OpenFaaS Cloud:
Multi-user Serverless driven by GitOps

Open Source Summit EU

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The session

• **OpenFaaS**
  • Story so far 📖
  • Case-studies

• **OpenFaaS Cloud** 🌈
  • GitOps
  • Live Demo with Audience! 💰💰

• Get involved 👍
OpenFaaS - Functions as a Service

- Started in Nov 2016
- Containers, Alexa, Swarm 🐳
- Full time team @ VMware
- CNCF landscape
- Production users 📱
- Bossie award 🥇
Serverless is an architectural pattern
Application Evolution

Monolith

Decreasing concern for infrastructure

Microservice

Function
What are Functions?

- Short-lived
- Single-purpose
- No state
- Auto-scaling
OpenFaaS: Serverless on your terms

Easy to use

Any code
Anywhere
Any scale

You decide the limits
Demo: Function Store
Write a function

```python
def handler(req):
    r = requests.get(req)
    return str(r.status_code)
```

- handler.py
- requests
- requirements.txt

$ faas new --lang python http-status
Architecture: Kubernetes-native

- Ingress/LB
- API Gateway
- Prometheus
- NATS
- OpenFaaS Operator
  - Pod: Func 1
  - Pod: Func 2
- Pod: Func 2
- CRD
- CRD
Growth of OpenFaaS

DRIVEN BY CORE VALUES

- Developer-First
- Operator-Friendly
- Community-Centric
End-users & case-studies
Case-study 1: Bullet-proof

Bulletproof are using OpenFaaS to build an **on demand and scalable Vulnerability Scanning** (VA) engine.

Using OpenFaaS allows us to use compute resource efficiently yet maintain the ability to grow to meet customer scanning demands.

We also like the ability to use **pure docker containers** to compose **multiple scanning tools** with different technologies into a **single, coherent interface**. This has **reduced the time need to add new tools to the platform**.
Case-study 2: Vision Banco, Paraguay

Just switched to production one of our functions, the first one. Monitoring how it performs. @alexellisuk #FaaSFriday twitter.com/padiazg/status...

- Digital Transformation
- OpenFaaS in production with HomeServe
- KubeCon talk @ Seattle
- Completely on-prem with GitLab
Case-study 3: IconScout

Tarun Mangukiya
Co-founder

Icons, stock photography & illustrations

Custom sizing

3x speed increase

How OpenFaaS came to rescue us!

Being a bootstrapped startup, it’s an important decision to decide which technologies to invest in. Whether it’s cloud VMs, cloud services or even email providers. We were in the same situation when we opted to use OpenFaaS for our upcoming major update of Iconscout.

Previously, we’ve worked with Azure Functions, AWS Lambda, Serverless and
A common theme

• Early adopters
  • support less technical teams
  • build bespoke CI/CD solutions
  • collaboration & feedback

We wanted to make it seamless.

We applied software engineering best practices
When you git push, our CI builds, deploys your code and returns an endpoint.

This, in essence, is what serverless is about. Serverless is more than just lambda.
Automate your workflow.

Meet GitHub Actions 👋
It might just change the way you work.

github.com/features/actio...
Alexis Richardson @monadic

mega update on GitOps and why Kubernetes is so important for it >>>

Weaveworks @weaveworks
Have you wondered what’s the difference between infrastructure as code, Continuous Delivery and #GitOps? @monadic discusses developer experience and its role in production velocity bit.ly/2MJgwVm

12:49 PM - 21 Aug 2018

25 Retweets  66 Likes
GitOps + Functions
OpenFaaS Cloud

- Managed
- Multi-user
- Personal dashboard
- CI/CD (GitOps)
- Feedback via GitHub

Free Community Cluster*
Conceptual workflow (CI/CD)

Workspace

GitHub App

OpenFaaS-Cloud

Endpoint: https://alexellis.o6s.io/tweet
Event integration

GitHub App

Push event
Repo: x

Installation Event
(add/remove)

github-event
github-push

(async)

(async)

garbage-collect

DELETE
/system/function
Trust & signing (HMAC)

GitHub

POST /

X-Hub-Signature: 1d7ed84…

Body:
{
  "owner":...
}

GitHub-Event

Compute Digest()
All checks have passed
4 successful checks

- move-money — Build move-money
- pot-total — Build pot-total
- register-user — Build register-user
- stack-deploy — Deploy to OpenFaaS
move-money

✓ Success
① ran 18 hours ago in less than 5 seconds
① 1d7ed84 by @alexellis

Build move-money

deployed: alexellis-move-money

DETAILS

v: 2018-10-17T18:01:46Z local://dockerfile (Dockerfile)
v: 2018-10-17T18:01:46Z local://context (.dockerignore)
s: 2018-10-17T18:01:46Z transferring dockerfile: 0
s: 2018-10-17T18:01:46Z transferring dockerfile: 36
s: 2018-10-17T18:01:46Z transferring dockerfile: 1227
s: 2018-10-17T18:01:46Z transferring context: 0
v: 2018-10-17T18:01:46Z local://dockerfile (Dockerfile) 0.04s
s: 2018-10-17T18:01:46Z transferring context: 0
v: 2018-10-17T18:01:46Z local://context (.dockerignore) 0.04s
Welcome to the OpenFaaS Cloud Dashboard! Click on a function for more details.

<table>
<thead>
<tr>
<th>Name</th>
<th>Repository</th>
<th>SHA</th>
<th>Deployed</th>
<th>Invocations</th>
<th>Replicas</th>
</tr>
</thead>
<tbody>
<tr>
<td>move-money</td>
<td>pledge-fn</td>
<td>1d7ed84</td>
<td>18 hours ago</td>
<td>87</td>
<td>1/4</td>
</tr>
<tr>
<td>register-user</td>
<td>pledge-fn</td>
<td>1d7ed84</td>
<td>18 hours ago</td>
<td>315</td>
<td>1/4</td>
</tr>
<tr>
<td>pot-total</td>
<td>pledge-fn</td>
<td>1d7ed84</td>
<td>18 hours ago</td>
<td>646</td>
<td>1/4</td>
</tr>
</tbody>
</table>

Powered by OpenFaaS
Serving functions

- **API gateway**
  - GET /system/functions
  - GET ?username=owner

- **system-dashboard**

- **list-functions**

- **owner-function**

**Metadata labels**
- owner: owner
- repo: repo
- function: function
- sha: SHA
- scm: GitHub
- getUrl() -> https://github.com/owner/repo
Are you in?
The bank of the future

This isn’t banking as you know it. Monzo is a bank for everyone, that works with you, for you.

Join today for your own UK current account.
Working with my bank’s API

- **Initial Funding**: +100GBP
- **Move**: 1GBP

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Account</td>
<td>90/100 GBP</td>
</tr>
<tr>
<td>Charity Pot</td>
<td>10/100 GBP</td>
</tr>
<tr>
<td>Pledged Pot</td>
<td>10/100 GBP</td>
</tr>
</tbody>
</table>

*Personal Account*
You register with the App and I’ll pledge

Child first, patient second.

https://echcharity.org
Pledge via this URL:

https://…
Summing up

OpenFaaS Cloud brings:

• Portable multi-user Serverless

• Developer-native workflow (GitOps)

• Rapid iteration from concept to production
Roadmap

- OpenFaaS Cloud
- Teams & organisations
- GitLab => 100% on-prem
- Staging endpoints

- OpenFaaS
- Fall t-shirt coming soon!
- API extensions: logs & secrets
Get involved

1. Join Slack 👍
   https://docs.openfaas.com/community

2. Try the workshop! 🎨
   https://github.com/openfaas/workshop

3. Hacktoberfest - submit a PR
   https://github.com/openfaas

Meet-us here:
- VMware booth all week
- Docker Meetup on Istio
Thank you!

www.openfaas.com