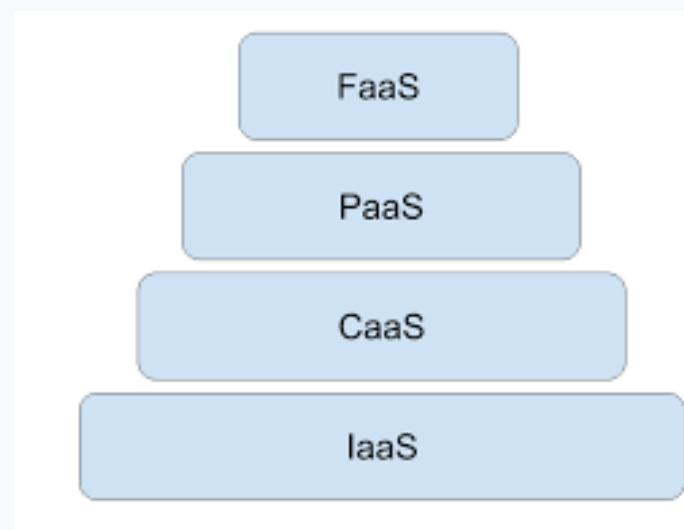


Serverless Python

Michael Bright, 19 Septembre 2017,
Grenoble Python User Group



Serverless Python

1. What is Serverless?

- No more servers?! History
-

2. Review of Cloud Provider Offerings.

- AWS λ, Azure Fns, Google Cloud Fns, ...
-

3. Serverless Tooling

- Serverless, Apex
-

4. Serverless Platforms

- Kubeless, OpenFaaS, Fission, OpenWhisk
-

5. Serverless Python ... - at last!

- Apex, Chalice, Python-λ, Lambdify, Zappa ...



No more servers ?!

The path to Serverless

Serverless - The making of ...

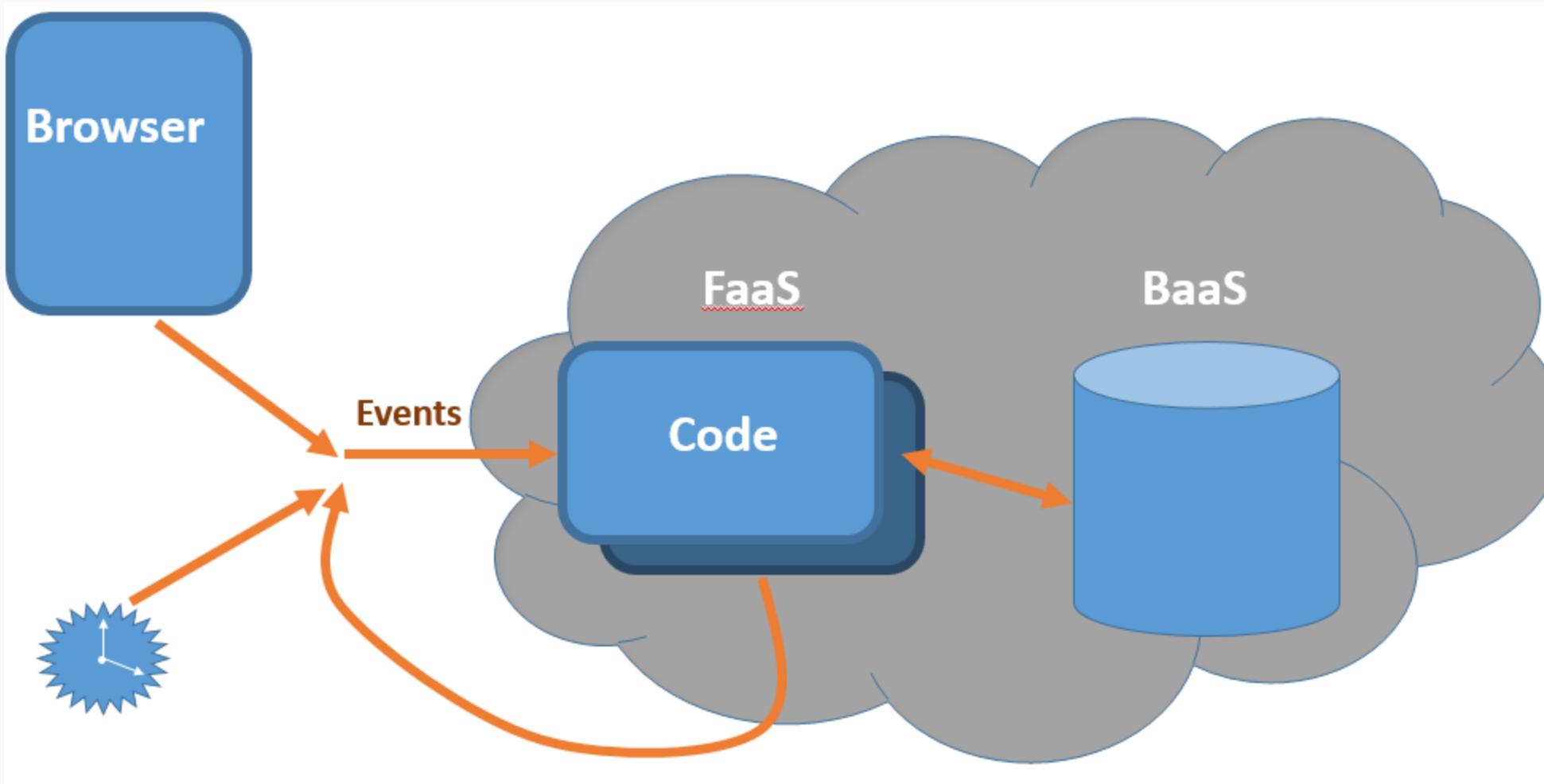


BAREMETAL



VIRTUAL MACHINES

Serverless - Event Driven Architecture



Serverless - Characteristics ...



DEVELOPERS

DON'T NEED TO KNOW ABOUT

SERVERS

Provisioning, Scaling, Maintenance



FUNCTIONS

are auto-scaled, load-balanced



RESOURCES

are only allocated on function execution



EVENTS

Functions triggered by

- Browser requests

- Timer events

- File upload events, e.g. to S3



COSTS

are low, based on real resource usage



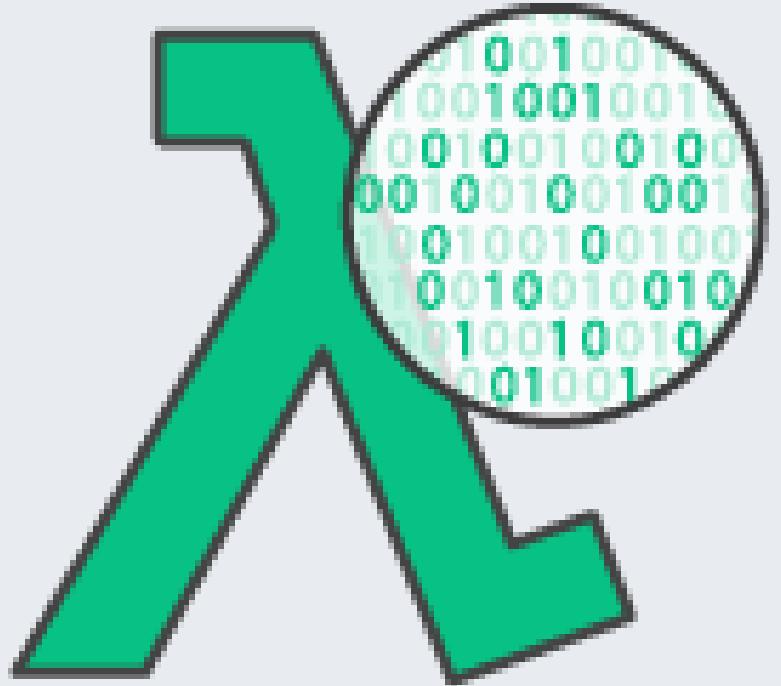
DURATION

Functions are expected to be short-lived.

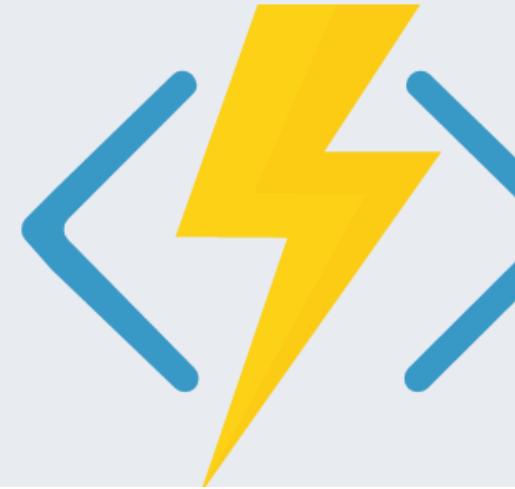
Some platforms impose a time limit.

Serverless - Cloud Providers

Serverless - Cloud Provider Offerings



AWS LAMBDA



AZURE FUNCTIONS



AWS Lambda

- *It all started here ... Introduced as a beta in Nov 2014, stable version by end of 2015. Still the leader.*

Language choices: Node.js (JS), Python, Java 8, C#



Azure Functions

— *Introduced in 2016*

Many language choices: JavaScript, C#,
F#, Python, PHP, Bash, PowerShell ...



Google Cloud Functions

- *Alpha release in Feb 2016.*

Language support:

JavaScript only.



IBM BlueMix

OpenWhisk

— *Experimental
release in Feb 2016*

*Open Sourced as
Apache OpenWhisk*

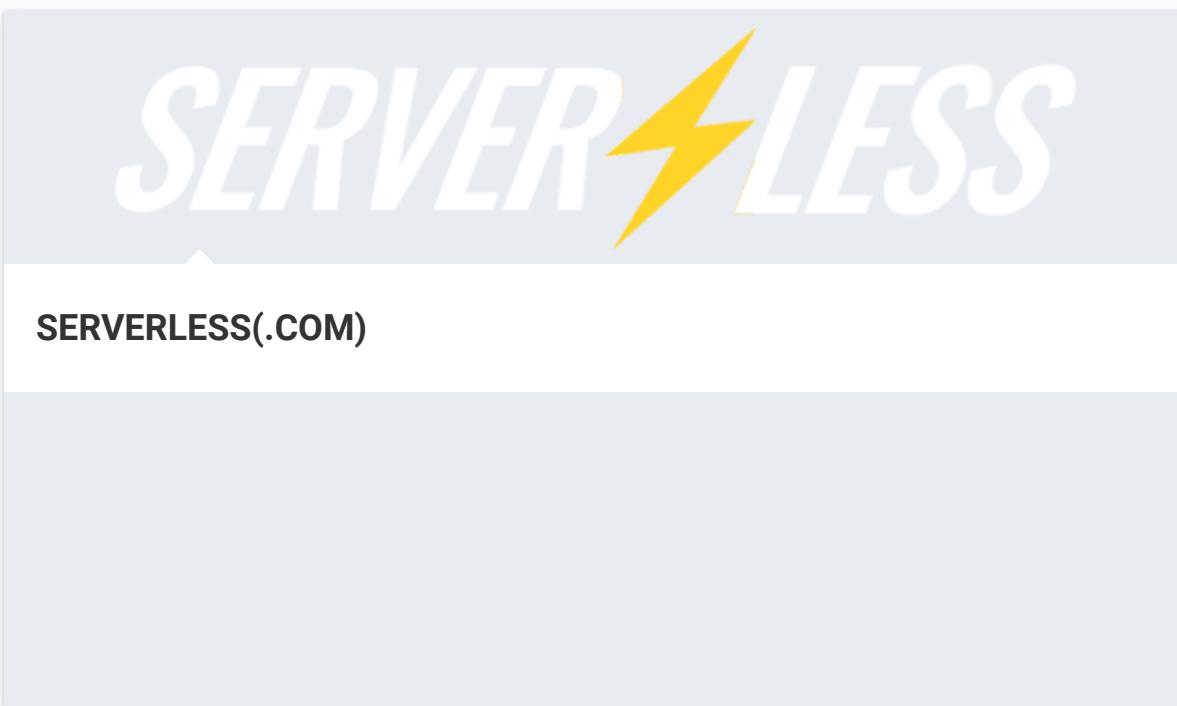
Language support: Any

AWS Lambda: Use Case - Smart News



Serverless - Tools

Serverless - Open Source tooling ...





– Open Source project

Deploy to various Cloud Providers:

- - AWS Lambda
- - Azure
- - Google
- - OpenWhisk
- - Kubeless
- - SpotInst



– Open Source project

Deploy to AWS Lambda

*Extend beyond Lambda's natively
supported languages*

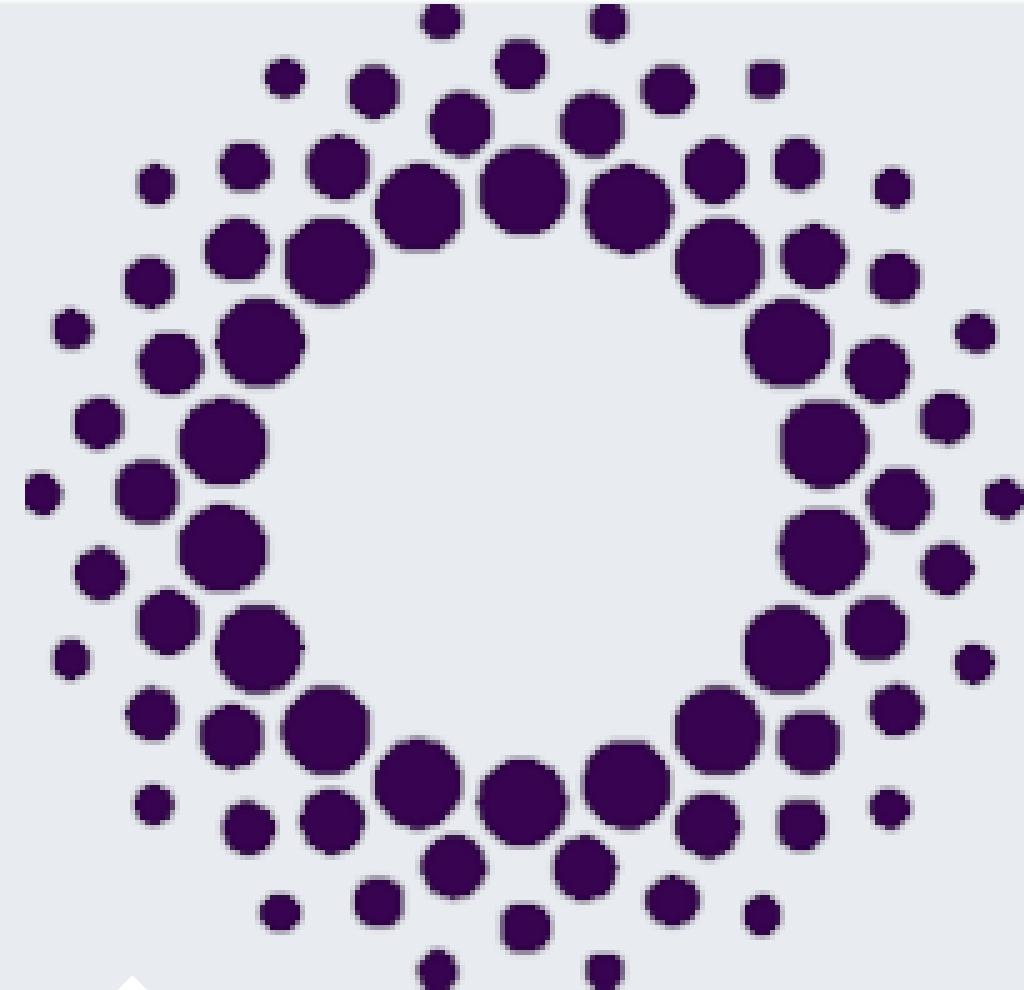
- - Go

Serverless - Open Source Frameworks

Serverless - Open Source Frameworks



KUBELESS



FISSION



Kubeless

– *Bitnami*



Fission.io

—

Platform 9



Apache OpenWhisk

— *Open Sourced by IBM*

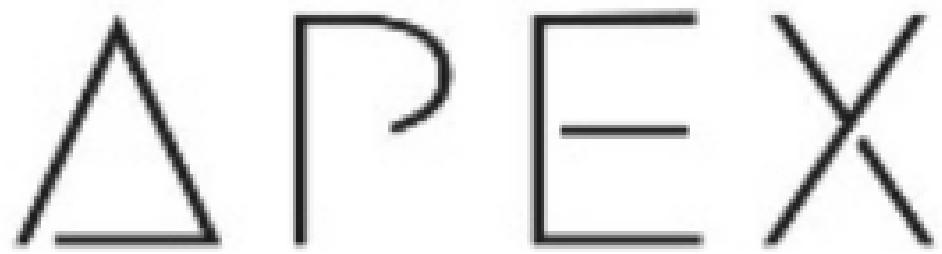


OpenFaaS

- - OpenFaaS based on Docker-Swarm/Compose
- - FaaS-Netes runs on Kubernetes
- - faas-cli: command-line tool
 - *Alex Ellis, Docker Captain*

Serverless Python !!

Serverless Python Frameworks ...



APEX

SUPPORTS:

Javascript

Python

++ Go

Chalice

CHALICE

SUPPORTS:

Python / Flask-like

Chalice

Chalice

- Open sourced by AWS
 - Python/AWS λ

*pip installable module,
command-line tool*

λambdify

Lambdify

—



Zappa.io

- Open sourced by Gun.io -
Python/AWS λ

*pip installable module,
command-line tool*

*Can run Django ... serverless
(?)*

Resources - 1

RESOURCE	DESCRIPTION	URL
Lists		
awesome-serverless	Curated list of awesome services, solutions and resources for serverless / nobackend applications.	[github] anaibol/awesome-serverless
awesome-Serverless(.com)	Curated list of resources related to serverless architectures and the Serverless Framework	[github] JustServerless/awesome-serverless
Tools		
Serverless	Tools for deploying to several Cloud Providers	[github] serverless/serverless
Apex	Tools for deploying to AWS Lambda	[github] apex/apex

Resources - 2

RESOURCE	DESCRIPTION	URL
Cloud Providers		
AWS Lambda	Amazon's Serverless Platform	https://aws.amazon.com/fr/lambda/
Azure Functions	Microsoft's Serverless Platform	https://azure.microsoft.com/en-us/services/functions/
Google Cloud Functions	Google's Serverless Platform	https://cloud.google.com/functions/
IBM BlueMix OpenWhisk	IBM's Serverless Platform	https://www.ibm.com/cloud-computing/bluemix/openwhisk

Resources - 3

RESOURCE	DESCRIPTION	URL
Open Source Serverless Platforms		
Kubeless	Serverless platform from Bitnami	url
Fission.io	Serverless platform from Platform9	url
Apache OpenWhisk	Serverless platform from IBM	url
OpenFaaS	Serverless platform from Alex Ellis, Docker Captain	url
Serverless Python Frameworks		
Apex	Serverless framework supporting Python and other languages	url
Chalice	Serverless framework supporting Python / Flask	url
Lambdify	Serverless framework supporting Python	url
Zappa	Serverless framework supporting Python / WSGI	url

♥ Thanks !



@mjbright