

Taming Istio Configuration with Helm

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#IstioCon

In this talk

This is a talk about using Helm with Istio

- Look at helm from a new perspective
- Helm helps automate Istio day-2 tasks
- Helm gitops



HELM

~~The package manager for Kubernetes~~

It's not just for installation anymore!

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What is Helm?

- Installer for Charts
- Define applications
- Install
- Upgrade
- Roll back

<https://helm.sh>

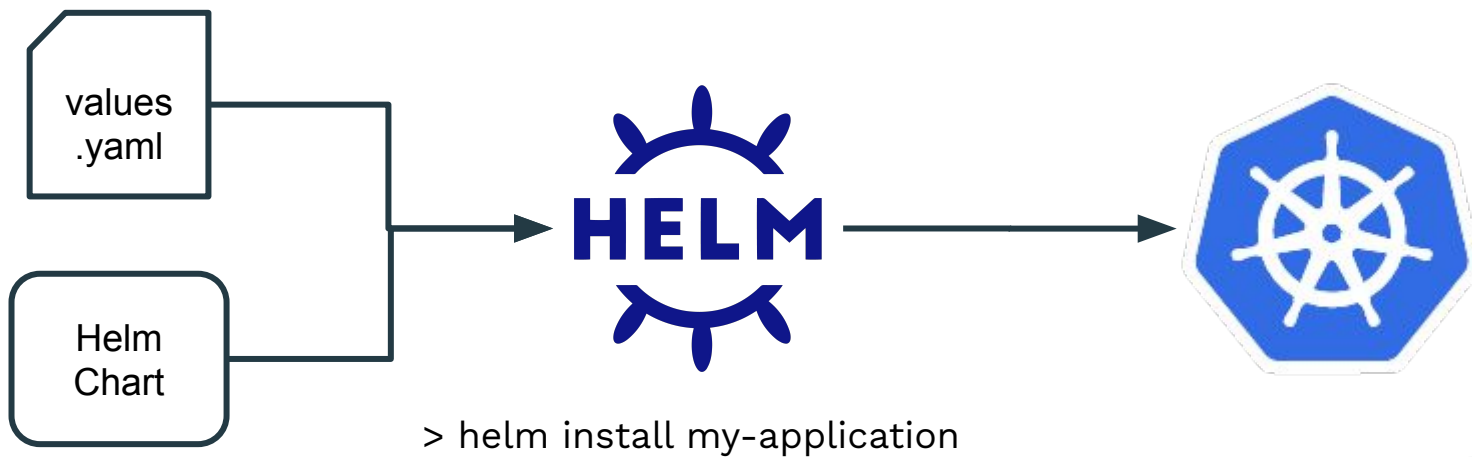


The
package manager
for Kubernetes

Helm is the best way to find,
share, and use software built
for Kubernetes.



What is Helm?



Helm has a polarizing reputation

- Broken or incomplete public charts
- CRDs still not solved
- Writing charts is tedious
- ~~Titter~~

**You don't need most of Helm
to get the most from Helm!**



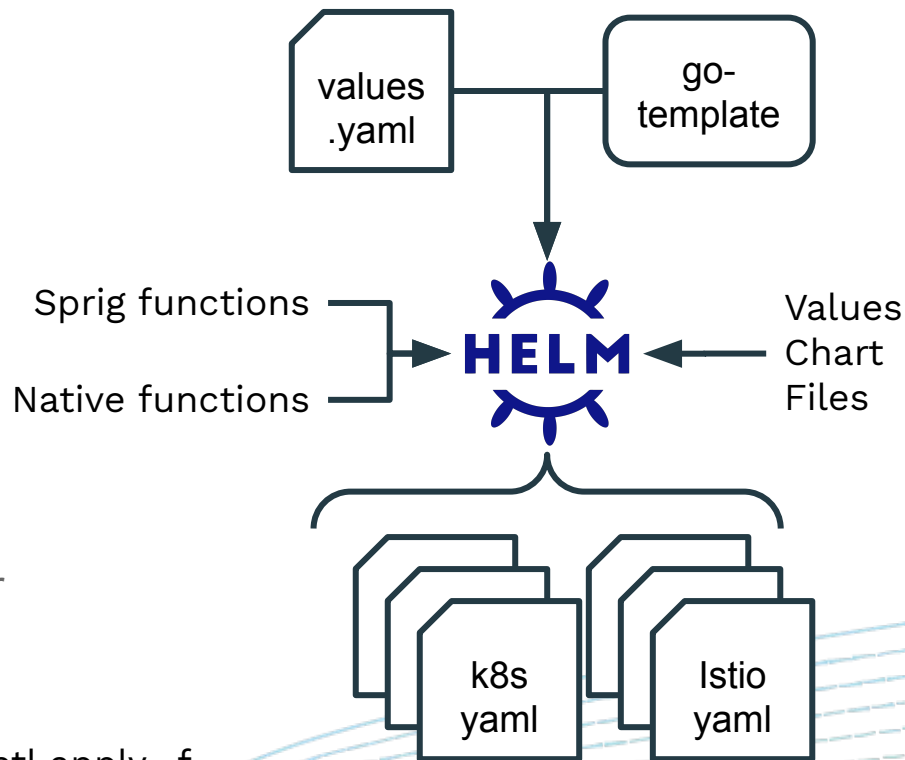
Managing Istio with Helm

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How does Helm relate to Istio?

- Istio install built on Helm
- Istio runs on YAML
- Our services are installed with YAML
- Helm emits YAML
- We can manage Istio and our services with Helm!



```
> helm template my-service | kubectl apply -f -
```

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Istio day two operations with Helm

- Istio config is too flexible and too granular
- Scope of intent \neq Scope of config

- Helm as a DSL for Istio
- Say what you want once
- Generate all the Istio YAML

- Scope of intent $=$ Scope of config



DEMO

Demo - Bookinfo

What did we see?

- Single entry point for each service's configuration
- Install each service with a single command
- Single source of truth for auth and egress policy
- Config aligns with how we think about Istio



Demo - Bookinfo

What *didn't* we see?

- Deployment
- Service
- HorizontalPodAutoscaler
- PodDisruptionBudget
- ConfigMap
- ServiceAccount
- VirtualService
- DestinationRule
- ServiceEntry



Helm Starters for Istio

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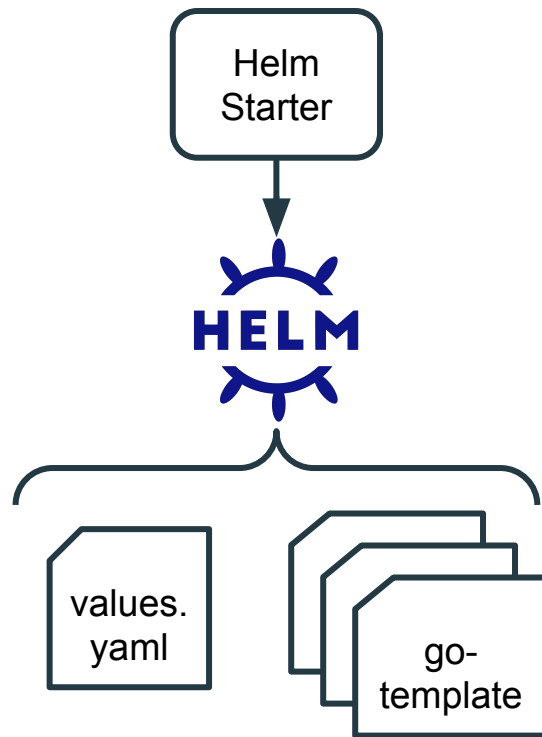
2.6. It is easier to move a problem around ... than it is to solve it.

2.6.a (corollary). It is always possible to add another level of indirection.

-RFC 1925

Helm starters

- Helm's default template is awful
- Copy/paste helm charts sub optimal
- Helm starters - Helm charts for making Helm charts 🤖
- Write once, use everywhere



```
> helm create my-service --starter helm-starter-istio/mesh-service
```



Helm starter Istio

An Istio optimized Helm starter

- **Mesh-service**
 - Everything you need to run a service in the mesh
- **Ingress-service**
 - Add's ingress gateway configuration to mesh-service
- **Mesh-egress**
 - Configures TLS egress and policy
- **Auth-policy**
 - Configures mTLS authorization policy

<https://github.com/salesforce/helm-starter-istio>

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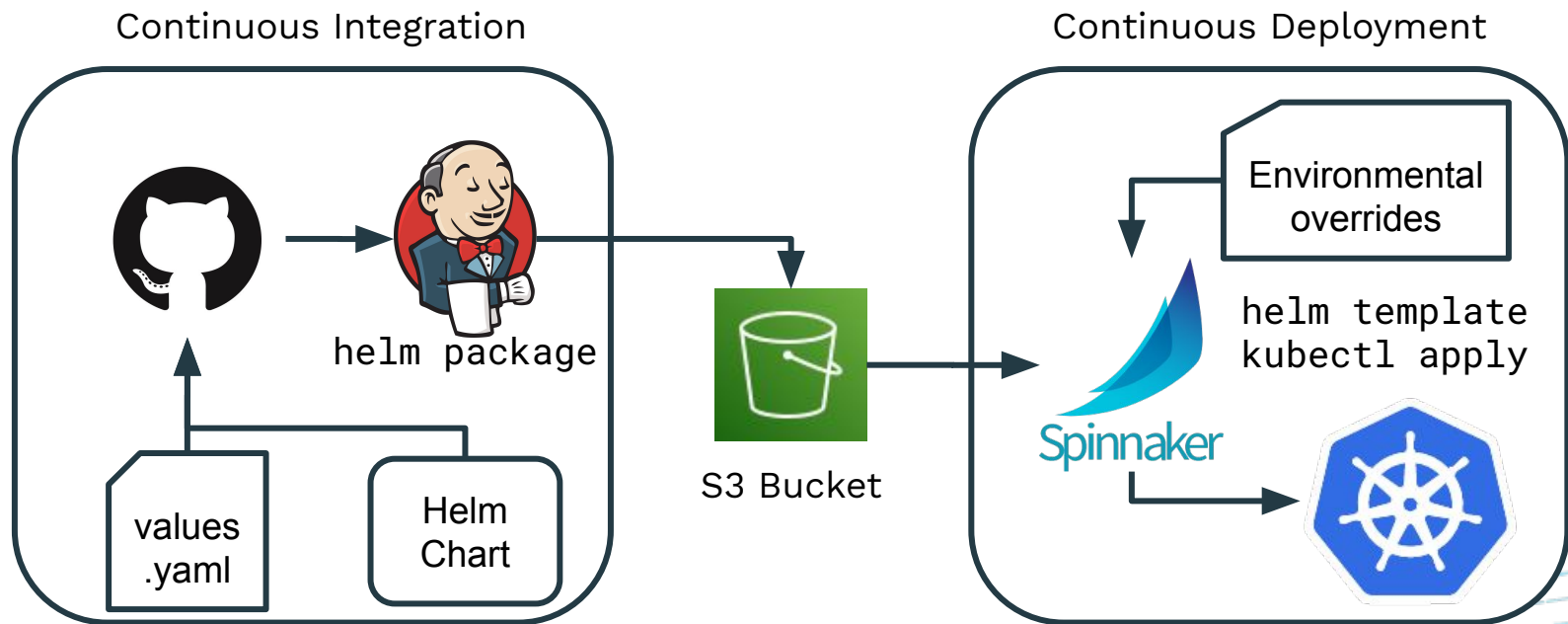
Helm Gitops

Putting all the pieces together

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Helm gitops (at Salesforce)



What we saw

- Looked at the good parts of Helm
- Saw how Helm can manage Istio services
- Demoed helm-starter-istio with Bookinfo
- Learned how Helm starters bootstrap Helm charts
- Showed a Helm based gitops workflow



Thank you!

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