

从Kubernetes到Cloud Native 云原生应用之路

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TalkingData



主办方 **Geekbang** 极客邦科技 **InfoQ**

AiCon

全球人工智能与机器学习技术大会

助力人工智能落地

2018.1.13 - 1.14 北京国际会议中心

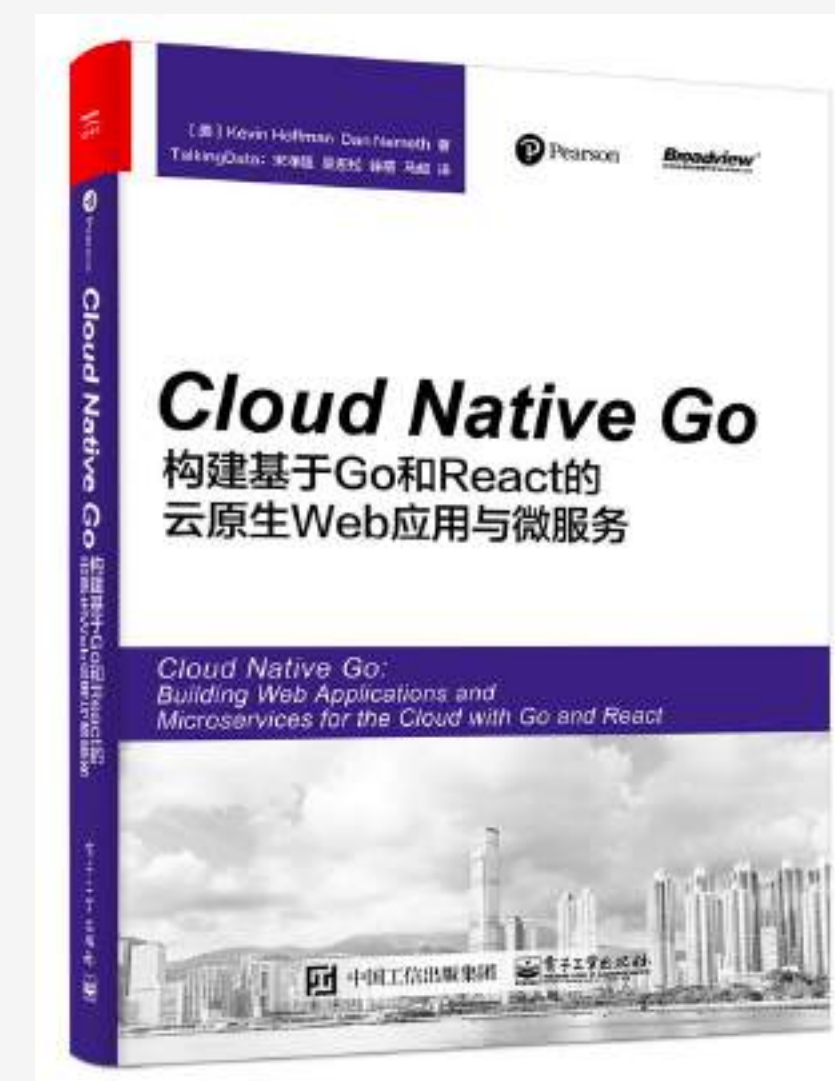
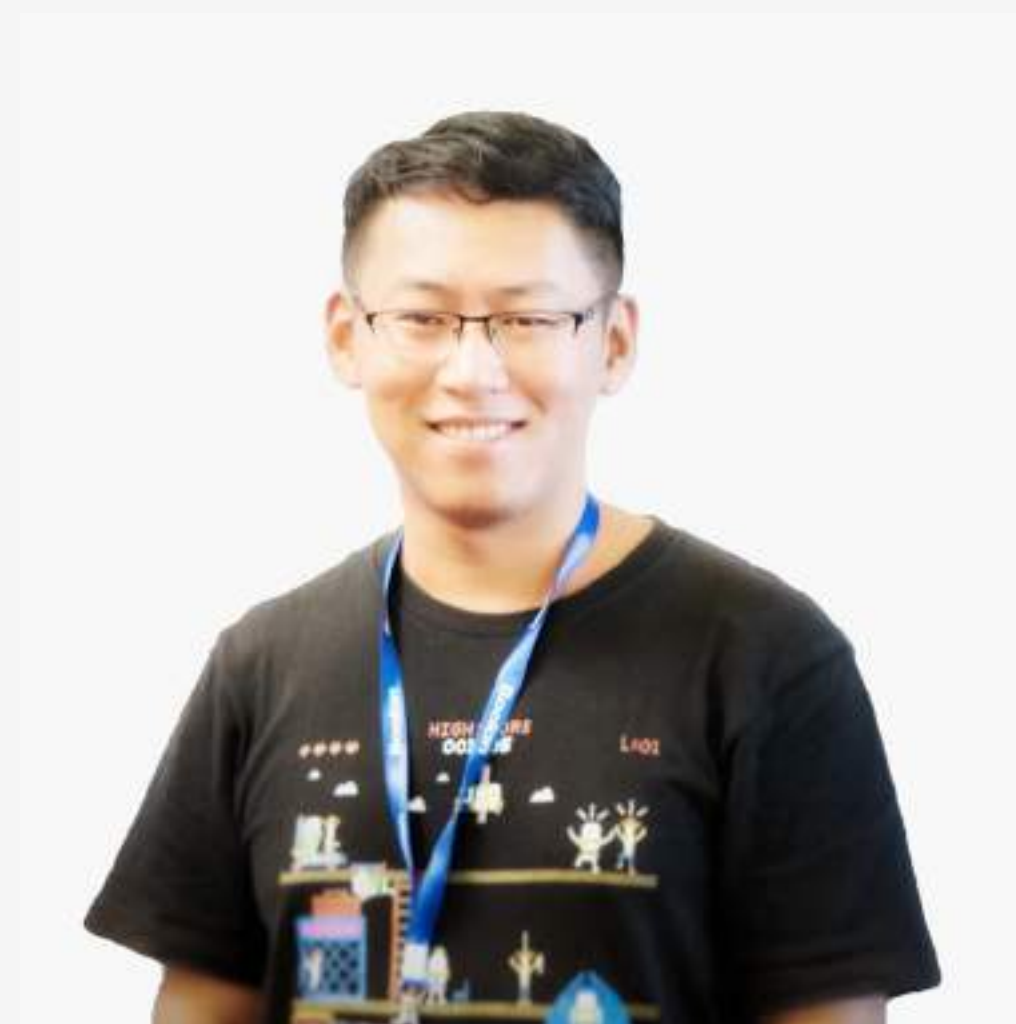


扫描关注大会官网

关于我

TalkingData 容器平台负责人

- 关注大数据与容器平台、微服务、Kubernetes与云原生应用
- 《Cloud Native Go - 构建基于React和Go的云原生应用和微服务》译者
- 《Cloud Native Python - 使用Python和React构建云原生应用》译者
- Kubernetes 中文社区/k8smeetup
- 个人博客 <https://jimmysong.io>



Outline

- **Docker in TalkingData**
- **Containers**
- **Why Kubernetes?**
- **Microservices**
- **Cloud Native**
- **Service Mesh**
- **Use Cases**
- **Open Source**

Docker in TalkingData

2015-2016

Yarn on Docker CLI tool



<https://github.com/rootsongjc/magpie>

Web UI



<https://github.com/shipyard/shipyard>

Docker network plugin



<https://github.com/talkingdata/shrike>

Container orchestrating



<https://github.com/docker/swarm>

CI/CD



<https://jenkins.io/>

- Yarn on Docker
- About 1k containers
- 10TB+ memory



2017-

Client-go



<https://github.com/kubernetes/client-go>

Kubernetes dashboard



<https://github.com/kubernetes/dashboard>

Flannel



<https://github.com/coreos/flannel>

Kubernetes



<https://kubernetes.io/>

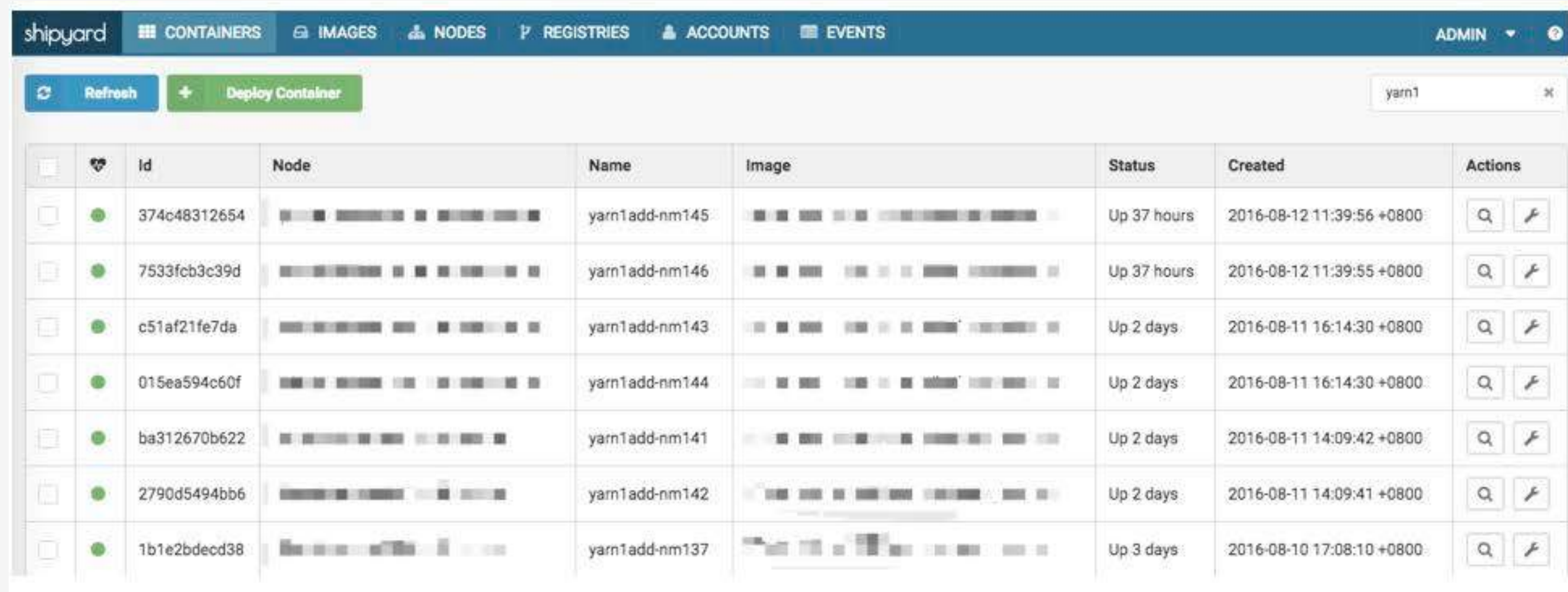
CI/CD



<https://jenkins.io/>

Yarn on Docker

- Hadoop Yarn
- Swarm
- Docker1.11
- 容器固定IP
- 环境变量
- 类虚拟机
- 命令行管理、UI辅助



The screenshot shows the Shipyard web interface for managing containers. The top navigation bar includes 'CONTAINERS', 'IMAGES', 'NODES', 'REGISTRIES', 'ACCOUNTS', and 'EVENTS'. Below the navigation bar, there are 'Refresh' and 'Deploy Container' buttons. A search bar on the right contains the text 'yarn1'. The main content is a table listing containers with columns for Id, Node, Name, Image, Status, Created, and Actions.

		Id	Node	Name	Image	Status	Created	Actions
<input type="checkbox"/>	●	374c48312654		yarn1add-nm145		Up 37 hours	2016-08-12 11:39:56 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	7533fcb3c39d		yarn1add-nm146		Up 37 hours	2016-08-12 11:39:55 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	c51af21fe7da		yarn1add-nm143		Up 2 days	2016-08-11 16:14:30 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	015ea594c60f		yarn1add-nm144		Up 2 days	2016-08-11 16:14:30 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	ba312670b622		yarn1add-nm141		Up 2 days	2016-08-11 14:09:42 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	2790d5494bb6		yarn1add-nm142		Up 2 days	2016-08-11 14:09:41 +0800	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	●	1b1e2bdec38		yarn1add-nm137		Up 3 days	2016-08-10 17:08:10 +0800	<input type="checkbox"/> <input type="checkbox"/>

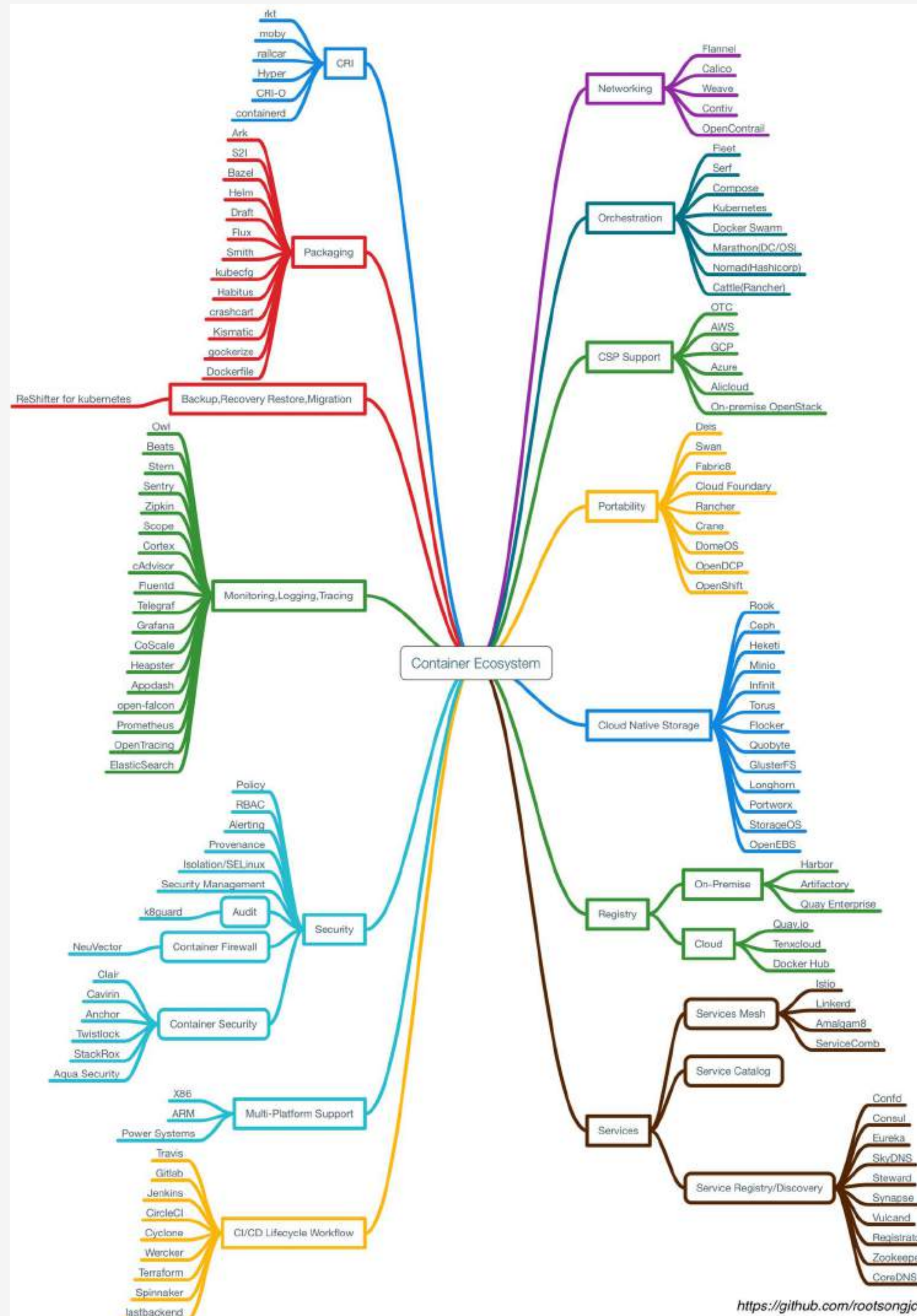
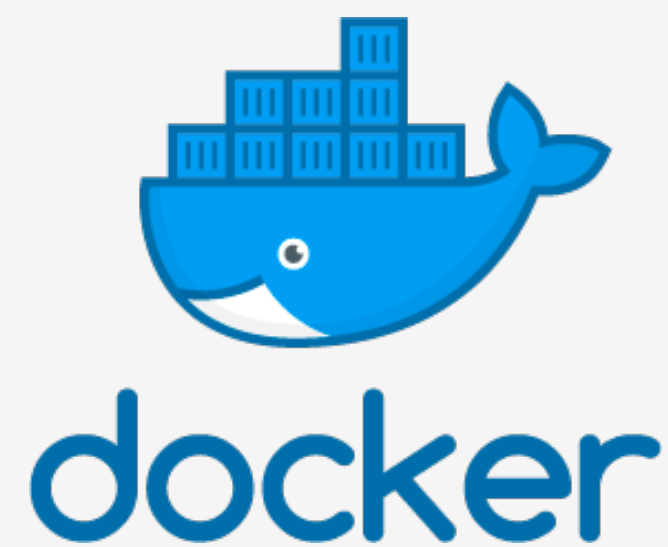
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Containers

- Developer tools
- Containers生态系统
- Productivity platform

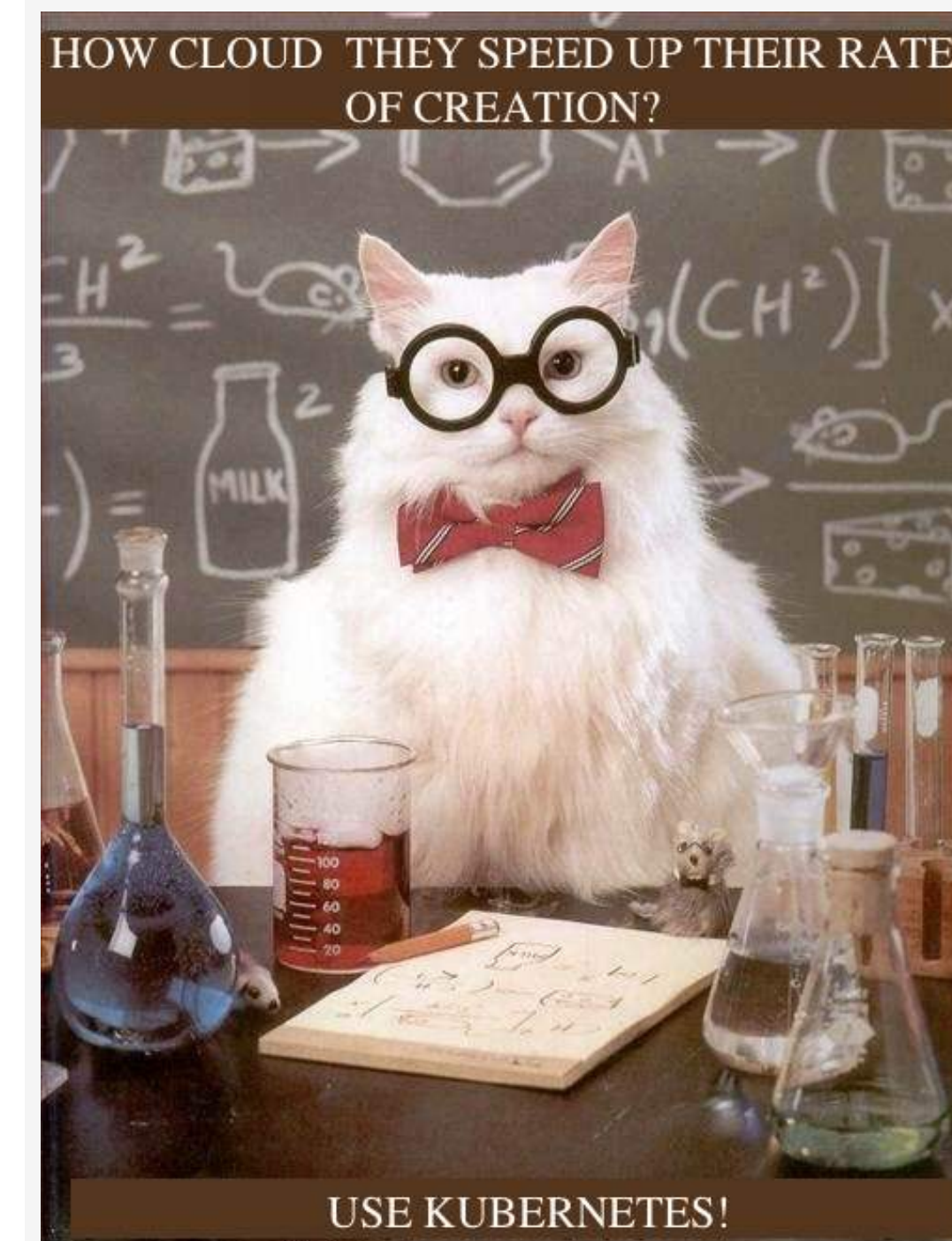
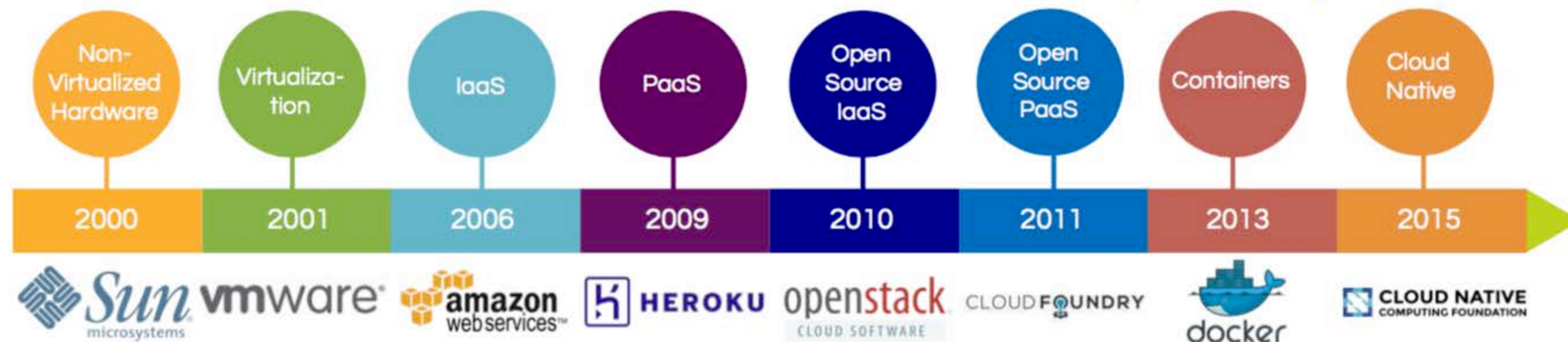


<https://github.com/rootsongjc>

Cloud Computing Stages



- Cloud native computing uses an open source software stack to:
 - deploy applications as *microservices*,
 - packaging each part into its own *container*
 - and dynamically *orchestrating* those containers to optimize resource utilization
- Standardization: <https://www.opencontainers.org/>



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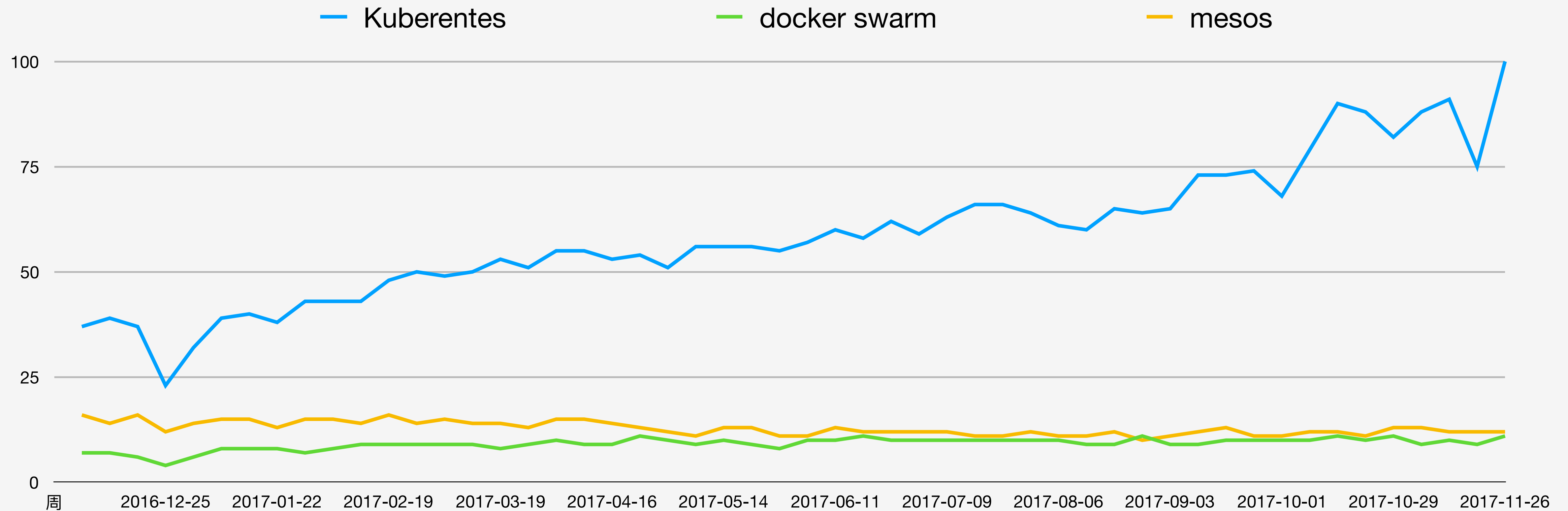
Why kubernetes?

- 优秀的容器副本控制
- 原来虚拟机式的使用方式不够灵活
- 抽象程度高，编排组合强大
- 社区活跃
- 微服务支持

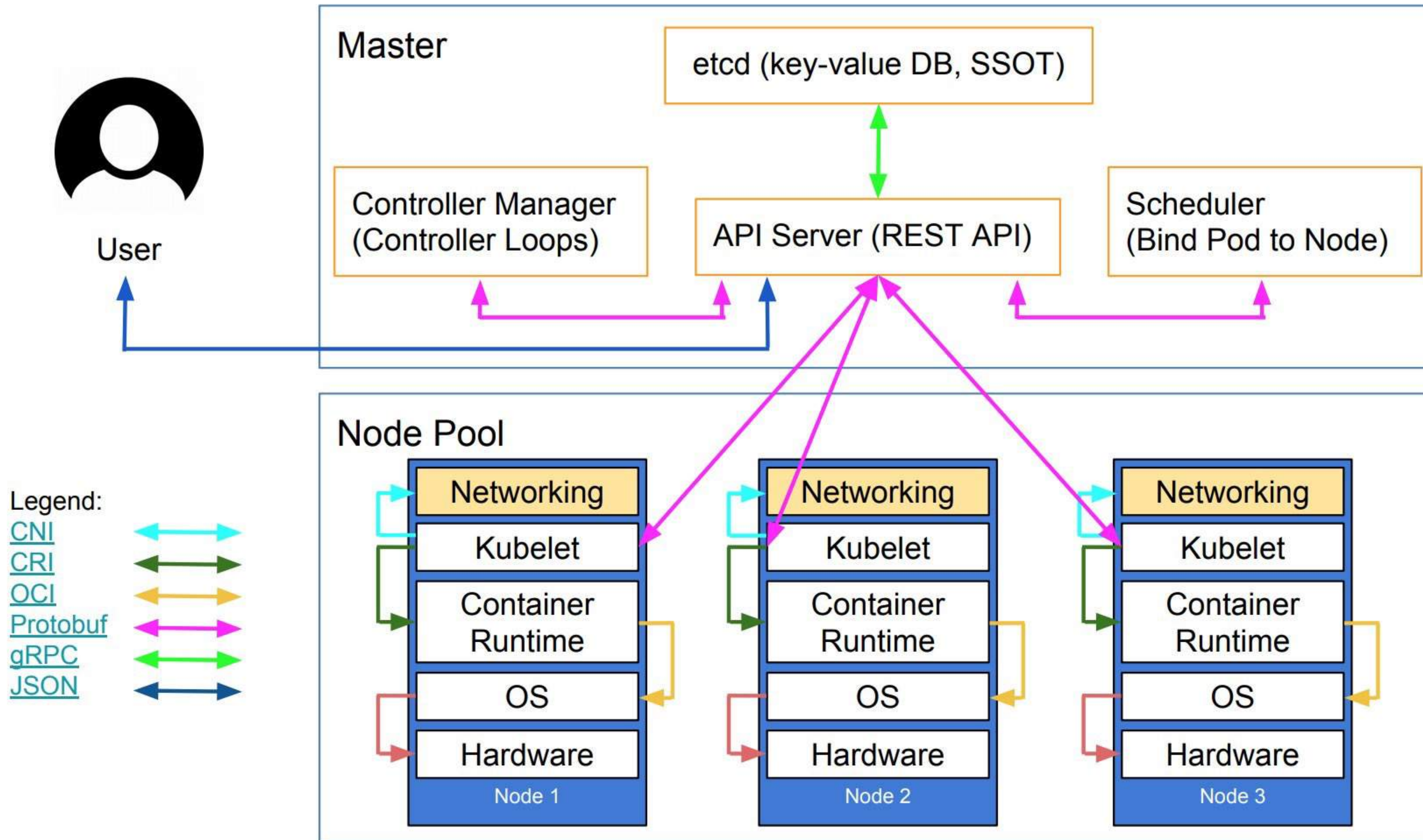


Kubernetes

- Kubernetes the de facto container orchestrator
- more than orchestrator...

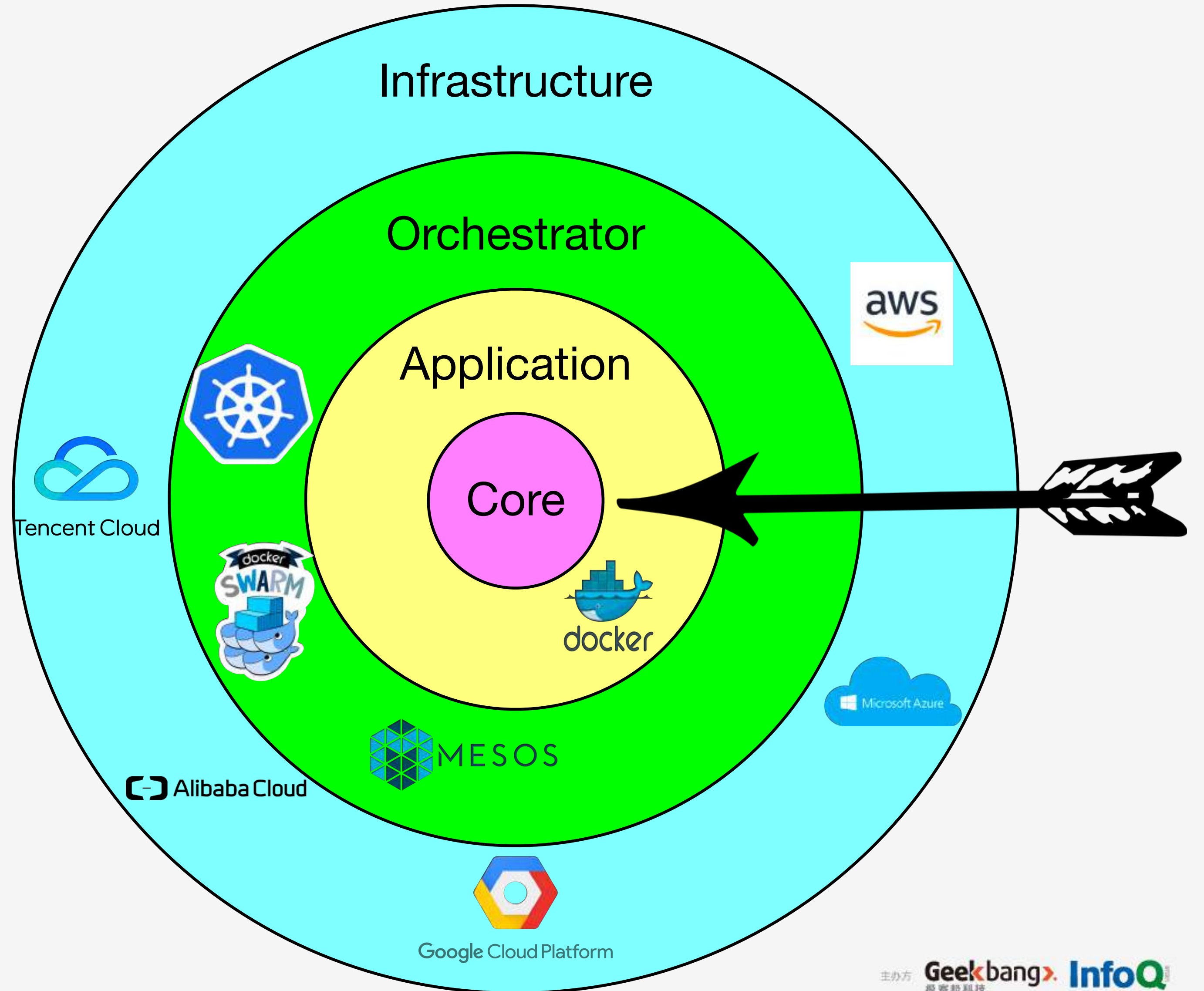


Kubernetes' high-level component architecture



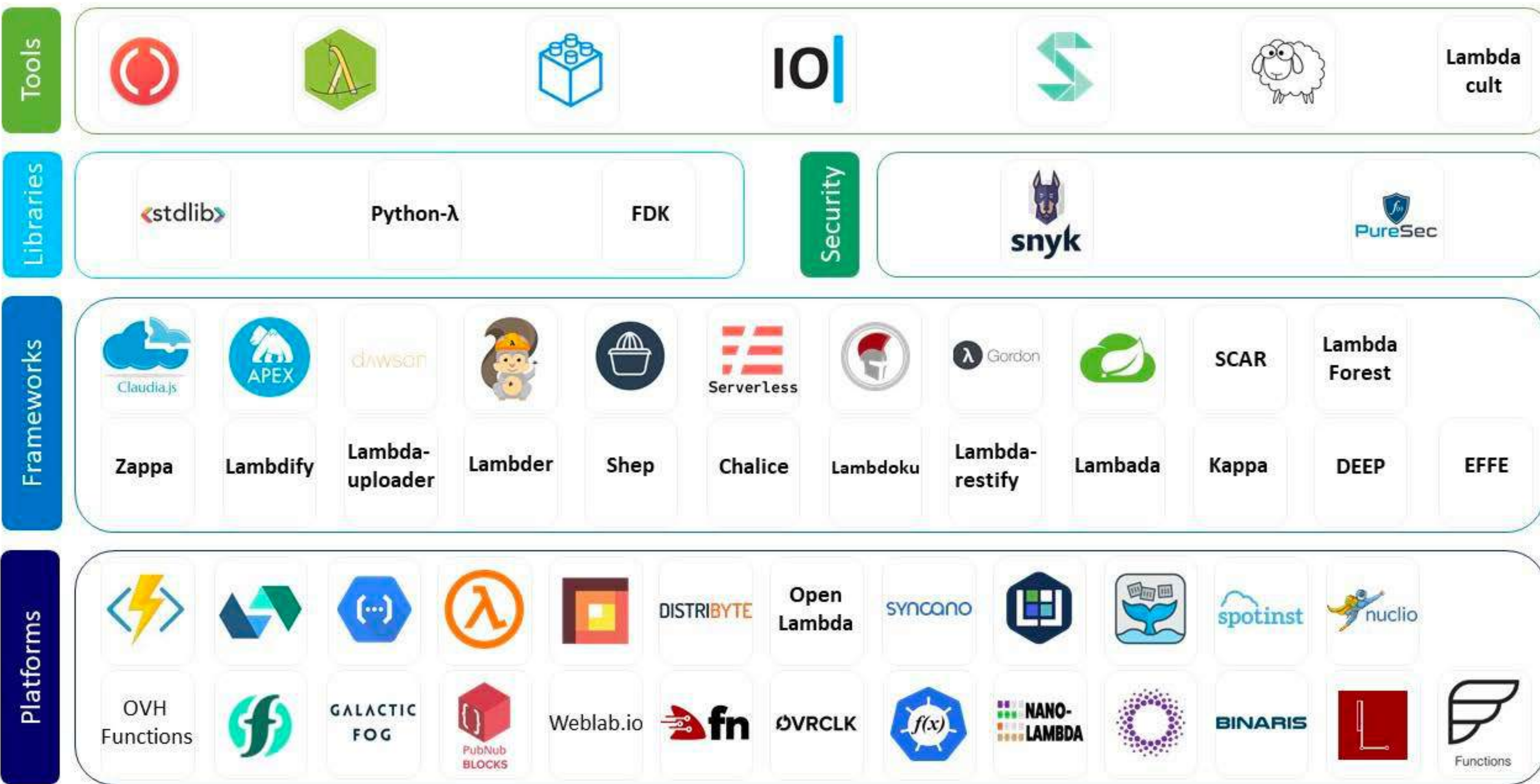
(*图片来自网络)

Infrastructure Portability



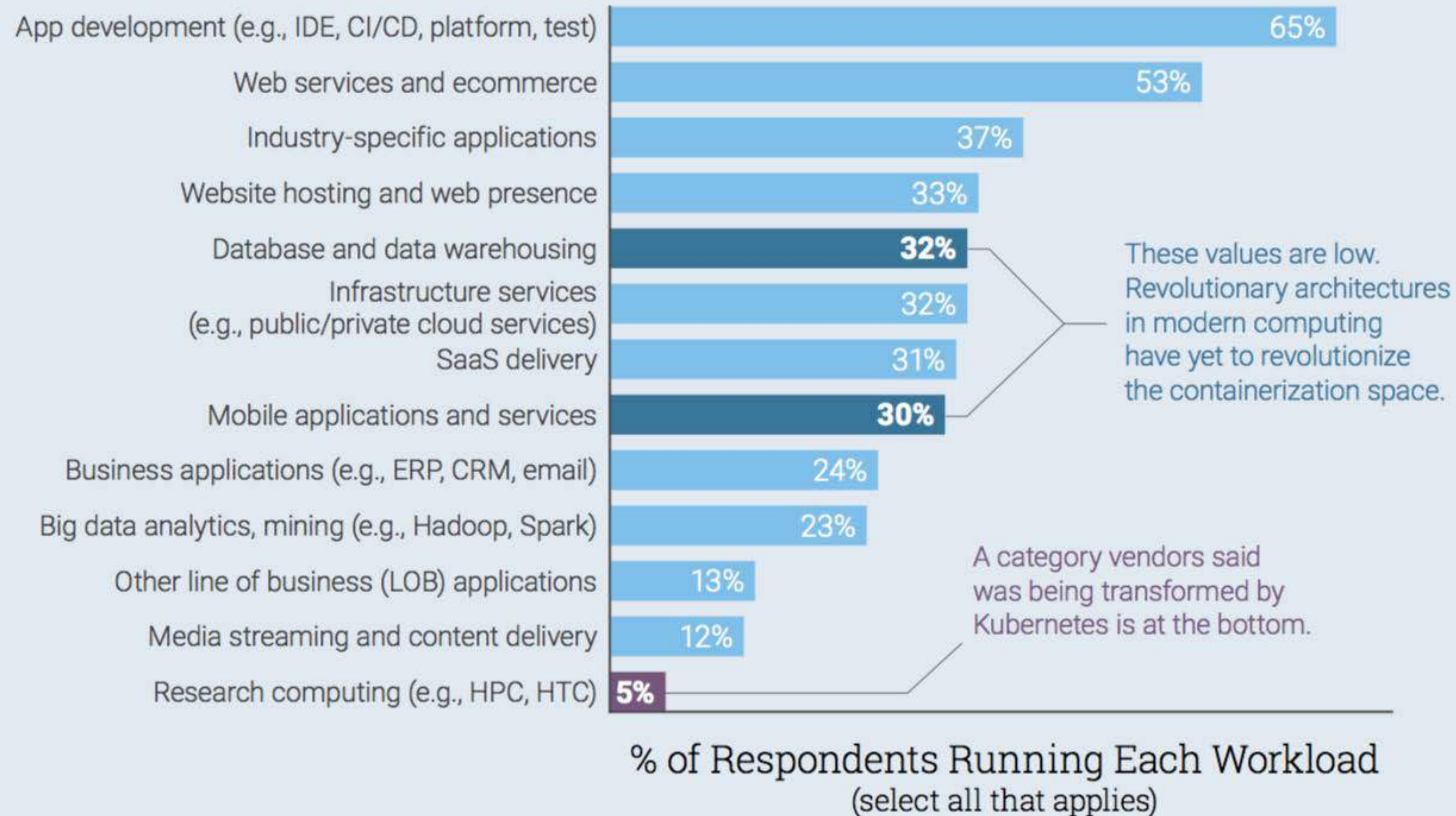
Serverless/FaaS

Function-as-a-Service Landscape



Current Use Cases

Workloads Running on Kubernetes



- App development
- CI/CD
- Web services

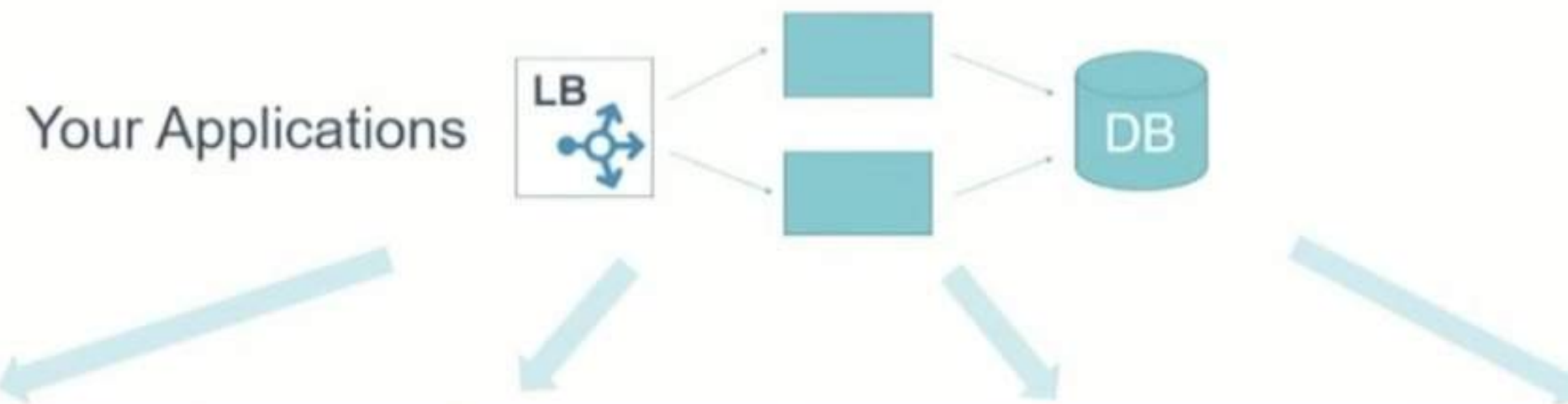
Source: The New Stack 2017 Kubernetes User Experience Survey.
Q. What types of workloads does your enterprise or organization run on Kubernetes? n=235.

THE NEW STACK

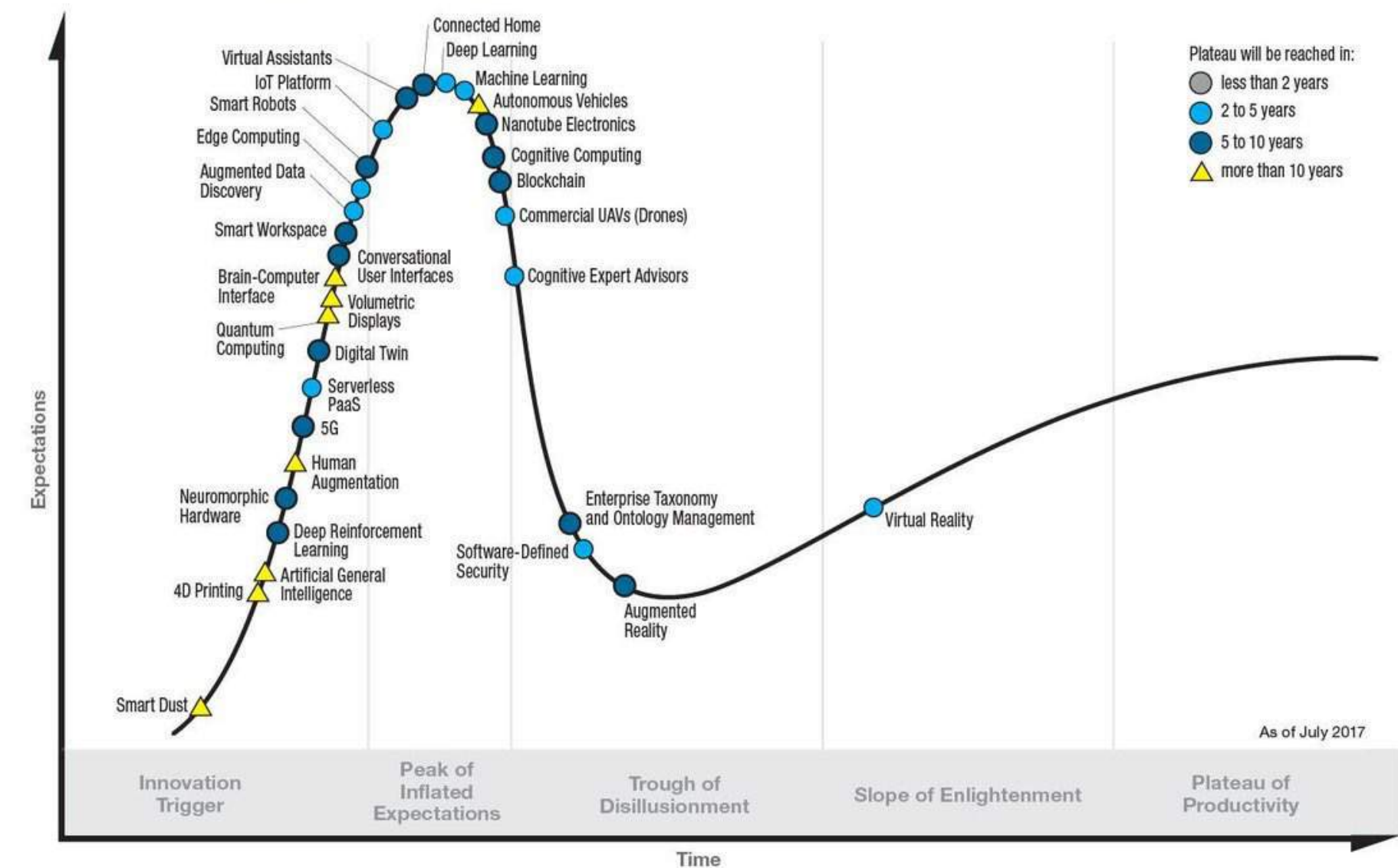
Technology disruption

Google/Microsoft/Amazon/Rancher
Cantional...

Today, Kubernetes is everywhere



Gartner **Hype Cycle** for Emerging Technologies, 2017



gartner.com/SmarterWithGartner

Source: Gartner (July 2017)
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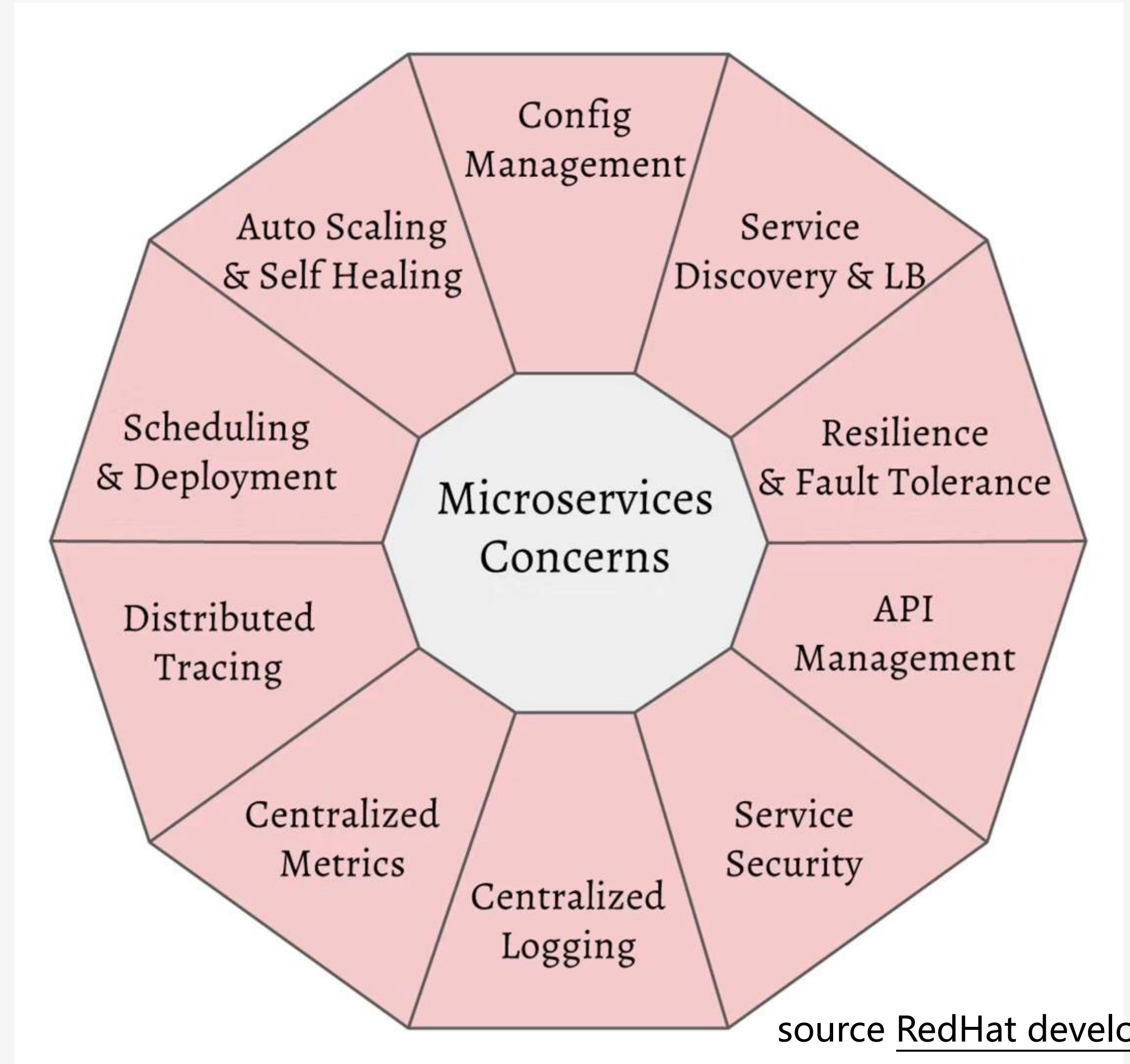
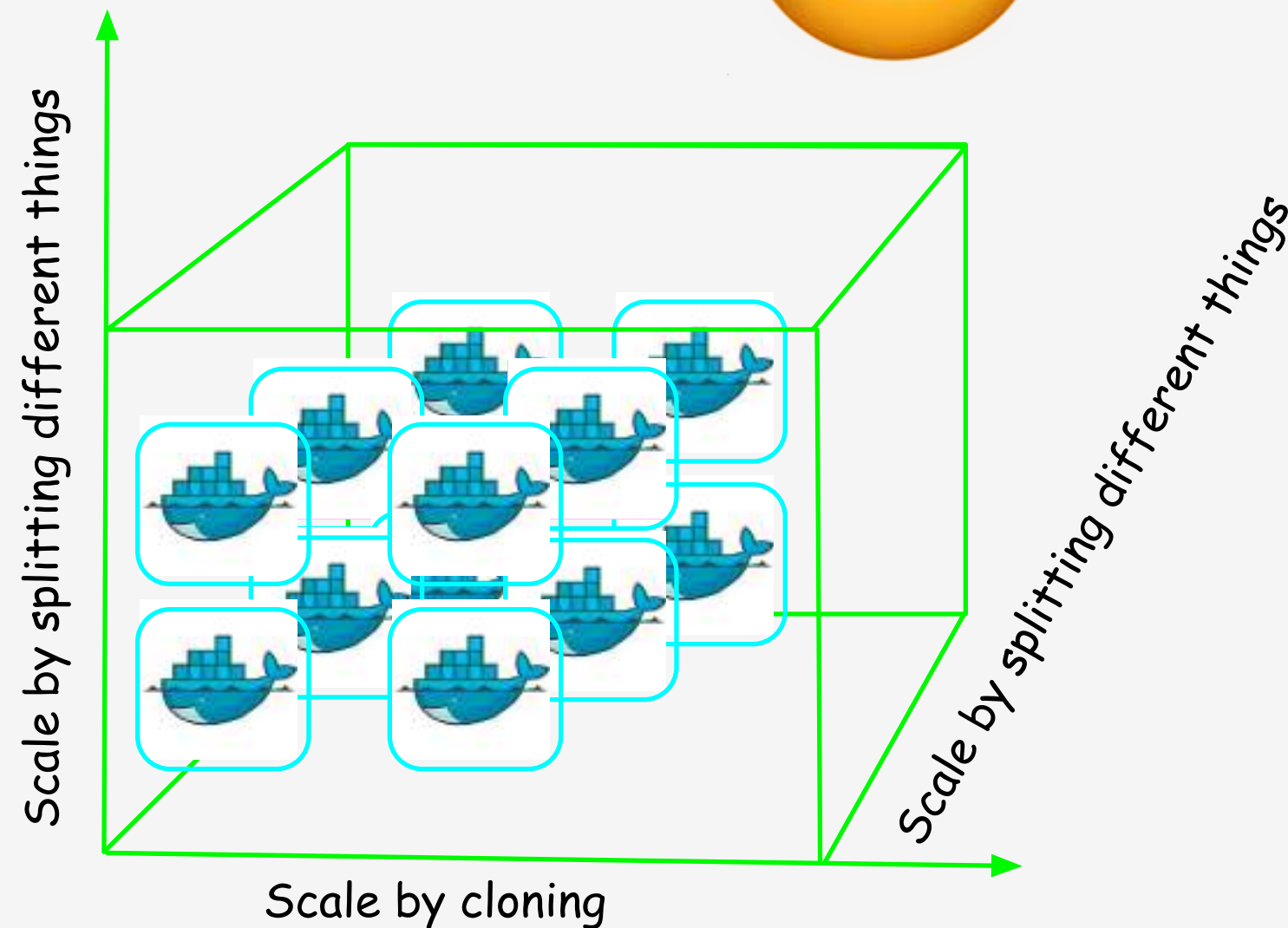
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Microservices with Kubernetes

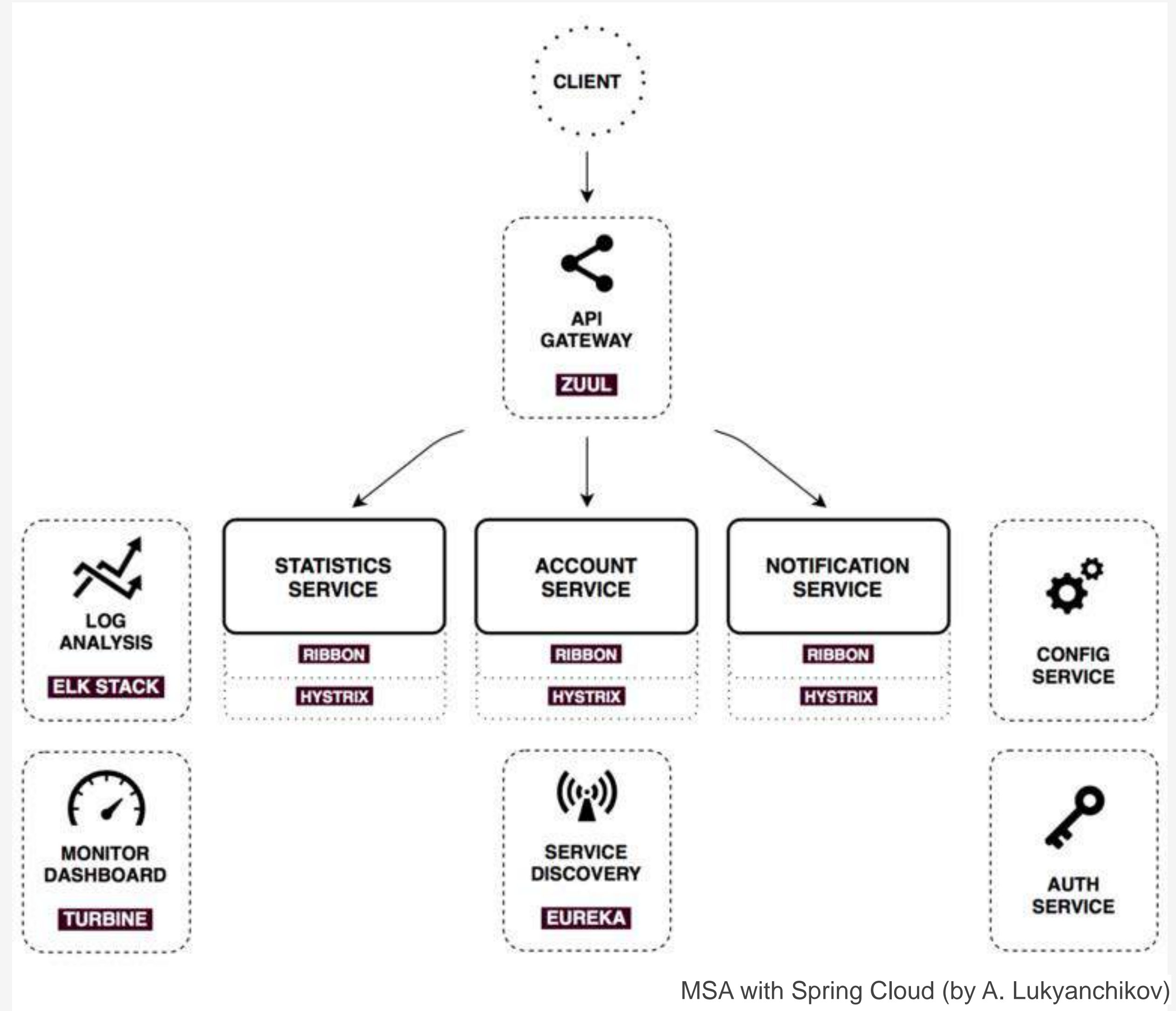
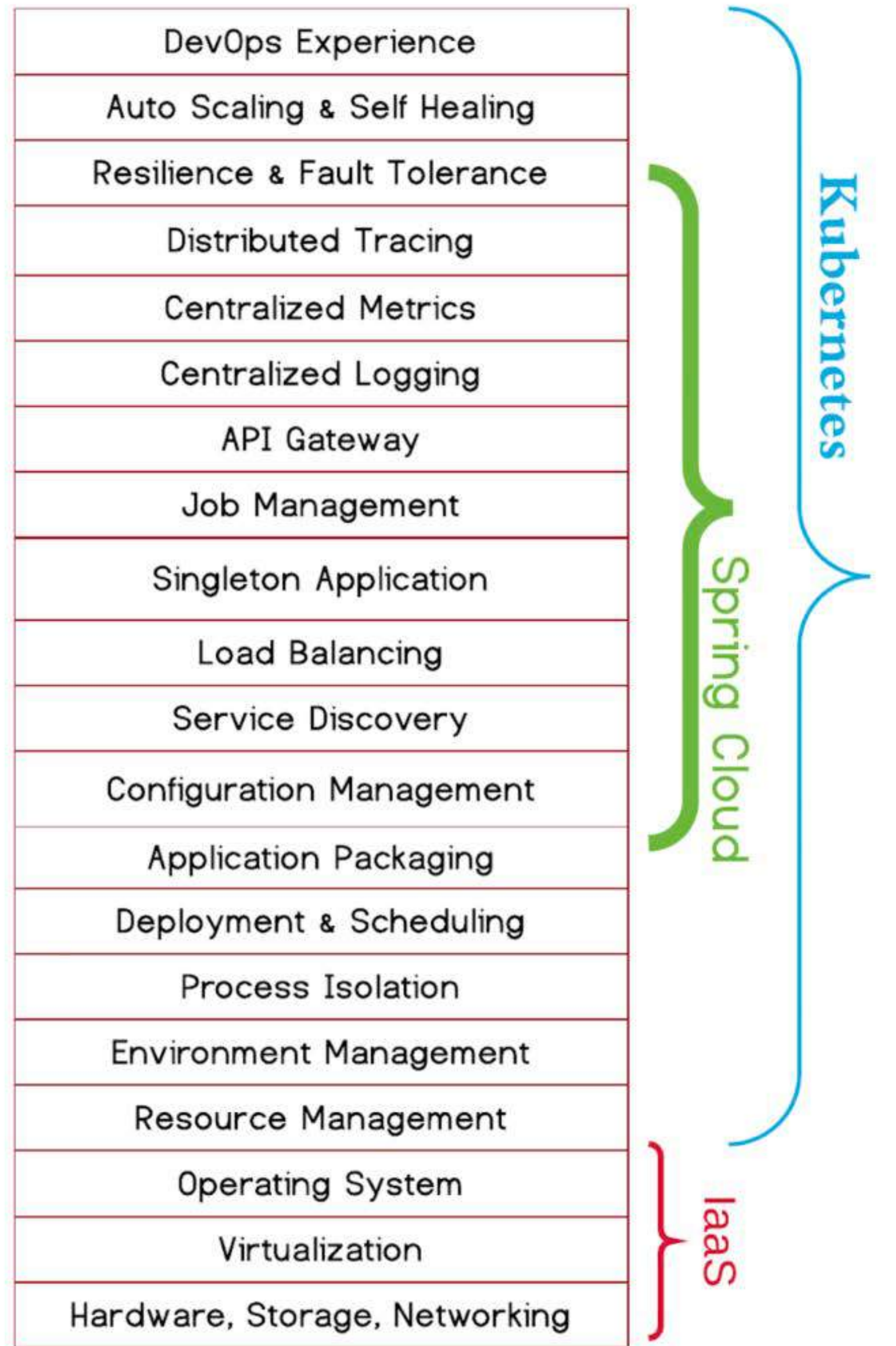
Pros & Cons

- 小团队快速开发与维护
- 技术多样性
- 独立演进
- 灵活部署与扩展
- 增加调用开销
- 分布式系统
- 调试困难
- 服务治理



source [RedHat developers](#)

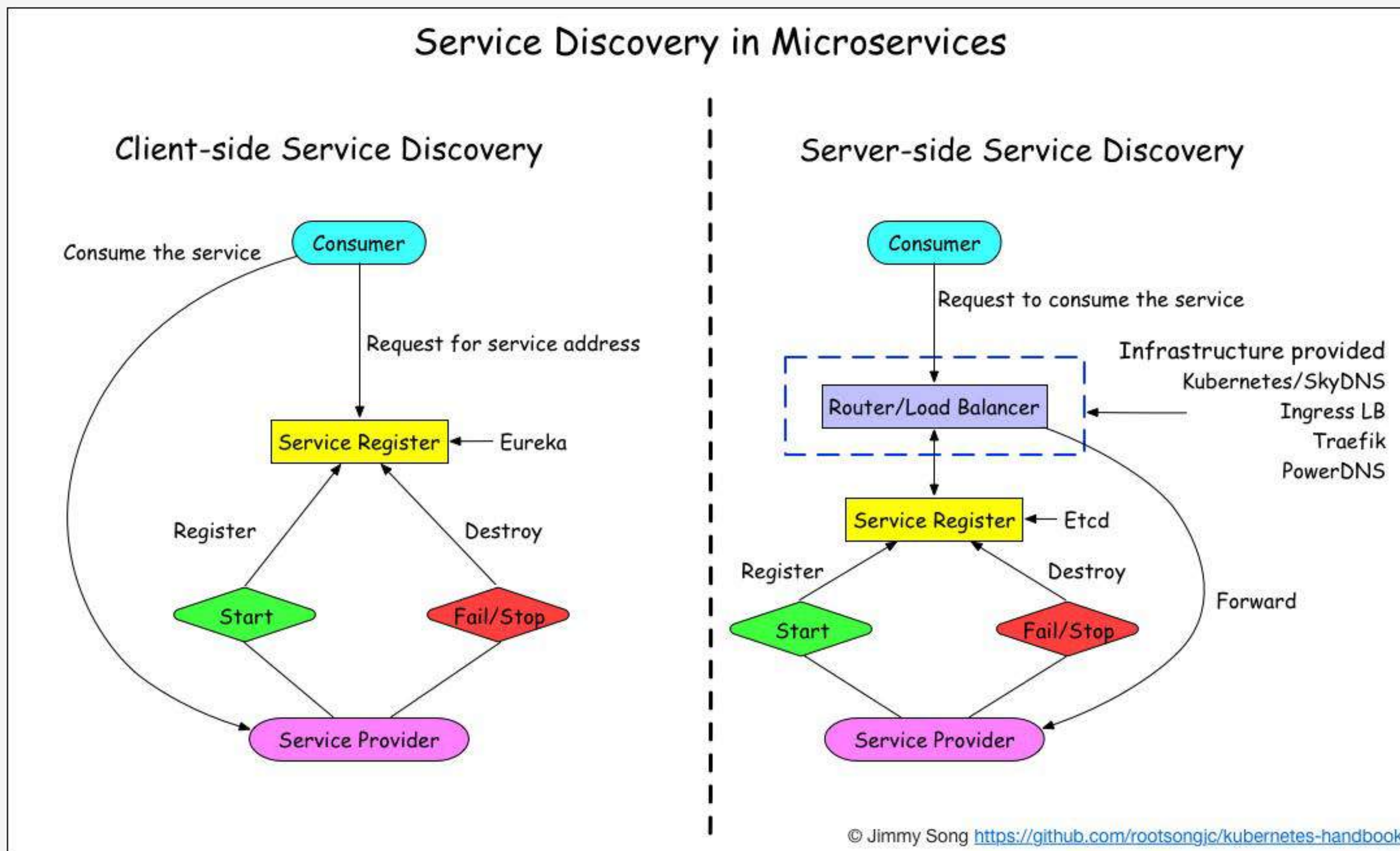
Kubernetes+Service Mesh vs Spring Cloud



MSA with Spring Cloud (by A. Lukyanchikov)

source [RedHat developers](#)

Service Discovery in Microservices



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