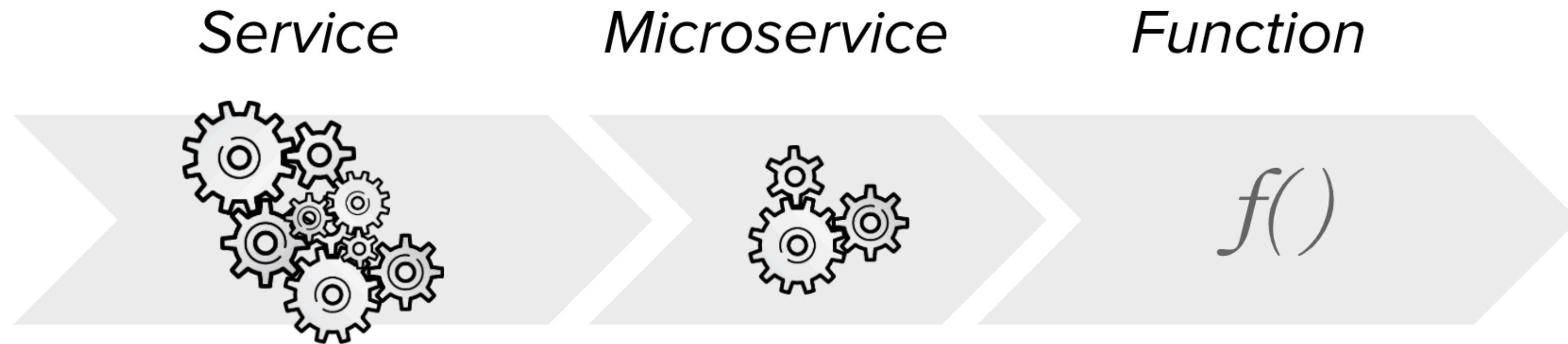# The State Of
Function-as-a-Service On Kubernetes

Michael Hausenblas, Developer Advocate at Red Hat

2018-05-01, KubeCon+CloudNativeCon Europe, Copenhagen
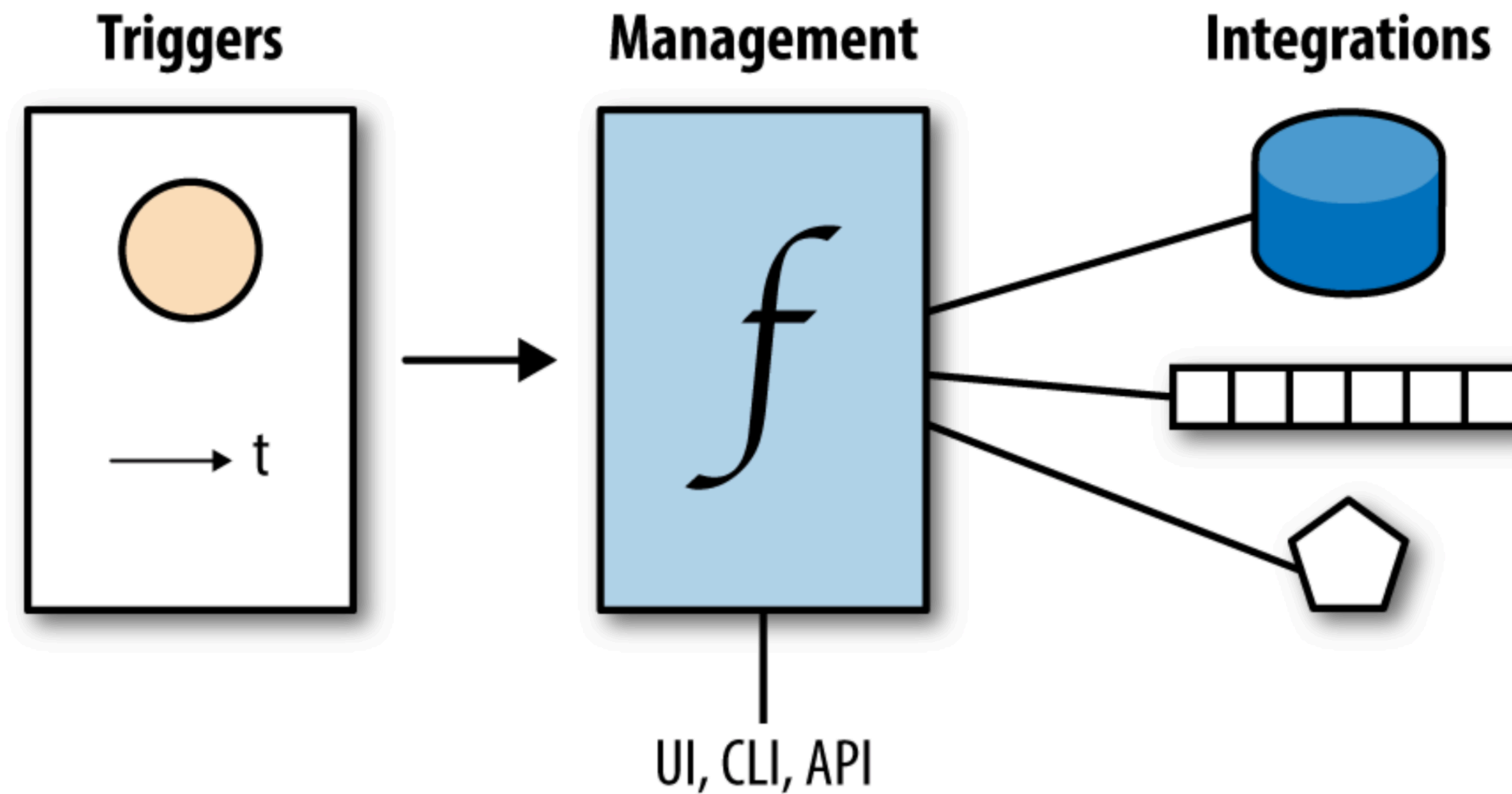
The evolution

Service

- Autonomous
- Semi-loosely coupled

Microservice

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

Function

$f()$

- Single action
- Stateless
- Event-driven
- Ephemeral
- Elastic

redhat.

Function-as-a-Service concept

Hit me up on Twitter: @mhausenblas

Use cases

- cron job replacements

- backups

- pipelines/ETL jobs

- latency-tolerant sensor readings

- image thumbnails, extracting keyframes

- Slack bots

Sources: AWS Lambda, IBM, serverless framework,
Contino, TNS, programmableweb.com

Patrick Debois
@patrickdebois

Following

What makes #serverless different for you ?

26% No worries about servers

17% Per request billing

18% Instant parallel capacity

39% function as deploy unit

185 votes • Final results

8:02 PM - 22 May 2016

14 Retweets 13 Likes

9   14   13

twitter.com/patrickdebois/status/734459440603275264

redhat.

General landscape

Source: landscape.cncf.io

Kubernetes landscape

Project	Backed by	Claim to fame	Started
Apache OpenWhisk	ASF, Adobe, IBM, Red Hat	large community, mature	2015
Azure Functions Runtime	Microsoft	ease of use	late 2017
Dispatch	VMware	meta-framework	late 2017
Fission	Platform9	performance	2016
Fn	Oracle	supported languages/envs	late 2017
Funktion	*Red Hat/Fabric8*	*integration*	*2017*
Kubeless	Bitnami	UX, monitoring	2017
Nuclio	iguazio	performance	mid 2017
OpenFaaS	VMware	large community, UX	late 2016
Project Riff	Pivotal	event-centric	late 2017

Hit me up on Twitter: @mhausenblas

Challenges & Opportunities
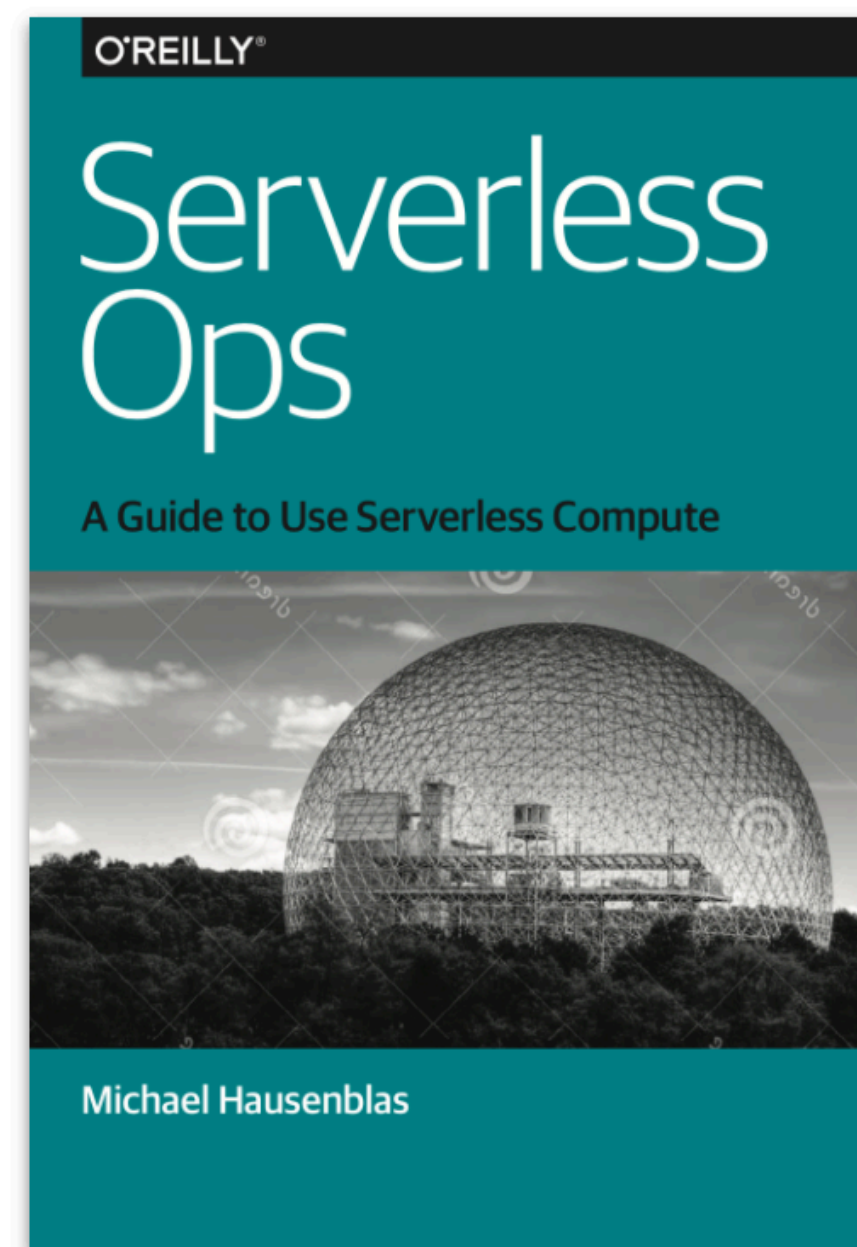
Does non-public cloud FaaS make sense?
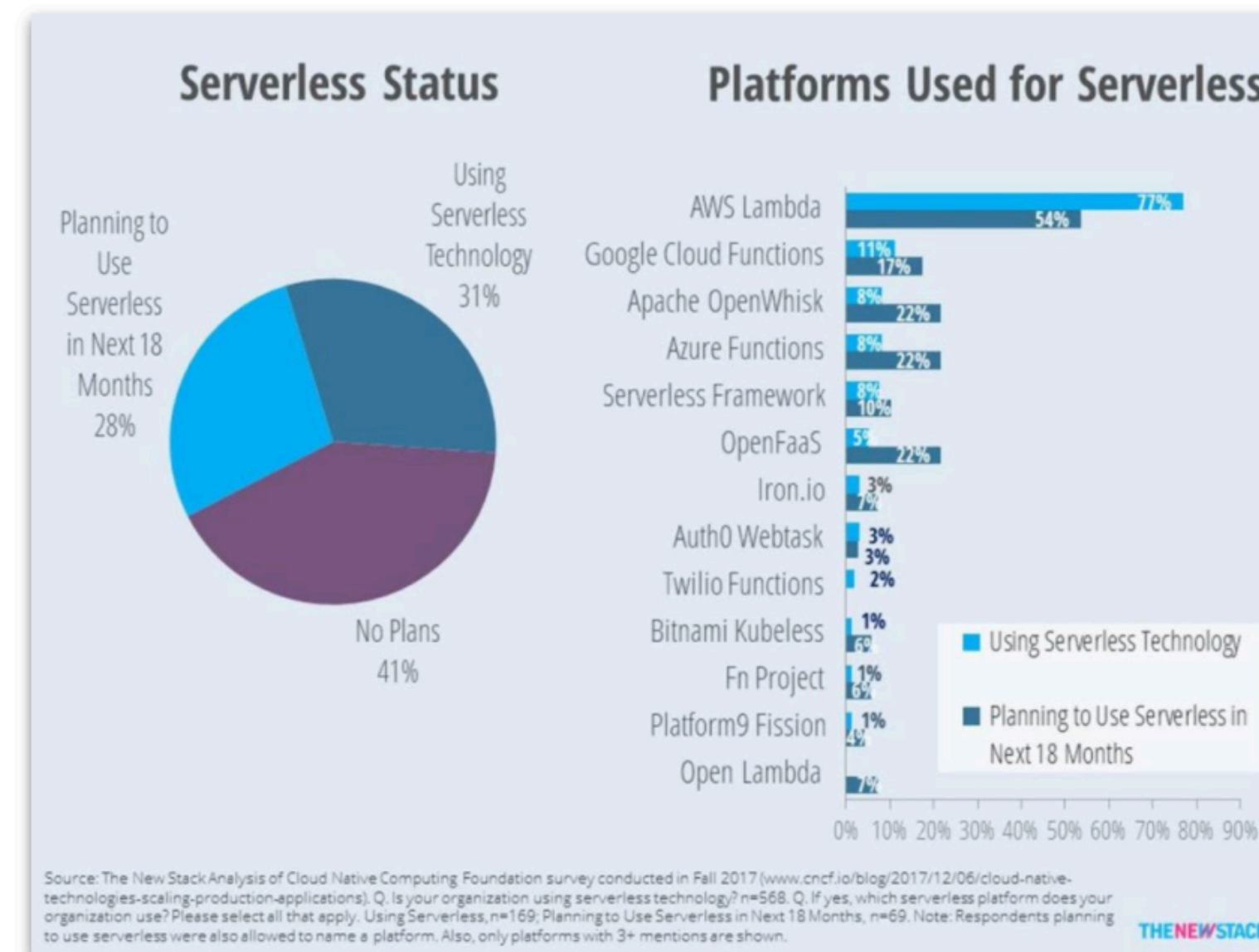
Most of production deployments currently using proprietary (public cloud) offerings:

- New Relic survey 11/2017

- TNS blog post 12/2017
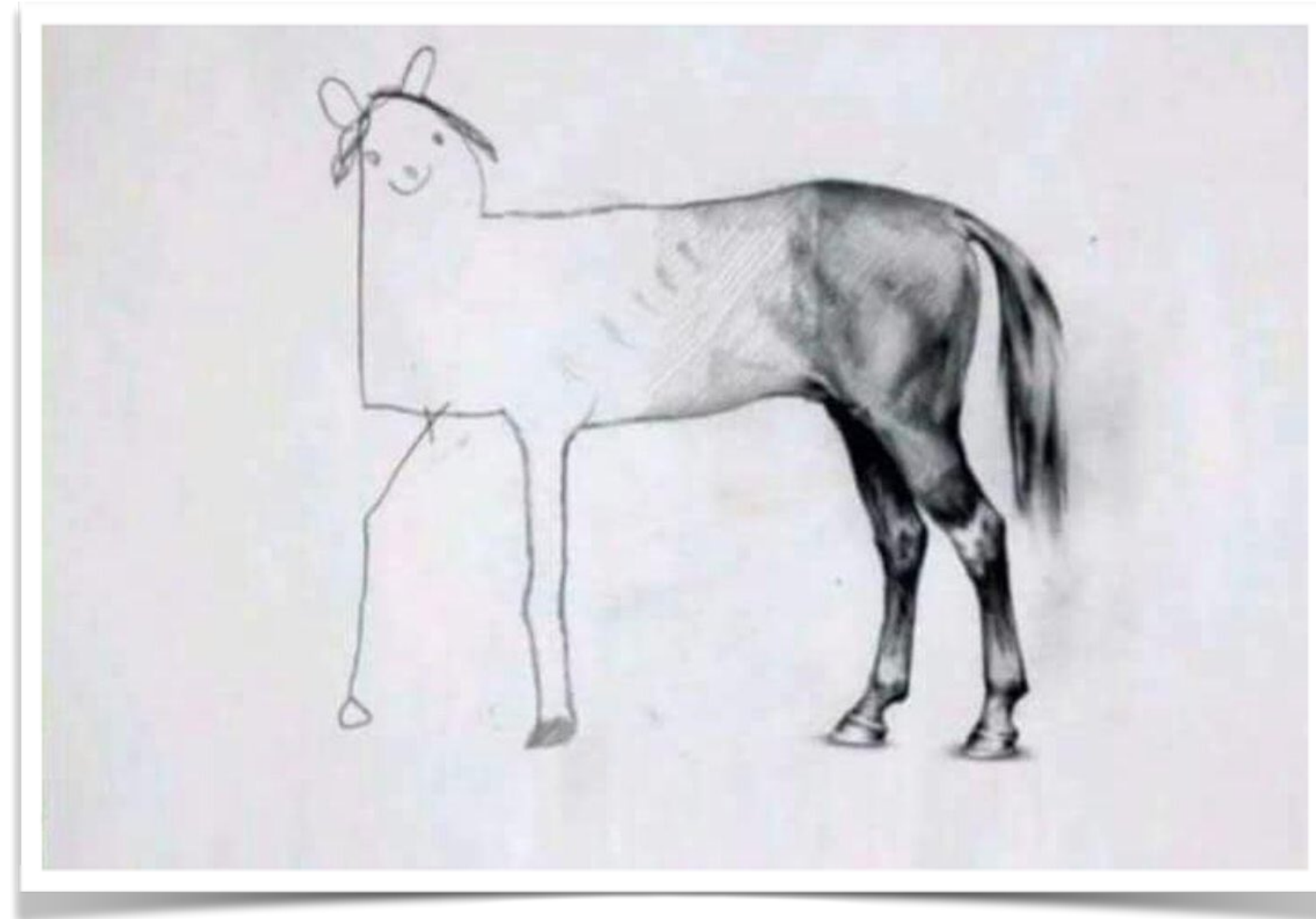
Developers on call

ServerlessOps

O'Reilly book, 2016

Serverless: who's on call now?

Medium post, 2018

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)

Summing up

- Is Function-as-a-Service really the "VBA of cloud native computing"?

- It's great tool, but it's **one** tool in the toolbox, not a silver bullet

- Tradeoffs: convenience (lock-in) vs. control (effort)

redhat.

Resources

- CNCF Serverless Working Group

  github.com/cncf/wg-serverless

- FaaS on Kubernetes inventory

  github.com/cpswan/FaaSonK8s

- The State of OpenWhisk

  medium.com/@rabbah/the-state-of-openwhisk-ae8c129e8a48

redhat.

Kudos go out to

- Chris Swan for creating and maintaining the FaaS on Kubernetes inventory

- My colleague William Markito Oliveira for input and OpenWhisk insights

- Folks at meetups, various Slack communities such as #serverless on CNCF

  Slack, as well as on Twitter, especially:

  - Alex Ellis

  - Mark Peek

  - Yaron Haviv

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