Node 地下铁沙龙 #8
Let's Go Serverless!

https://johnhax.net/2019/serverless-thought/slide#0

GitHub @hax

知乎 @贺师俊

微博 @johnhax

Twitter @haxy

https://johnhax.net/2019/serverless-thought/slide#1

FaaS 与 FP 之初步思考

https://johnhax.net/2019/serverless-thought/slide#2

FaaS

https://johnhax.net/2019/serverless-thought/slide#3

F P

https://johnhax.net/2019/serverless-thought/slide#4

WTF

https://johnhax.net/2019/serverless-thought/slide#5

FaaS

Function as a Service

https://johnhax.net/2019/serverless-thought/slide#6

F P

Functional Programming

https://johnhax.net/2019/serverless-thought/slide#7

FaaS — Computing Architecture

FP — Programming Paradigm

https://johnhax.net/2019/serverless-thought/slide#8

相同的 F

不同层面

https://johnhax.net/2019/serverless-thought/slide#9

F in FaaS（计算架构）

- 部署和伸缩单位
  （VM/OS ➠ 应用 ➠ 函数）
- 资源限制（内存、运行时间）
  计费方式（不为Idle付费）

https://johnhax.net/2019/serverless-thought/slide#10

F in FP（编程模型）

- 高阶函数
- 纯、引用透明性
- 递归、求值策略

https://johnhax.net/2019/serverless-thought/slide#11

所以 FaaS 和 FP 并没有什么关系！

https://johnhax.net/2019/serverless-thought/slide#12

The End 

https://johnhax.net/2019/serverless-thought/slide#13

硬要说的话……

Stateless — Pure

https://johnhax.net/2019/serverless-thought/slide#14

安利一下FP

https://johnhax.net/2019/serverless-thought/slide#15

FP语言

https://johnhax.net/2019/serverless-thought/slide#16

- Haskell
- Lisp
- ML
- Erlang

https://johnhax.net/2019/serverless-thought/slide#17

FaaS 平台

https://johnhax.net/2019/serverless-thought/slide#18

- Node.js
- Java
- .NET
- Python, Go, PHP

https://johnhax.net/2019/serverless-thought/slide#19

没有一个原生支持的FP?

https://johnhax.net/2019/serverless-thought/slide#20

F#

https://johnhax.net/2019/serverless-thought/slide#21

- 选择可以在FaaS上跑的FP语言
- 选择现有的多范式语言

https://johnhax.net/2019/serverless-thought/slide#22

- .NET -> F#
- Java -> Clojure
- Node.js -> *

https://johnhax.net/2019/serverless-thought/slide#23

暗度陈仓

https://johnhax.net/2019/serverless-thought/slide#24

Node.js: child_process.exec

https://johnhax.net/2019/serverless-thought/slide#25

- .NET -> C#
- Java -> Java, Scala, Kotlin, ...
- Node.js -> JavaScript

https://johnhax.net/2019/serverless-thought/slide#26

FaaS 语言平台的选择

https://johnhax.net/2019/serverless-thought/slide#27

- Package Size
- RAM
- Cold Start
- Performance
- Programming language

https://johnhax.net/2019/serverless-thought/slide#28

Node.js

https://johnhax.net/2019/serverless-thought/slide#29

编译

https://johnhax.net/2019/serverless-thought/slide#30

- 实时编译
- 预先编译

https://johnhax.net/2019/serverless-thought/slide#31

- runtime
- 调试
- 性能开销

https://johnhax.net/2019/serverless-thought/slide#32

OCaml (BuckleScript)

https://johnhax.net/2019/serverless-thought/slide#33

WASM

https://johnhax.net/2019/serverless-thought/slide#34

Use JavaScript as FP?

https://johnhax.net/2019/serverless-thought/slide#35

- Tail call (STC/PTC)
- Syntax (pipeline op?)
- Data structure (immutable library?)

https://johnhax.net/2019/serverless-thought/slide#36

FP in JS

===

Garbage

https://johnhax.net/2019/serverless-thought/slide#37

以不是那么FP的方式写JS

https://johnhax.net/2019/serverless-thought/slide#38

- 不用递归
- 不用特殊的数据结构

https://johnhax.net/2019/serverless-thought/slide#39

如何实施 immutable 约束?

https://johnhax.net/2019/serverless-thought/slide#40

- TypeScript (ReadOnly<X>)
- Proxy (X.readonly)

https://johnhax.net/2019/serverless-thought/slide#41

其他

https://johnhax.net/2019/serverless-thought/slide#42

- Node is Wrong for severless?（async）
- FaaS Functional Patterns?（函数编排）
- FaaS 在特定语言的优化问题（JIT、GC）

https://johnhax.net/2019/serverless-thought/slide#43

参考

https://johnhax.net/2019/serverless-thought/slide#44

- https://www.youtube.com/watch?v=5onnYmFcG6M
- https://pattern-match.com/blog/2018/10/18/functional-programming-in-serverless-world/

https://johnhax.net/2019/serverless-thought/slide#45

QA

https://johnhax.net/2019/serverless-thought/slide#46