

# Kubernetes for App Developers

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# Aaron Schlesinger

## Before April 2018

Sr Mgr, Azure Containers

Co-Chair, SIG-Service-Catalog

## Since Then

Azure Cloud Advocate

**#AppDev4Life**



**Matt Farina**

@mattfarina

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It just hit me that Kubernetes has no SIG UX. That says a lot about how we got to the state of UX we have.

10:39 AM - 12 Nov 2018

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# Crash Course

App Development Persona

- 100(ish)% “business logic”
- Work with, or are PMs
- “Undifferentiated” tech is painful

# Kubernetes Is Frustrating

# Why We Struggle

Why won't the reconciler just love me?

What's an app in Kubernetes?

Conceptual overload & Context Switching

# Deploying a Web App, Conceptually

- Pods
- Pod networking
- Deployments (ReplicaSets?)
- Services
- Ingress
- Ingress Controllers
- Databases
- RBAC

# Sidenote on YAML





# Case Studies

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**HEROKU**

# Case Study: Databases

**Provision** the DB

**Store** the Password

**Inject** it into the app

And do it on all on `$CLOUD_PROVIDER`

# Case Study: DB Migrations

- Run migration before starting the app?
- Run migration in an init container?
- Run a migration job, then deploy?









*\*according to 3 groups I talked to @ Helm Summit 2018*

# Case Study: Athens

 **arschles** and **robjloranger** using the proper env var name for the mongo URL (#884)

Latest commit e25c0c1 3 days ago

..

 <a href="#">NOTES.txt</a>	Finishing up the helm chart (#547)	3 months ago
 <a href="#">_helpers.tpl</a>	Finishing up the helm chart (#547)	3 months ago
 <a href="#">deployment.yaml</a>	using the proper env var name for the mongo URL (#884)	3 days ago
 <a href="#">ingress.yaml</a>	Finishing up the helm chart (#547)	3 months ago
 <a href="#">jaeger-deploy.yaml</a>	Add jaeger tracer to helm charts (#768)	28 days ago
 <a href="#">jaeger-svc.yaml</a>	Add jaeger tracer to helm charts (#768)	28 days ago
 <a href="#">service.yaml</a>	Add jaeger tracer to helm charts (#768)	28 days ago
 <a href="#">storage-pvc.yaml</a>	Finishing up the helm chart (#547)	3 months ago

# Patterns

Easy to start

Add features piecemeal

Help with configs

Provision + secure secrets

**Encode** things

tango

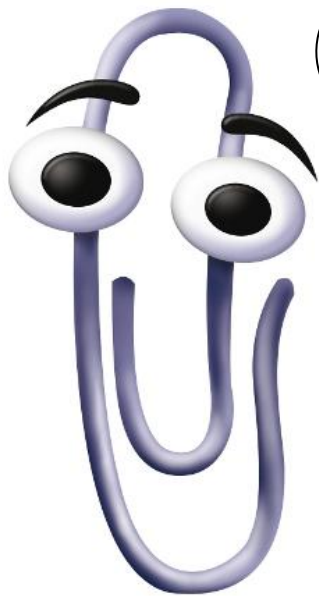
# tango install

Set up Docker builds (hosted / local)

Set up Tiller, Jaeger, ingress controller, ...



tango init



It looks like you're  
trying to use  
Kubernetes

**I can help with that**

# tango deploy

```
docker build && docker push
```

```
set_up(monitoring, tracing, canary_deploys)
```

```
do_deploy(wait=true)
```

# tango duplicate

Duplicate the app but not the config

To another namespace or cluster - an **environment**

PR preview deploys, global rollouts

# tango delete

Un-deploy a cluster

(Optionally) un-init the project

# tango service

```
provision(service=$SERVICE, in=$CLOUD)
```

Host/Credentials ⇒ \$SECURE\_PLACE

\$SECURE\_PLACE ⇒ app

# Extraction

Not Invention

# Draft for Dev

Create a skeleton for deployment

... with pre-baked best practices for the app

`draft up` to install on dev cluster

# Gitops + Keel for Prod

Operator listens to Docker repo webhooks

Uses policies to decide whether (and how) to deploy

“No CLI/API Required”



# Demo

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Draft & Keel For App Developers

... and More

*FaaS, Canary, Blue/Green, A/B deploys, traffic splitting, cookie-based routing, debugging, container & cluster security, tracing, service meshes, monitoring, alerting, ...*

# Things to Think About

The **dual personas** of Kubernetes

Friction with feature dev

Composing cloud native tools

# Thanks, Kubernauts!

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[@arschles](#)

<https://cda.ms/KX>