Cloud Native Infrastructure

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This presentation is available at:
https://github.com/andrealmar/talks

CNCF Speaker

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Last Name | Areas of Expertise | Languages Spoken | Brazil

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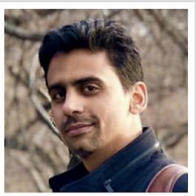
2 Speakers



Andre Almar

Areas of Expertise: Cloud Platforms, Kubernetes, Community

Yago Nobre

Areas of Expertise: Cloud Platforms, Kubernetes

$whoami

- Site Reliability Engineer
- Speaker
- DevOps BH Meetup Organizer
- DevOpsDays BH Organizer
- TDC BH 2019 Organizer & Technical Committee Member

Cloud Native Computing Foundation

- Non-profit, part of the Linux Foundation; founded Dec 2015

Graduated

Orchestration

Service Mesh

Monitoring

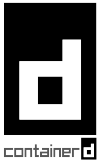
Service Discovery

Incubating

Distributed Tracing API

Logging

Remote Procedure Call



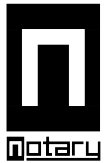
Container Runtime

Container Runtime

Networking API

Distributed Tracing

Software Update Spec



Security

Storage

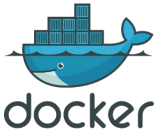
Messaging

Service Mesh

Package Management

Storage

- Platinum members:

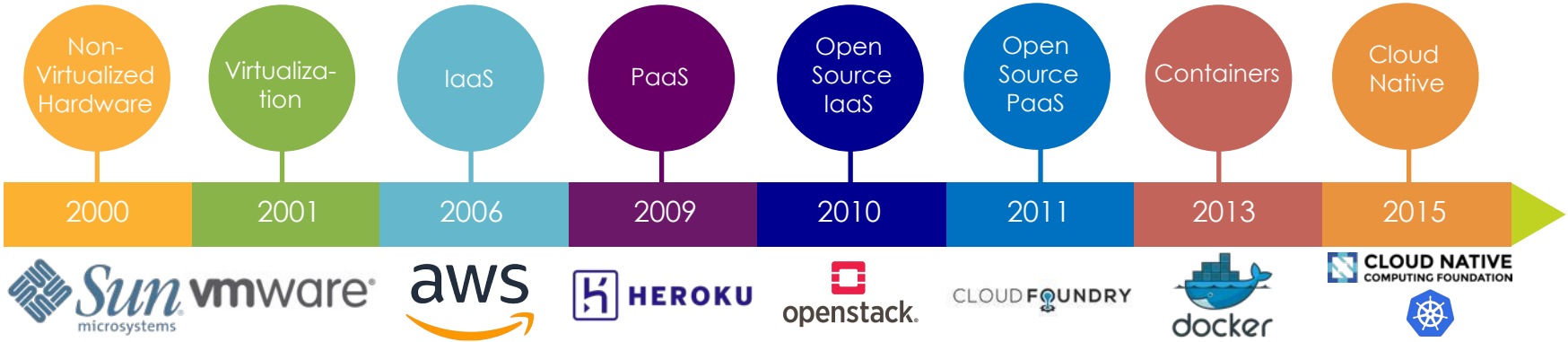


From Virtualization to Cloud Native

CLOUD NATIVE COMPUTING FOUNDATION

kubernetes

- Cloud native computing uses an open source software stack to:
  - segment applications into *microservices*,
  - package each part into its own *container*
  - and dynamically *orchestrate* those containers to optimize resource utilization



Cloud Native Landscape

2018-10-26T11:08:51Z 9d4ab12

See the interactive landscape at l.cncf.io

Greyed logos are not open source

App Definition and Development

Database

Vitess (CNCF Incubating)

Streaming & Messaging

NATS (CNCF Incubating)

Application Definition & Image Build

HELM (CNCF Incubating)

Continuous Integration & Delivery

Orchestration & Management

Scheduling & Orchestration

kubernetes (CNCF Graduated)

Coordination & Service Discovery

CoreDNS (CNCF Incubating)

Remote Procedure Call

GRPC (CNCF Incubating)

Service Proxy

envoy (CNCF Incubating)

API Gateway

Service Mesh

LINKERD (CNCF Incubating)

Runtime

Cloud-Native Storage

ROOK (CNCF Incubating)

Container Runtime

containerd (CNCF Incubating)

rkt (CNCF Incubating)

Cloud-Native Network

CNI (CNCF Incubating)

Provisioning

Automation & Configuration

Container Registries

Security & Compliance

Notary (CNCF Incubating)

Key Management

Platform

Certified Kubernetes - Distribution

Certified Kubernetes - Hosted

Certified Kubernetes - Installer

Non-Certified Kubernetes

PaaS/Container Service

Observability and Analysis

Monitoring

Prometheus (CNCF Graduated)

Logging

fluentd (CNCF Incubating)

Tracing

JAEGER (CNCF Incubating)

OPENTRACING (CNCF Incubating)

Chaos Engineering

Serverless

Cloud

Public

Special

Kubernetes Certified Service Provider

Kubernetes Training Partner

This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path

l.cncf.io

CLOUD NATIVE Landscape

CLOUD NATIVE COMPUTING FOUNDATION

Redpoint Amplify PARTNERS

History of Infrastructure

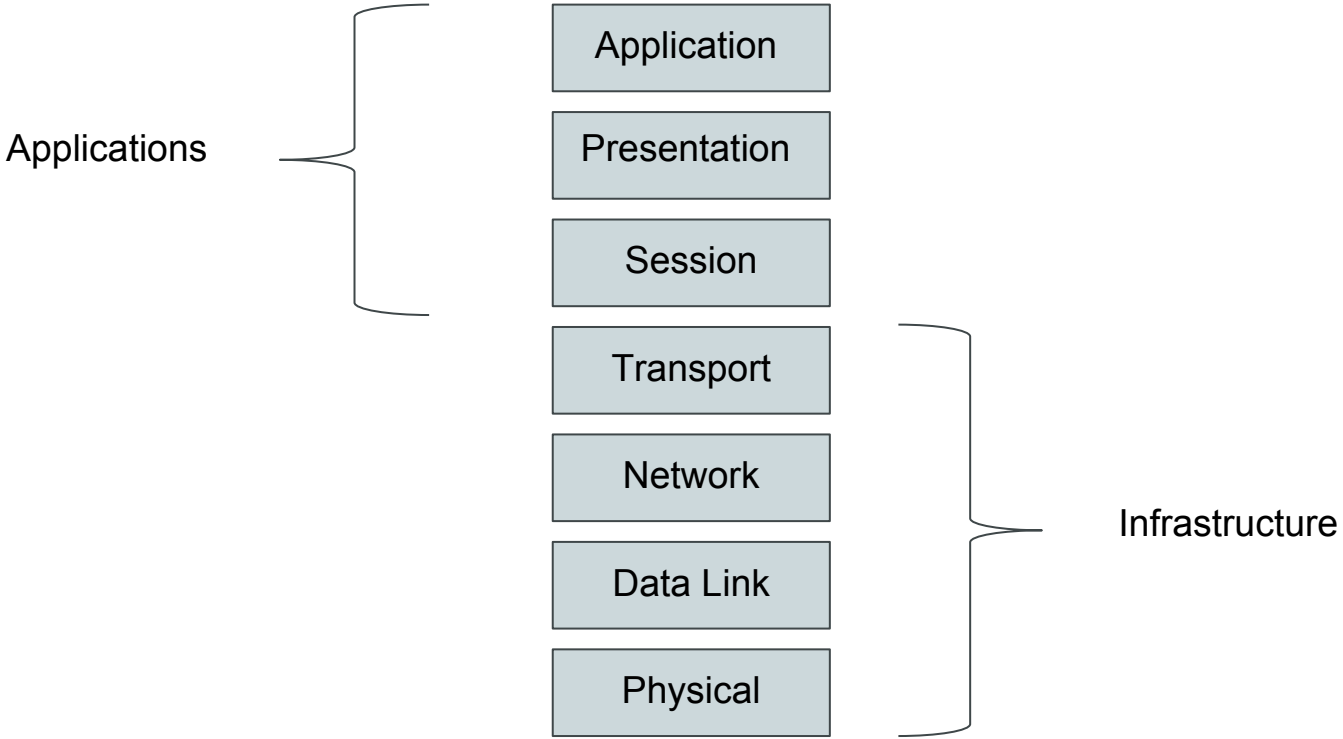
- Infrastructure as a Diagram
- Infrastructure as a Script
- Infrastructure as a Code
- Infrastructure as a Software

What is Cloud Native Infrastructure ?

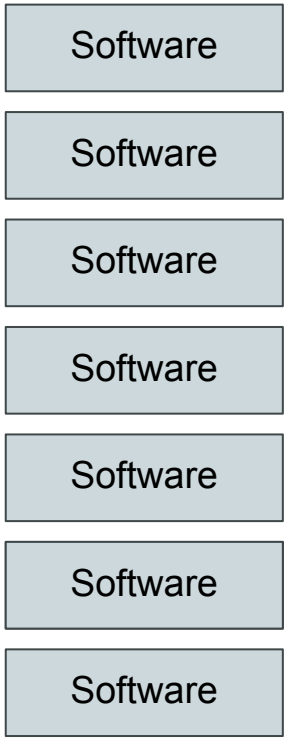
- CLOUD + INFRASTRUCTURE

- Servers as a Service
- Extreme Automation
- Decoupled architecture
- Encapsulate processes
- Automated Orchestration

OSI Reference Model

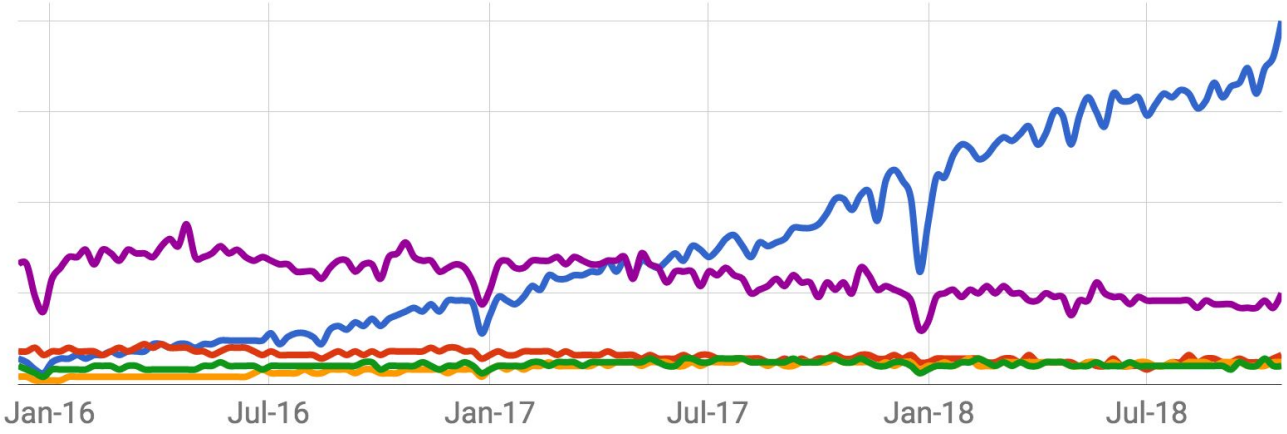


NEW OSI Reference Model



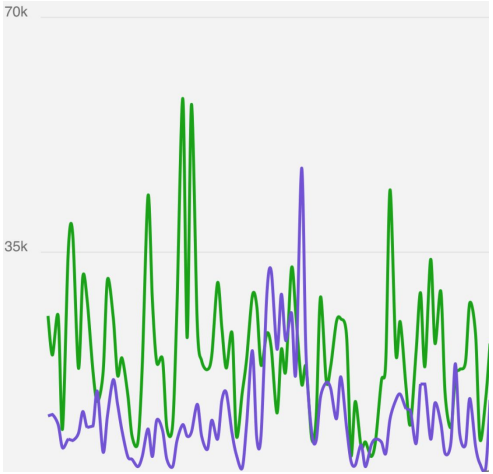
Kubernetes in Search Trends

Google Trends



Kubernetes OpenStack Mesos Docker Swarm Cloud Foundry

WeChat



Kubernetes OpenStack

Kubernetes

CONTROLLER

```
for {
  getActual()
  getExpected()
  reconcile()
}
```

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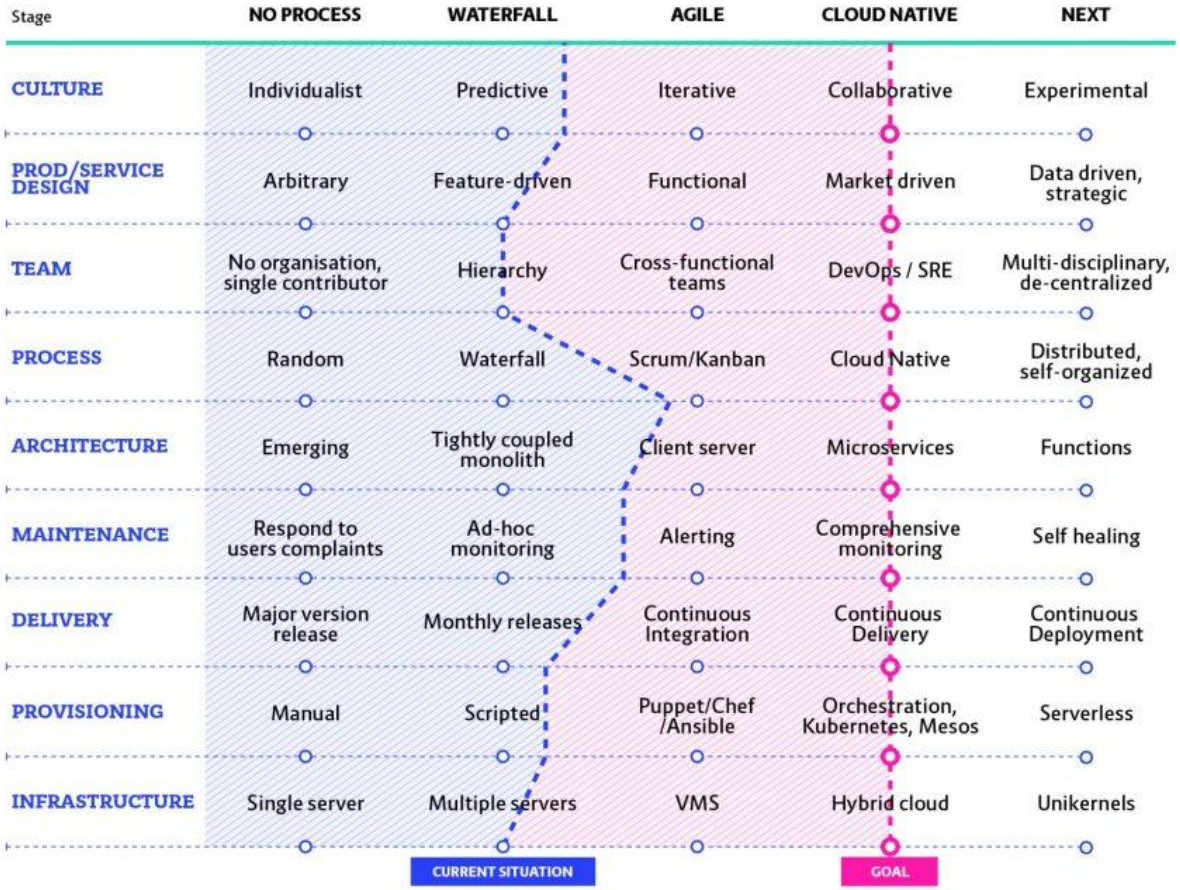
Operators

- **etcd** operator
- **postgresql** operator
- **mysql** operator
- **prometheus** operator
- and so on...

Cloud Native Infrastructure

Cloud Maturity Matrix



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What is the lesson?

CLOUD NATIVE
COMPUTING FOUNDATION

Key Takeaways

Stop managing Infrastructure the OLD way

Key Takeaways

Your Infrastructure MUST be:

- Horizontally scalable
- No single point of failure
- Resilient and self-healing
- Minimal operator overhead
- Decoupled from the underlying platform

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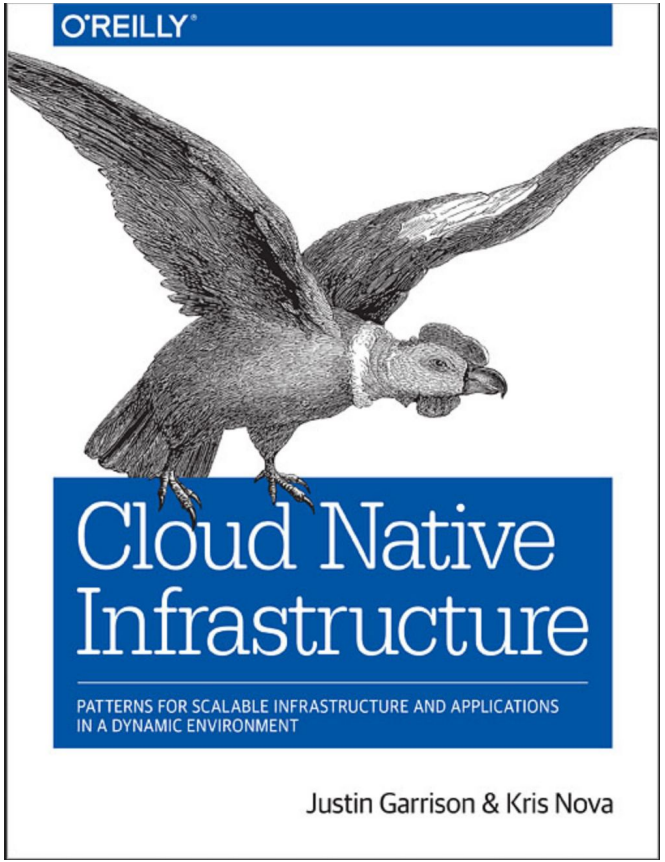
Key Takeaways

You are now a SOFTWARE ENGINEER

Cloud Native Infrastructure



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Please follow up with Andre Almar

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This presentation is available at:
https://github.com/andrealmar/talks