FaaS

Serverless（无服务器架构）指的是由开发者实现的服务端逻辑运行在无状态的计算容器中，它由事件触发，完全被第三方管理，其业务层面的状态则被开发者使用的数据库和存储资源所记录。

serverless与容器虚拟机分层概念：
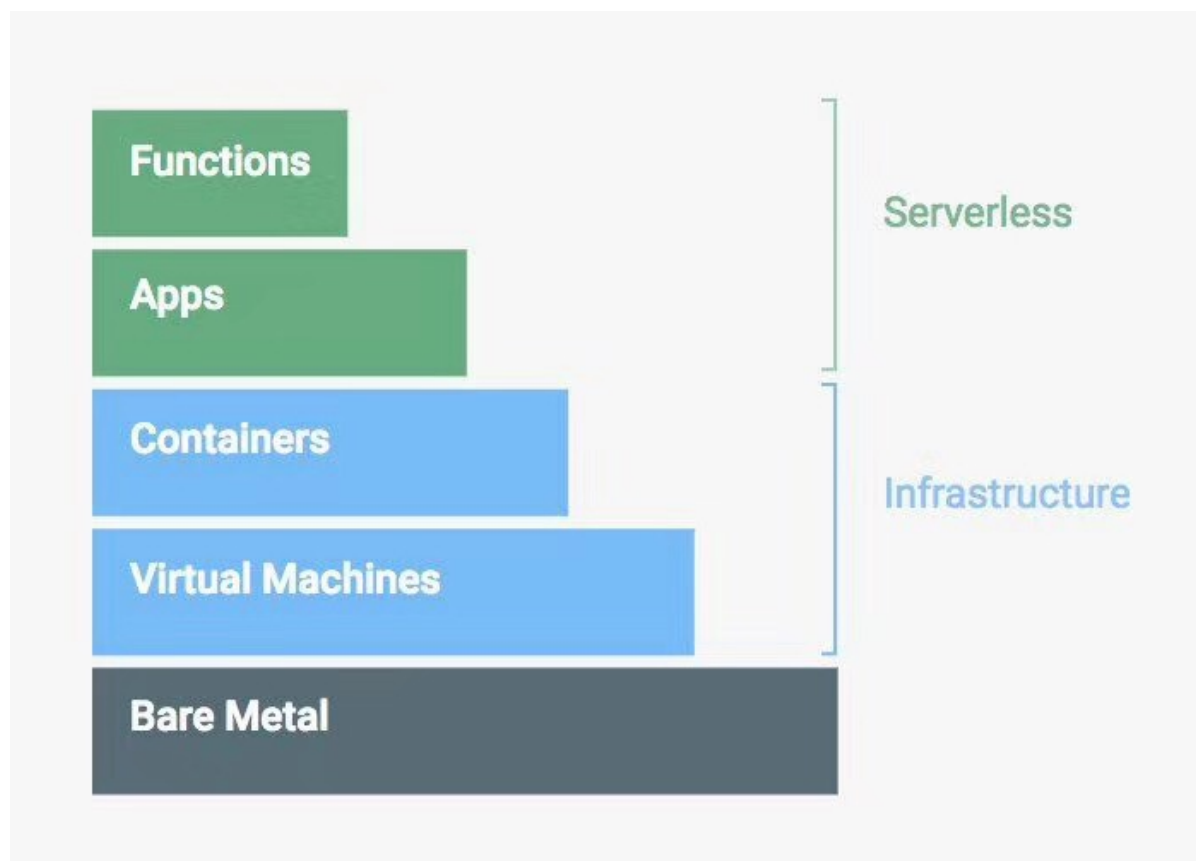
NO SILVER BULLET！NO SILVER BULLET！NO SILVER BULLET！

云计算的发展过程
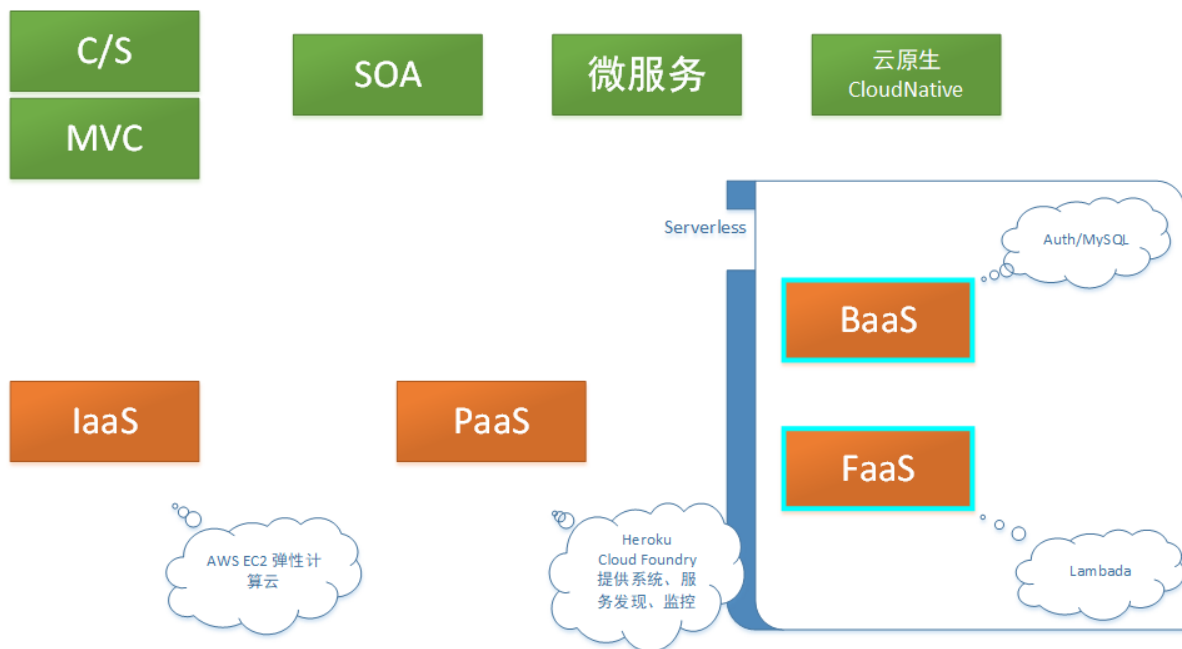
Function-as-a-Service景观图（图片来自
`https://github.com/amyers1793/FunctionasaServiceLandscape`）
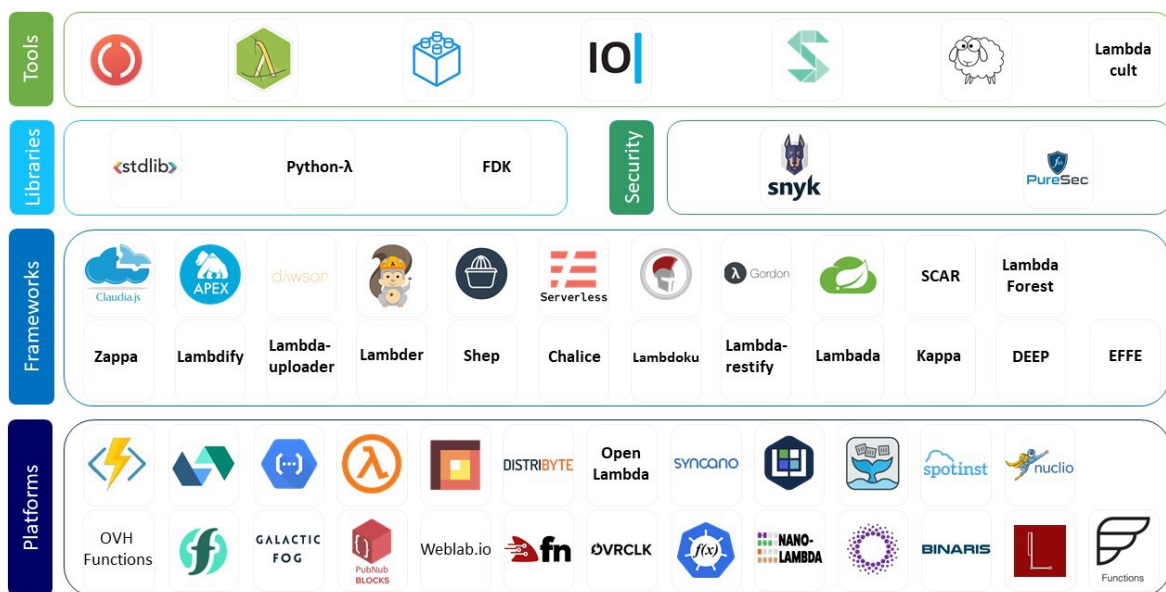
FaaS本质上是一种事件驱动的由消息触发的服务，FaaS供应商一般会集成各种同步和异步的事件源，通过订阅这些事件源，可以突发或者定期的触发函数运行。

基于K8S的无服务FaaS框架有：

- faas-netes - Enable Kubernetes as a backend for Functions as a Service (OpenFaaS) https://github.com/alexellis/faas
- fn - The container native, cloud agnostic serverless platform. http://fnproject.io
- funktion - a CLI tool for working with funktion https://funktion.fabric8.io/
- fx - Poor man's serverless framework based on Docker, Function as a Service with painless.
- IronFunctions - IronFunctions - the serverless microservices platform. http://iron.io
- kubeless - Kubernetes Native Serverless Framework http://kubeless.io
- nuclio - High-Performance Serverless event and data processing platform
- ❄️ OpenFaaS - OpenFaaS - Serverless Functions Made Simple for Docker & Kubernetes https://blog.alexellis.io/introducing-functions-as-a-service/

- OpenWhisk - Apache OpenWhisk (Incubating) is a serverless, open source cloud platform that executes functions in response to events at any scale.
- Knative - Kubernetes-based platform to deploy and manage modern serverless workloads.

OpenFaaS
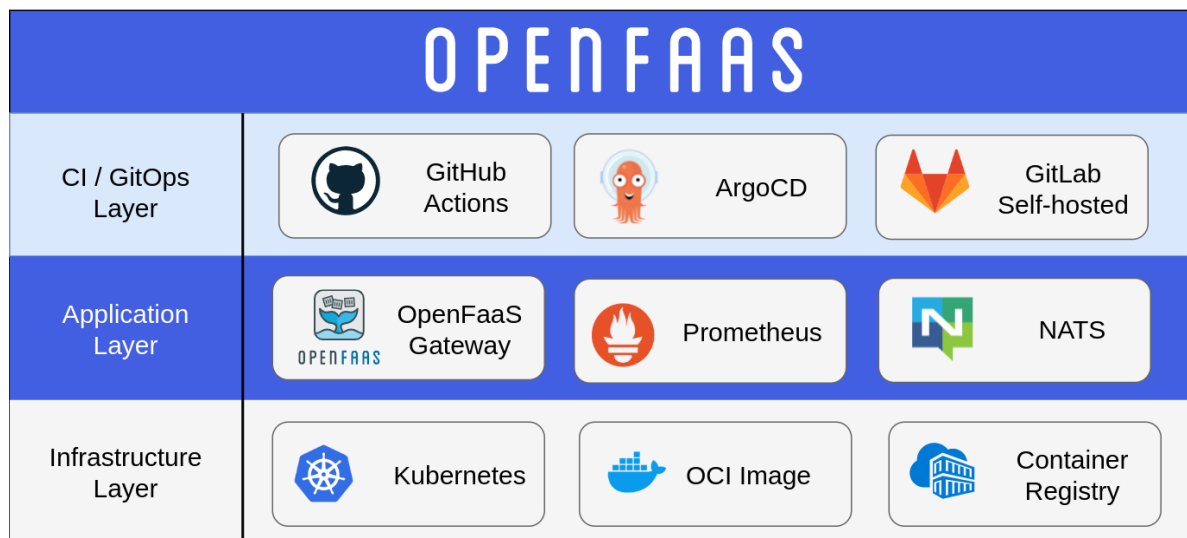
- 持续集成层 CI / GitOps layer

- 应用层¶](https://docs.openfaas.com/architecture/stack/#application-layer)

    - The OpenFaaS gateway 提供管理函数的RESTAPI.
    - NATS i异步函数队列
    - Prometheus 提供指标

- 基础设施层：Kubernetes、Pod、Container Registry
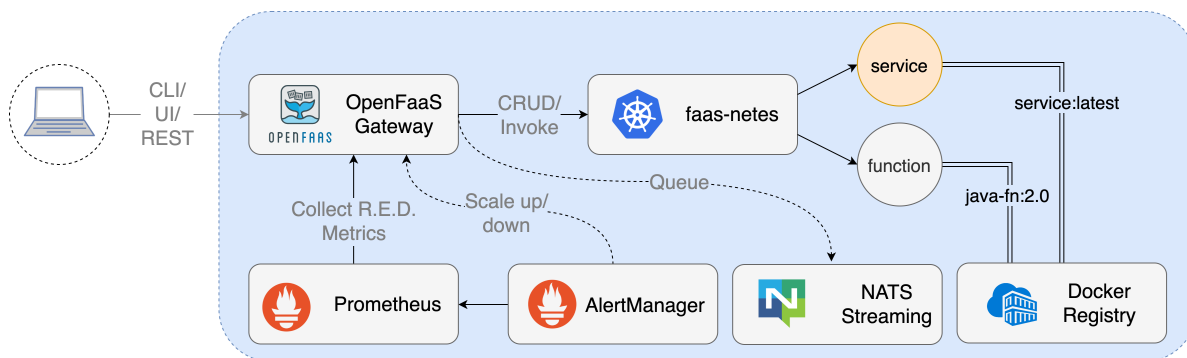
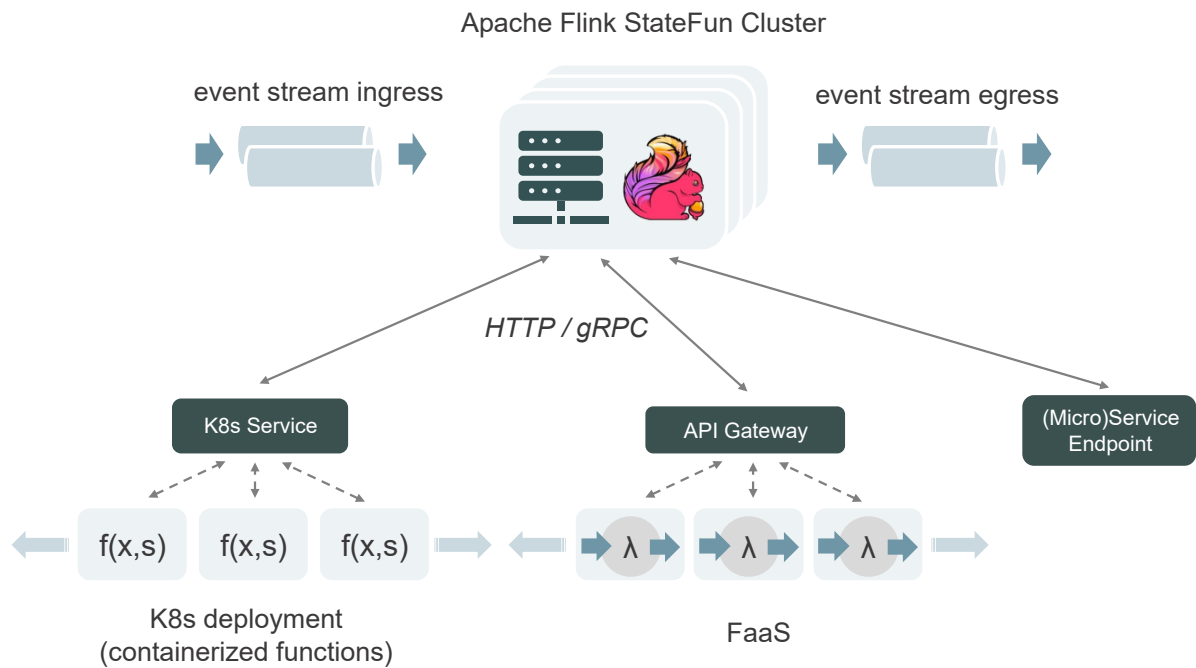faas-netes 是OpenFaaS最受欢迎的编排提供者。[https://github.com/openfaas/faas-netes]

自动伸缩：

-	-
com.openfaas.scale.max	最大副本数
com.openfaas.scale.min	最小副本数
com.openfaas.scale.zero	是否运行副本数为0
com.openfaas.scale.zero-duration	空闲多久后将副本置为0
com.openfaas.scale.target	每个副本调节的目标负载 50
com.openfaas.scale.target-proportion	目标副本占比 0.90
com.openfaas.scale.type	调节模式 rps，capacity，cpu rps: 函数每秒处理完成的请求数 capacity: inflight requests的个数

Flink Stateful Functions

- Ingress
- Egress

References

jimmysong https://jimmysong.io/kubernetes-handbook/usecases/openfaas-quick-start.html

Official https://docs.openfaas.com/architecture/stack/