ARCHITECTURAL EVOLUTION

Service
- Autonomous
- Semi-loosely coupled

Microservice
- Single purpose
- Loosely-coupled
- Independently scalable
- Automated

Function
- Single action
- Stateless
- Event-driven
- Ephemeral
- Elastic
CONCEPT
GENERAL LANDSCAPE

https://landscape.cncf.io/grouping=landscape&landscape=serverless
## Kubernetes Landscape

<table>
<thead>
<tr>
<th>Project</th>
<th>Open Source</th>
<th>Community</th>
<th>Backed by</th>
<th>Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache OpenWhisk</td>
<td>Yes</td>
<td>Large</td>
<td>ASF, IBM, Adobe, Red Hat</td>
<td>2015</td>
</tr>
<tr>
<td>Azure Functions Runtime</td>
<td>Yes</td>
<td>Tiny</td>
<td>Microsoft</td>
<td>Late 2017</td>
</tr>
<tr>
<td>Fission</td>
<td>Yes</td>
<td>Small</td>
<td>Platform9</td>
<td>2016</td>
</tr>
<tr>
<td>Fn</td>
<td>Yes</td>
<td>Small</td>
<td>Oracle</td>
<td>Late 2017</td>
</tr>
<tr>
<td>Funktion</td>
<td>Yes</td>
<td>Tiny</td>
<td>Red Hat/Fabric8</td>
<td>2017</td>
</tr>
<tr>
<td>Kubeless</td>
<td>Yes</td>
<td>Small</td>
<td>Bitnami</td>
<td>2017</td>
</tr>
<tr>
<td>Nuclio</td>
<td>Yes</td>
<td>Tiny</td>
<td>iguazio</td>
<td>Mid 2017</td>
</tr>
<tr>
<td>OpenFaaS</td>
<td>Yes</td>
<td>Large</td>
<td>VMware</td>
<td>Late 2016</td>
</tr>
<tr>
<td>Project Riff</td>
<td>Yes</td>
<td>Tiny</td>
<td>Pivotal</td>
<td>Mid 2017</td>
</tr>
</tbody>
</table>
Challenges & Opportunities
DOES NON-PUBLIC CLOUD FAAS MAKE SENSE?

- Think: public cloud offerings such as AWS Lambda vs. FaaS on Kubernetes
- Most of the production deployments currently seem to be in the cloud (especially AWS Lambda)
  - New Relic survey 11/2017
  - TNS blog post 12/2017
- But no, it’s not container vs serverless ;)

![Serverless Status and Platforms Used for Serverless](image-url)
Serverless Ops
A Guide to Use Serverless Compute

Michael Hausenblas

www.oreilly.com/webops-perf/free/serverless-ops.csp

hackernoon.com/serverless-whos-on-call-now-81193fbfe9d7
ORCHESTRATION, ANYONE?

- A handful of functions?
  *No problem*

- Breaking up a monolith into 200 functions?
  *Hmmm ...*

- So far, a rather underdeveloped space
  (e.g. [ibm-functions/composer](#))
RESOURCES

- CNCF Serverless Working Group [https://github.com/cncf/wg-serverless](https://github.com/cncf/wg-serverless)
- [https://github.com/cpswan/FaaSonK8s](https://github.com/cpswan/FaaSonK8s) for FaaS on Kubernetes inventory
- The State of OpenWhisk
- Demo video OpenWhisk on OpenShift [https://vimeo.com/226795538](https://vimeo.com/226795538)
- [https://github.com/projectodd/openwhisk-openshift](https://github.com/projectodd/openwhisk-openshift)
- [https://github.com/redhat-developer-demos/ow-scf-fruiteason](https://github.com/redhat-developer-demos/ow-scf-fruiteason)
- [https://github.com/kameshsampath/infinispan-feed-action](https://github.com/kameshsampath/infinispan-feed-action)
KUDOS

● Chris Swan for creating and maintaining the FaaS on Kubernetes inventory on GitHub

● My colleague William Markito Oliveira for slide contributions and OpenWhisk insights

● The many folks at meetups, various Slack communities, and on Twitter for great discussions around the topic