

Cloud Native Infrastructure

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This presentation is available at:

<https://github.com/andrealmar/talks>

Cloud Native Computing Foundation

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

Graduated



kubernetes
Orchestration



Prometheus
Monitoring



Distributed Tracing API



Software Update Spec



Logging



Security



Remote Procedure Call



Vitess

Storage

Incubating



Container Runtime



Container Runtime



CNI
Networking API



Service Mesh



Distributed Tracing



HELM
Package Management

ROOK

Storage

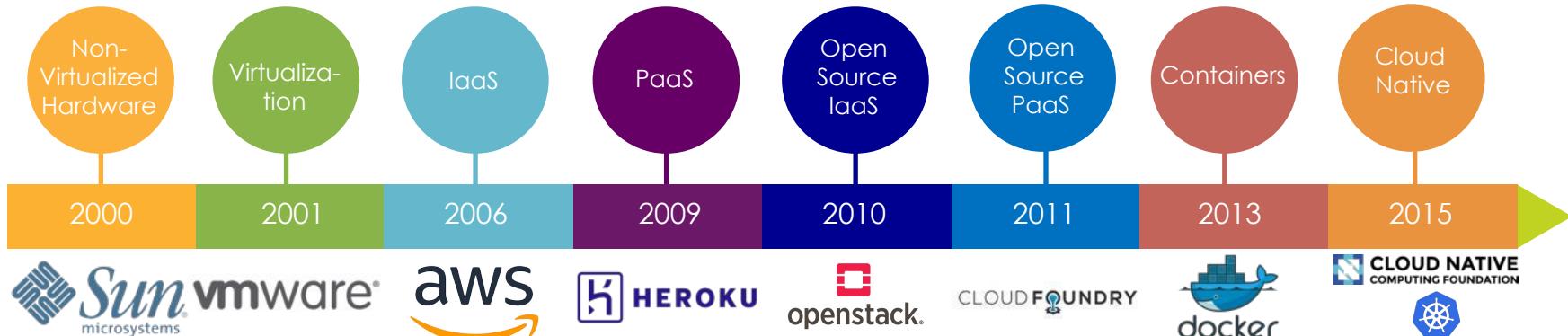
Platinum members:



From Virtualization to Cloud Native



- 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



See the interactive landscape at l.cncf.io

Greyed logos are not open source

App Definition and Development

Streaming & Messaging

Application Definition & Image Build

Continuous Integration & Delivery

Platform

Certified Kubernetes - Distribution

Observability and Analysis

Monitoring

Scheduling & Orchestration

Coordination & Service Discovery

Remote Procedure Call

Service Proxy

API Gateway

Service Mesh

Orchestration & Management

Cloud-Native Storage

Container Runtime

Cloud-Native Network

Runtime

Automation & Configuration

Container Registries

Security & Compliance

Key Management

Non-Certified Kubernetes

Serverless

Public

Kubernetes Certified Service Provider

Cloud

Special

Observability and Analysis

Monitoring

Observability and Analysis

Logging

Tracing

Chaos Engineering

PaaS/Container Service

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

67 Companies in the End User Community



300+ Members and Growing

Platinum Members

Alibaba Cloud



DELL Technologies



Microsoft Azure

ORACLE®

Pivotal

redhat.



vmware®

Gold Members



Baidu 百度



Hortonworks®



Orchestrating a brighter world
NEC



ZTE

End User Members



Bloomberg



comcast

ebay

DENSO



adidas amadeus box

cruise

FORM3



la Mobiliere



Goldman Sachs

indeed®

intuit



Nasdaq

The New York Times

Clark

PostFinance

PUSHER



ricardo.ch

SAP Concur



Morgan Stanley

NAIC
National Association of
Insurance Commissioners



Pinterest

salesforce

Spotify

shopify showwax

spreadfast

stix

textkernel

THREDUP

ticketmaster®

NIPR

OpenCloud

SEL



STATE STREET

twilio

twitter

ADVANCED
RESEARCH COMPUTING
TECHNOLOGY SERVICES
UNIVERSITY OF MICHIGAN

WIKIMEDIA
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YAHOO! JAPAN

TWO SIGMA

werkspot wework

woorank

workday.
wpengine

zalando

zendesk

M
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History of Infrastructure

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

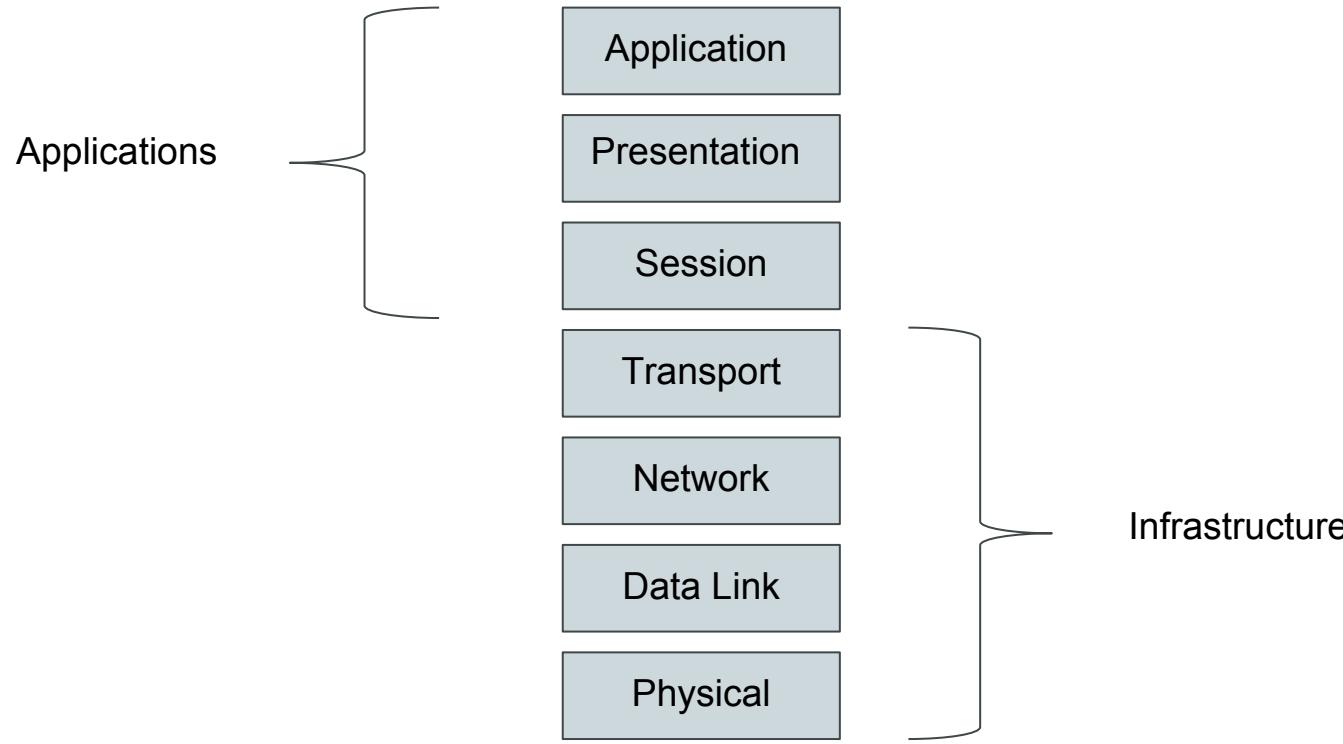


What is Cloud Native Infrastructure ?

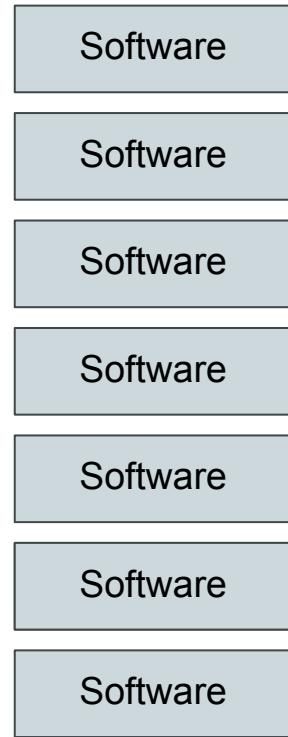
- CLOUD + INFRASTRUCTURE
 - Servers as a Service
 - Extreme Automation
 - Decoupled architecture
 - Encapsulate processes
 - Automated Orchestration



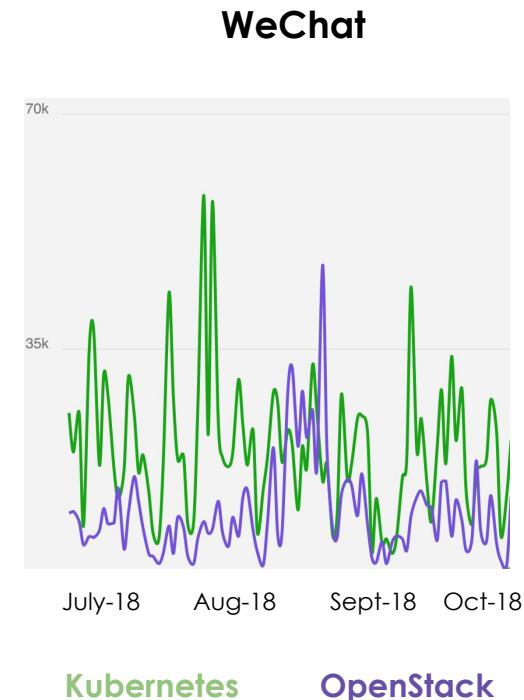
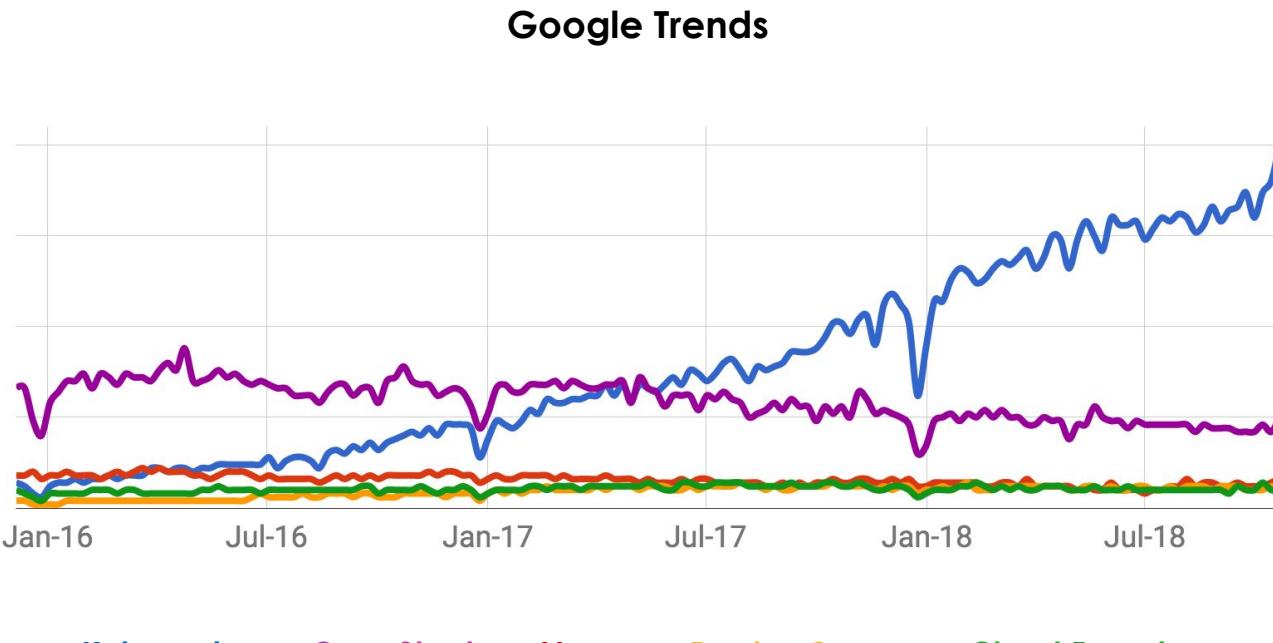
OSI Reference Model



NEW OSI Reference Model



Kubernetes in Search Trends



Kubernetes

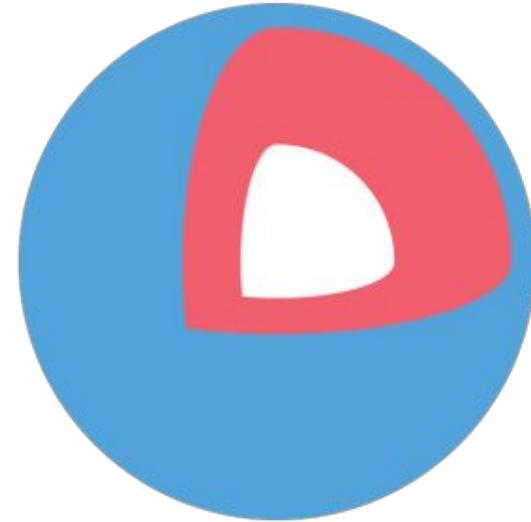
CONTROLLER

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



Operators

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



Core OS



Cloud Native Infrastructure

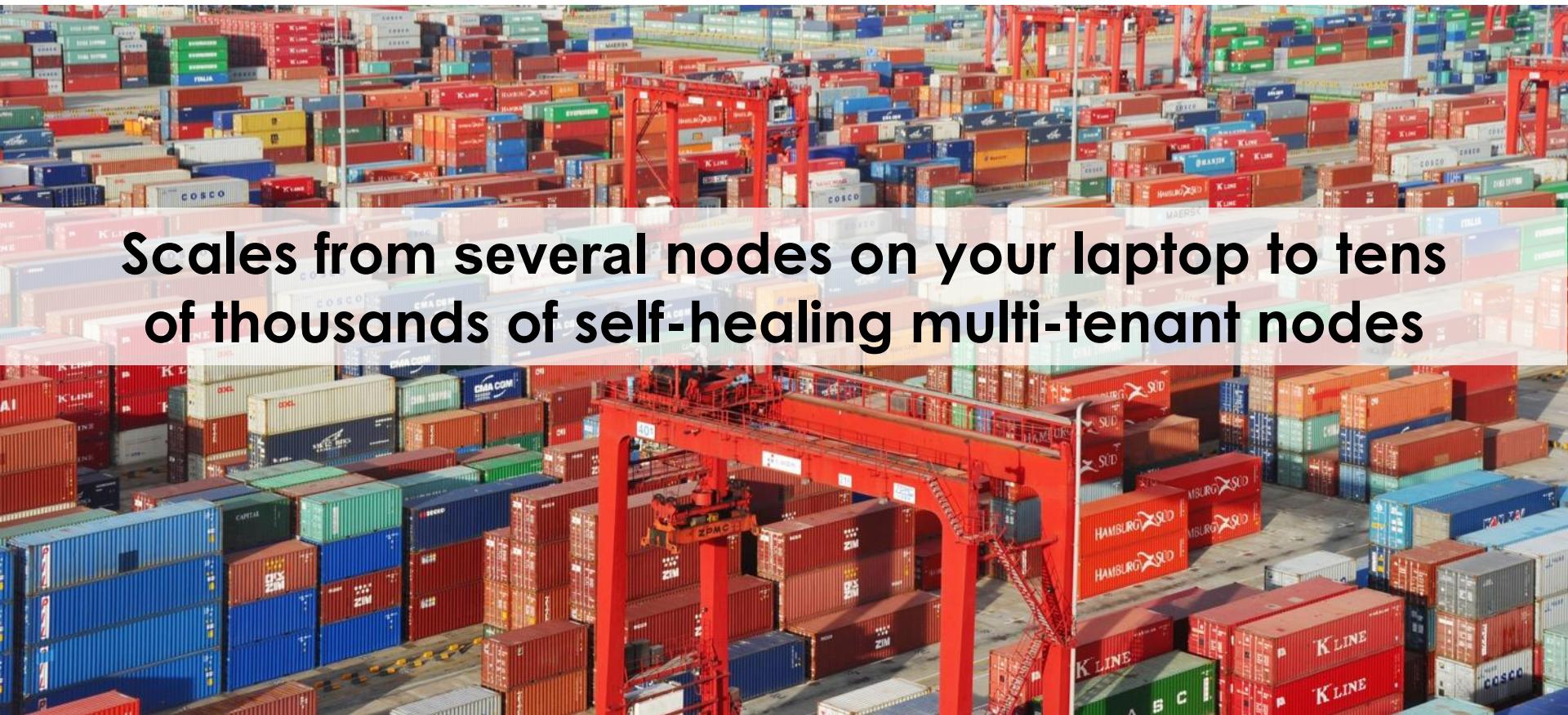
Infrastructure is NOW managed by SOFTWARE

Increase Agility and Maintainability



**By splitting applications into microservices
with explicitly described dependencies**

Enable Unlimited Scalability



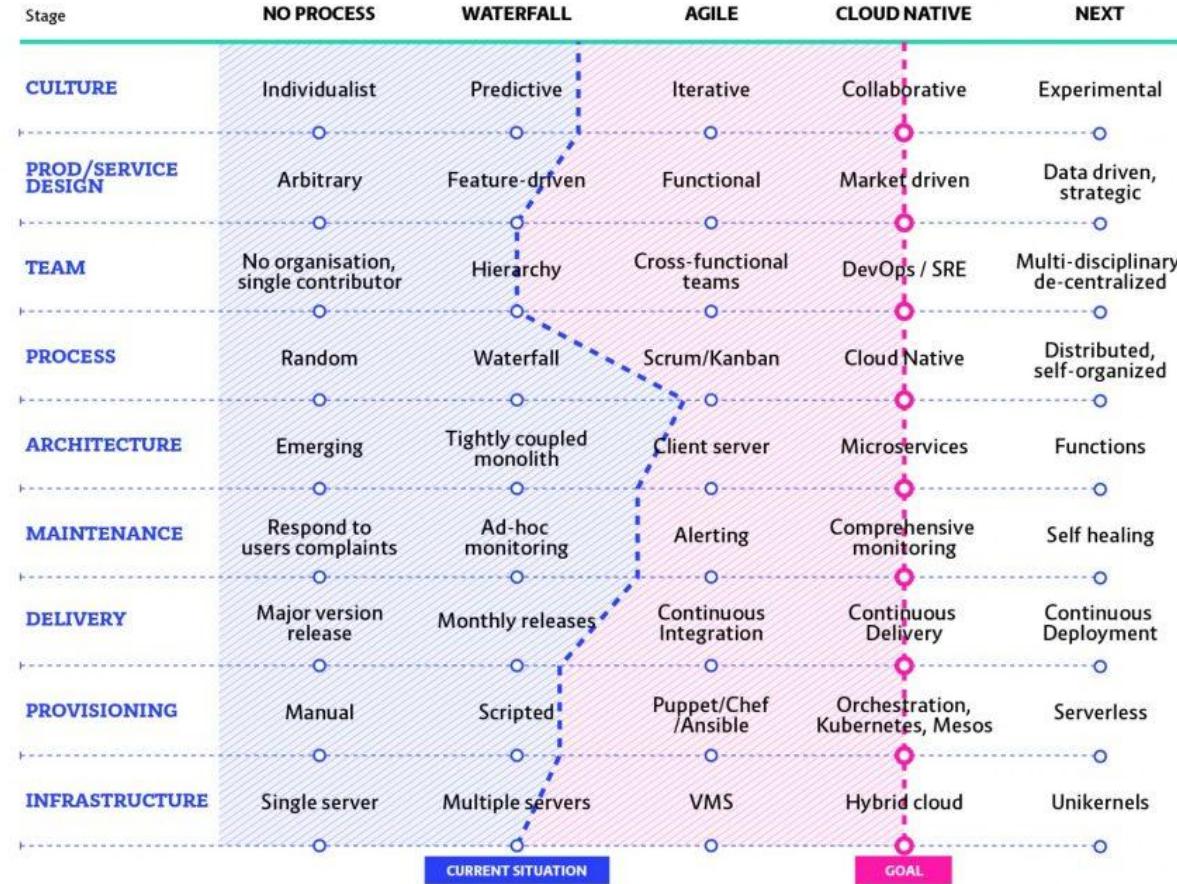
Scales from several nodes on your laptop to tens of thousands of self-healing multi-tenant nodes

Improve Efficiency and Resource Utilization

A photograph of a conductor in a white dress shirt and dark trousers, holding a baton and looking towards the musicians. She is positioned in front of a large audience seated in tiered seating. In the foreground, musicians in black suits are playing violins and cellos, with sheet music stands in front of them. The lighting is dramatic, with strong highlights on the conductor and musicians against the darker auditorium.

Via a central orchestrating process that dynamically manages and schedules microservices

Cloud Maturity Matrix



What is the lesson?

Key Takeaways

Stop managing Infrastructure the OLD way

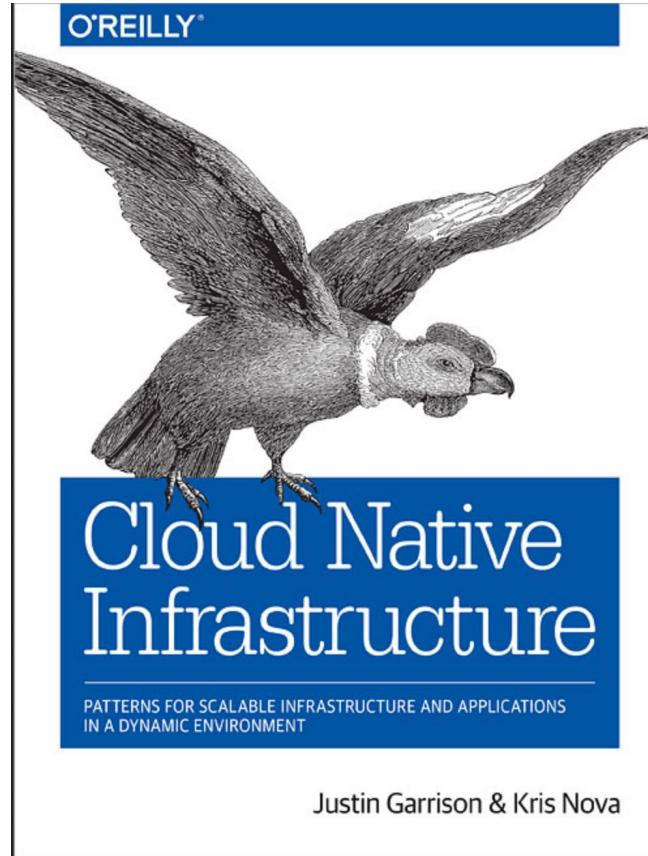


Key Takeaways

You are now a SOFTWARE ENGINEER



Cloud Native Infrastructure



Please follow up with Andre Almar

andre@y7mail.com,
[@_andrealmar](https://twitter.com/_andrealmar) on Twitter,
[@andre.almar](https://www.instagram.com/andre.almar) on Instagram

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