Kubernetes for App Developers

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Velocity San Jose, June 12, 2019
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.
Let’s Talk About Personas

**Before April 2018**

- Eng Mgr, Azure Containers
- Co-Chair, SIG-Service-Catalog

**Since Then**

- Azure Cloud Advocate
- **Ops Person ➔ App Developer**
Definition

App Developer

- 100(ish)% “business logic”
- Work with, or are PMs
- “Undifferentiated” tech
Kubernetes Is Frustrating
Undifferentiated Tech 101

Reconciler?

What’s an app in Kubernetes?

Conceptual Overload & Context Switching
All This To Deploy Your First App?

- Pods
- Pod networking
- Deployments (ReplicaSets?)
- Services
- Ingress
- Ingress Controllers
- Databases
- RBAC
- Exhaustion
Sidenote on YAML
Case Studies
Databases

**Provision** the DB

**Store** the Password

**Inject** it into the app

And do it on all on $CLOUD_PROVIDER
Migrations

Run migration before all app starts?

Run migration in an init container?

Run a migration job?
# The Athens Project

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

<table>
<thead>
<tr>
<th>File</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES.txt</td>
<td>Finishing up the helm chart (#547)</td>
<td>3 months ago</td>
</tr>
<tr>
<td>_helpers.tpl</td>
<td>Finishing up the helm chart (#547)</td>
<td>3 months ago</td>
</tr>
<tr>
<td>deployment.yaml</td>
<td>using the proper env var name for the mongo URL (#884)</td>
<td>3 days ago</td>
</tr>
<tr>
<td>ingress.yaml</td>
<td>Finishing up the helm chart (#547)</td>
<td>3 months ago</td>
</tr>
<tr>
<td>jaeger-deploy.yaml</td>
<td>Add jaeger tracer to helm charts (#768)</td>
<td>28 days ago</td>
</tr>
<tr>
<td>jaeger-svc.yaml</td>
<td>Add jaeger tracer to helm charts (#768)</td>
<td>28 days ago</td>
</tr>
<tr>
<td>service.yaml</td>
<td>Add jaeger tracer to helm charts (#768)</td>
<td>28 days ago</td>
</tr>
<tr>
<td>storage-pvc.yaml</td>
<td>Finishing up the helm chart (#547)</td>
<td>3 months ago</td>
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[https://docs.gomods.io](https://docs.gomods.io)
Extracting Patterns

Easy to start
Add services piecemeal
Help with configs
Provision + secure secrets

Encode things
tango

A thought experiment
tango install

docker.Setup()

helm init

jaeger.Setup()

ingress.Setup()

...
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 app but not config
✴ ... to another environment
✴ Preview deploys, multi-cluster rollouts
tango delete

.osgi Un-deploy an app

.osgi (Optionally) un-init the project
tango service

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

Host/Credentials ➡ $SECURE_PLACE

$SECURE_PLACE ➡ app
Extraction

Not Invention
Draft

draft create # best practices!

draft up

draft connect
Fission

fission function create

fission route add

curl

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

... CNCF Ecosystem 💯
!! Personas !!

Business logic first

Compose tools
Thanks, Kuberuats!

@arschles

- draft.sh
- keel.sh
- cda.ms/Xs