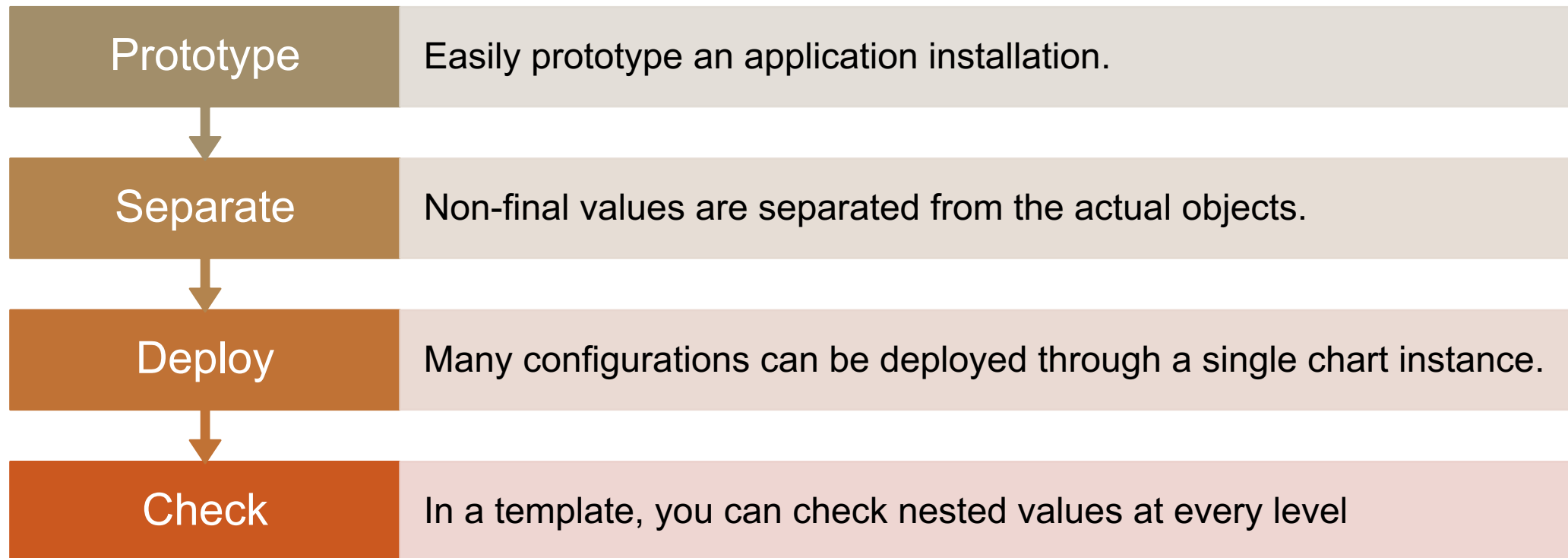


Parametrize for multiple  
environments support



# HELM SHOW TIME

# Helm Advantages



# Distinctive Helm Aspects

```
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    rollme: {{ randAlphaNum 5 | quote }}
  name: {{ include "landmark.fullname" . }}
  labels:
    {{- include "landmark.labels" . | nindent 4 }}
```

*deployment.yaml*

Automatically roll deployments via **annotations**

Reusability is encouraged via **include**, **\_helpers.tpl** and **tpl**

Instruct Helm to keep resources upon uninstall

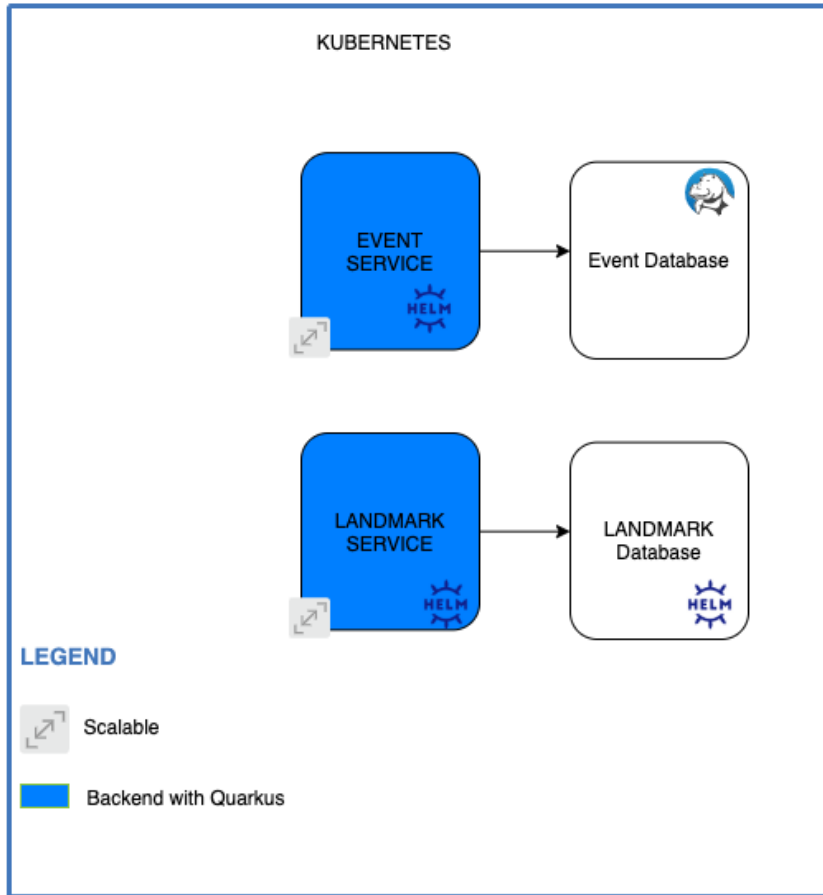
```
apiVersion: v1
kind: Service
metadata:
  annotations:
    "helm.sh/resource-policy": keep
```

*service.yaml*

```
{{/* vim: set filetype=mustache: */}}
{{/*
Expand the name of the chart.
*/}}
{{- define "landmark.name" -}}
{{- default landmark <empty value> | trunc 63 | trimSuffix "-" -}}
{{- end -}}
```

*\_helpers.tpl*

# Next steps



?

2

4

8

∞





# WHAT HAPPENS AT THE MATURITY OF THE SYSTEM?

# Benefits of Using Operators



Package human operational knowledge



Clients like kubectl and dashboard automatically work with Operators



The resources created via Operators are secured and use HTTPS

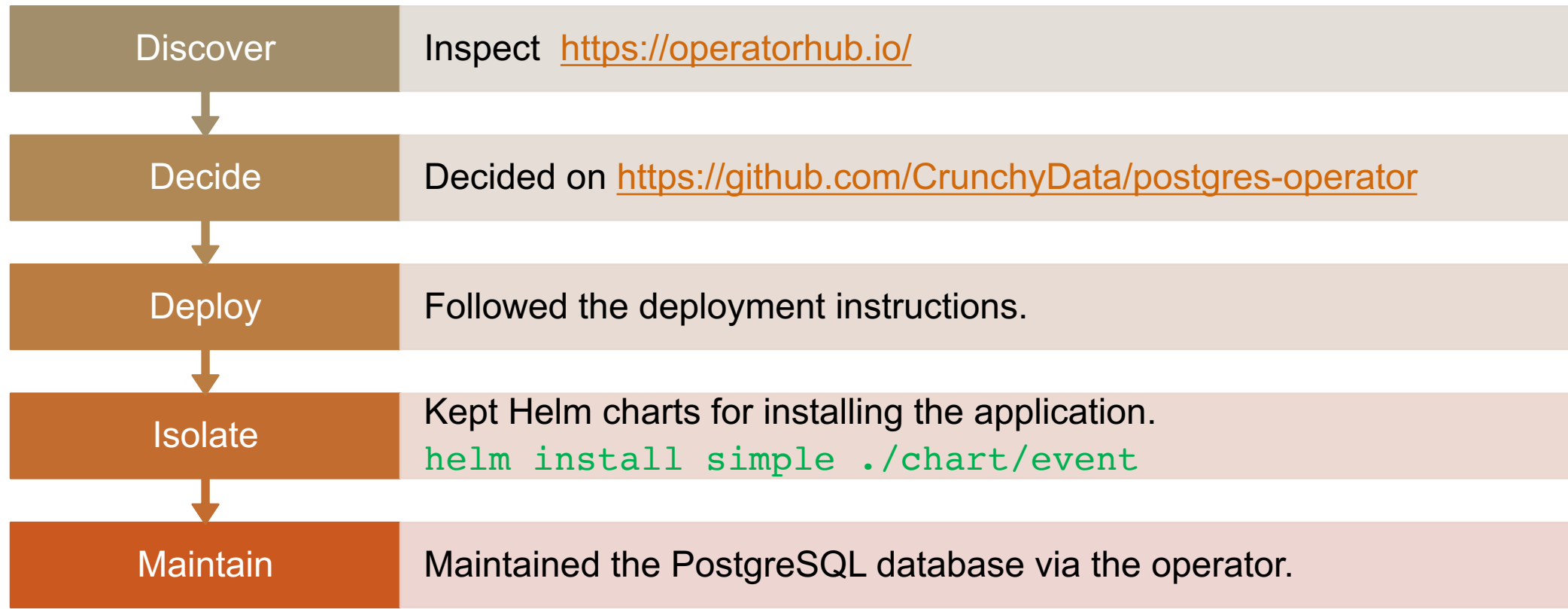


Can be used to create backups or for configuring your cluster



Cloud native tools can be maintained via operators

# What's Next?



# Create an Operator?



**KUDO** (Kubernetes Universal Declarative Operator)



**kubebuilder**

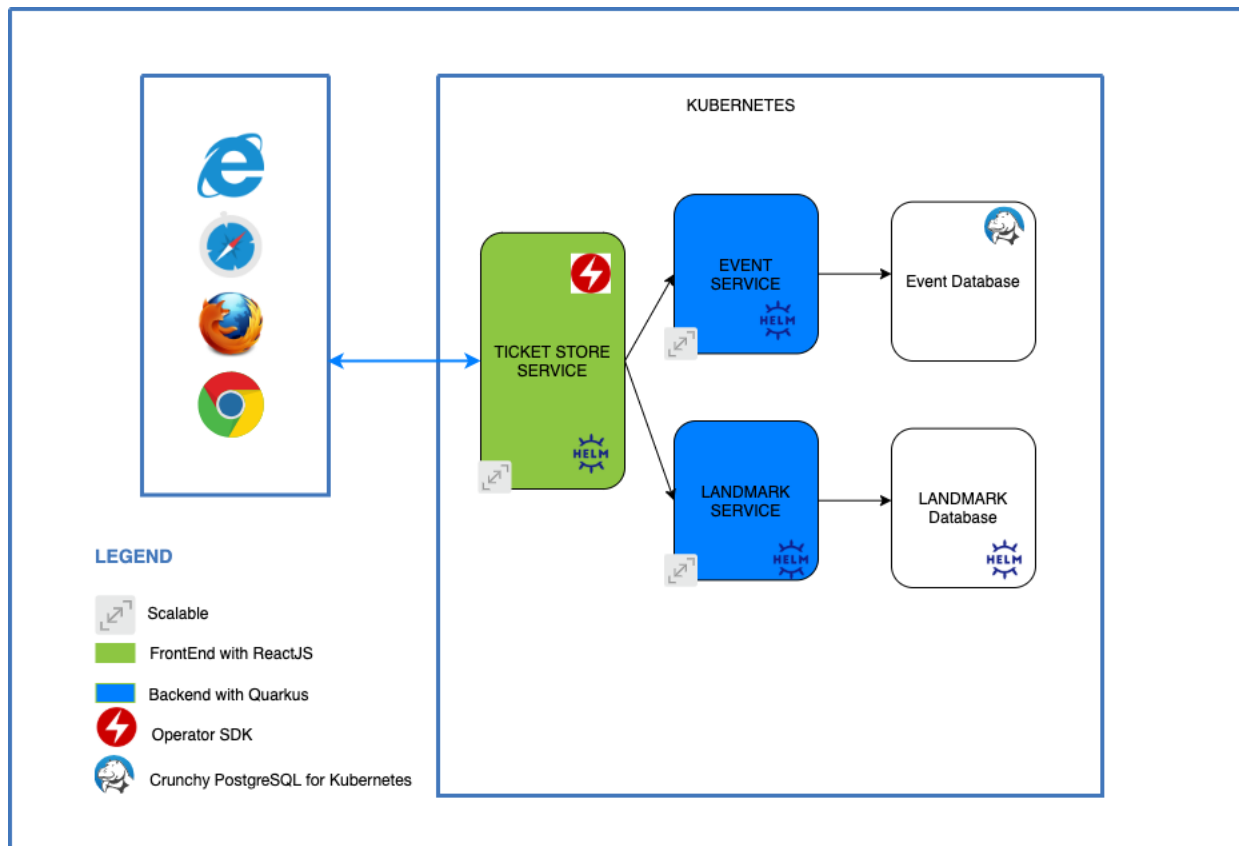


**Metacontroller** along with WebHooks that you implement yourself



**Operator Framework**

# Final view







# FROM HELM CHARTS TO OPERATORS



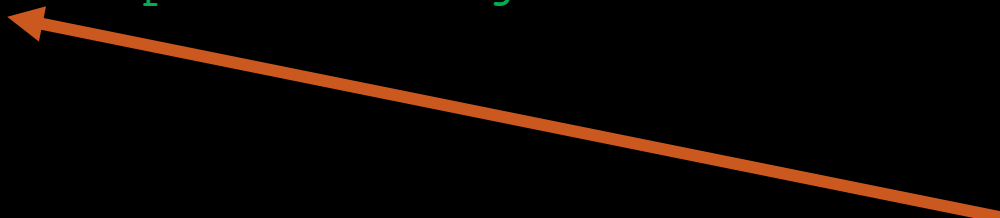
# Publish Helm Charts to a Repo

```
$ git checkout gh-pages
$ helm package ticket-store
$ mv ticket-store-0.1.0.tgz docs
$ helm repo index docs --url https://ammбра.github.io/helm-vs-operators
$ git add .
$ git commit -am "published charts"
$ git push origin
```



# Create Operator from Helm Charts

```
$ helm repo add store https://ammбра.github.io/helm-vs-operators/  
$ mkdir operator  
$ cd operator  
$ operator-sdk init --plugins helm --helm-chart store/ticket-store
```





# Takeaways

Helm	Operators
Have a custom packaging format.	Include a great deal of complex configuration data within the package.
You are deploying a generic application and are happy with its settings.	Can deploy a stateful application and maintain it in a completely automatic way.
Great for checking an application deployment.	Can deploy an application across a cluster that is configured in a particular way to achieve high availability.
Has annotations that can trigger automatic deployments.	Useful for operations related to backups or cluster configuration.



Thank  
you !

Code made available at  
<https://github.com/ammbra/helm-vs-operators>



# Useful

- <https://operatorhub.io/>
- [Deploy a Crunchy PostgreSQL for Kubernetes Operator to an OpenShift cluster](#)
- [Helm operator tutorial](#)
- [Chart repository guide](#)