

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



Storage

Incubating



Container Runtime



Container Runtime



CNI
Networking API



Service Mesh



Distributed Tracing



Package Management



LINKERD



Storage

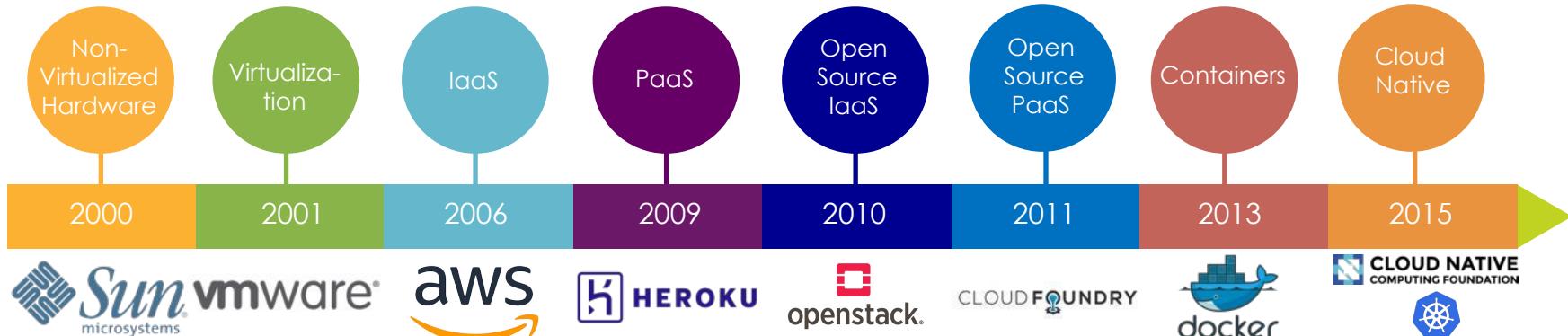
Platinum members:



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



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

Certified Kubernetes - Hosted

Cloud-Native Storage

Container Runtime

Cloud-Native Network

Runtime

Certified Kubernetes - Installer

Automation & Configuration

Container Registries

Security & Compliance

Key Management

Non-Certified Kubernetes

Provisioning

PaaS/Container Service

Public

Kubernetes Certified Service Provider

Special

Observability and Analysis

Logging

Tracing

Chaos Engineering

Serverless

Kubernetes Training Partner

Cloud

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

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

layer



CableLabs®



Goldman Sachs

indeed®

intuit



Nasdaq

The New York Times

Clark

PostFinance

pusher



ricardo.ch

SAP Concur



internet

NAIC
National Association of
Insurance Commissioners

Morgan Stanley



Pinterest

salesforce

Spotify

shopify

Showmax



stix

textkernel

thredUp

ticketmaster®



OpenCloud

SEL
Software Engineering Lab
Georgia Institute of Technology

WIKIMEDIA FOUNDATION



STATE STREET

twilio

Twitter

Advanced Research Computing
Technology & Services
University of Michigan

Wikimedia
Foundation

YAHOO! JAPAN

Two Sigma

werkspot

wework

woorank

workday.



zalando

zendesk

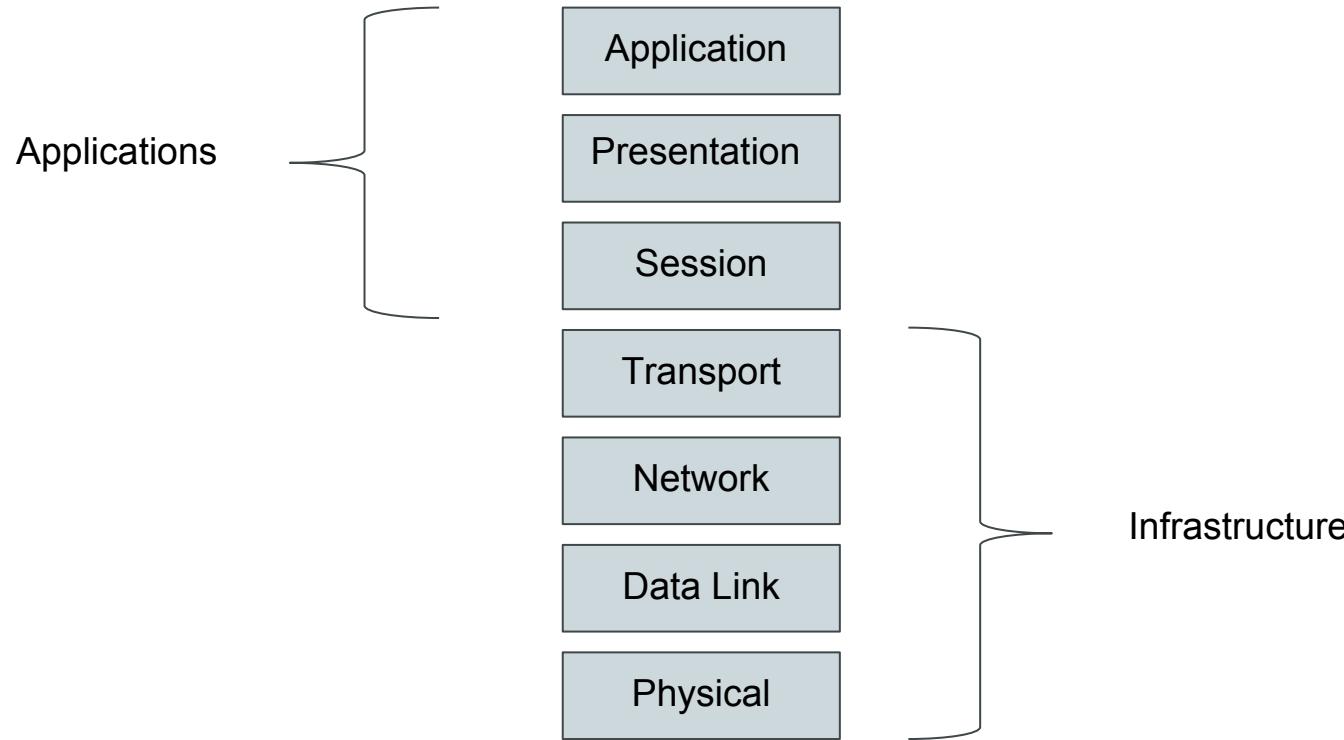


What is Cloud Native Infrastructure ?

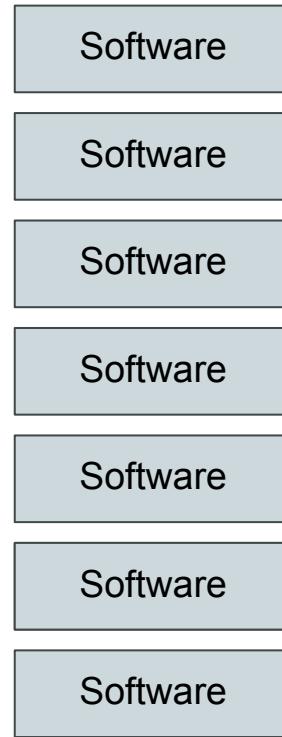
- CLOUD + INFRASTRUCTURE
 - Servers as a Service
 - Extreme Automation
 - Decoupled architecture
 - Encapsulate processes
 - Automated Orchestration



OSI Reference Model



NEW OSI Reference Model

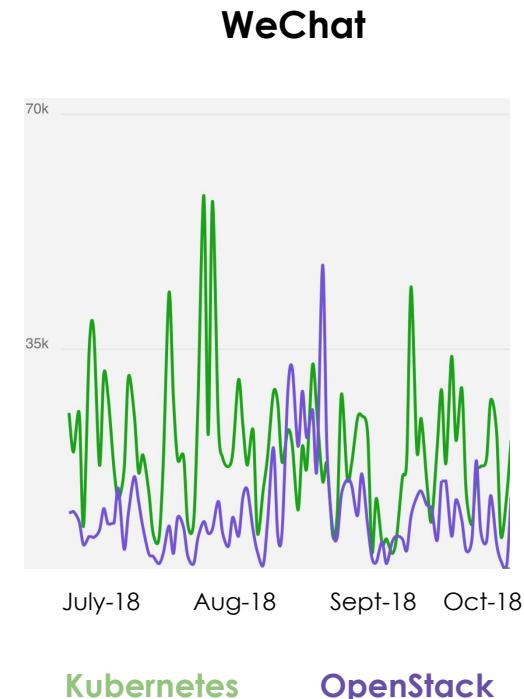
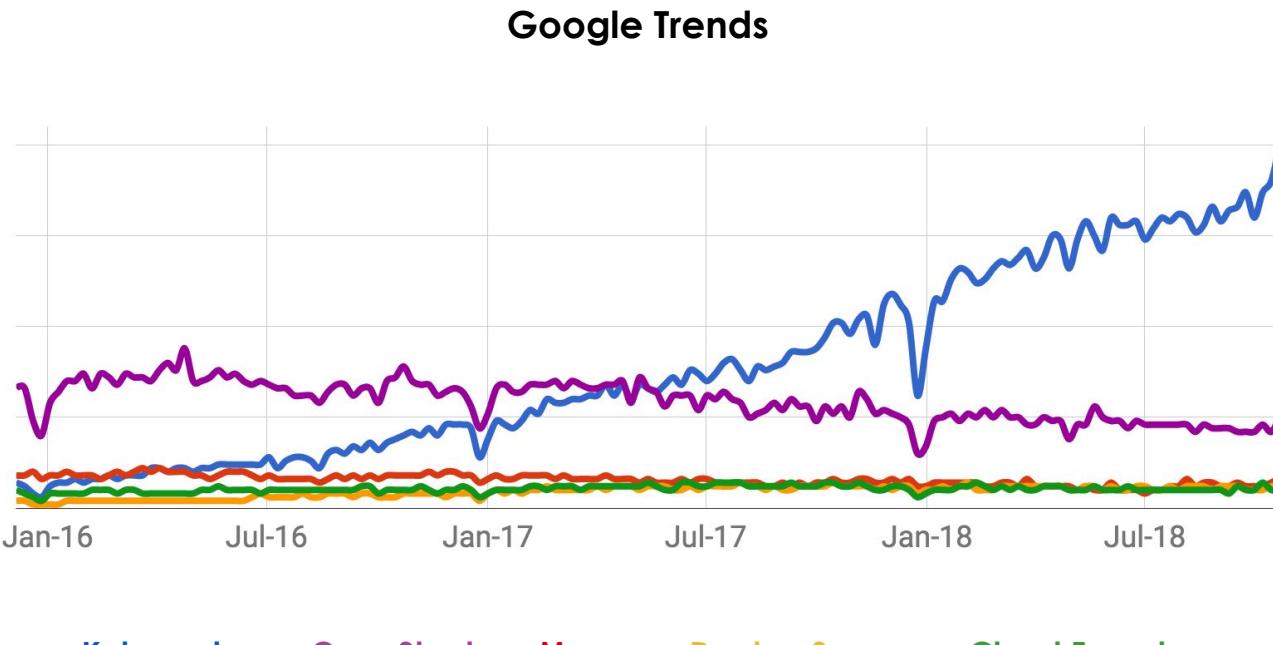


History of Infrastructure

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



Kubernetes in Search Trends



Kubernetes

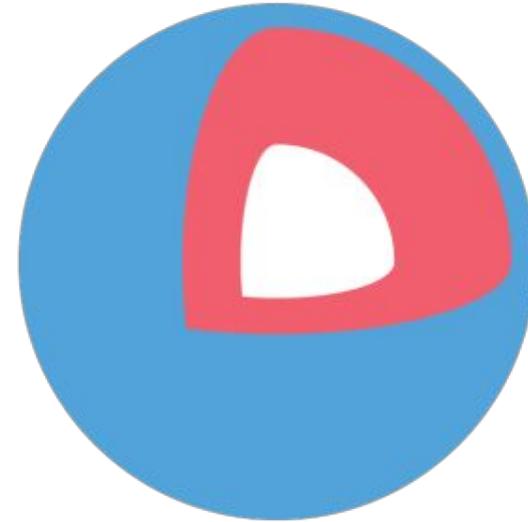
CONTROLLER

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



Operators

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



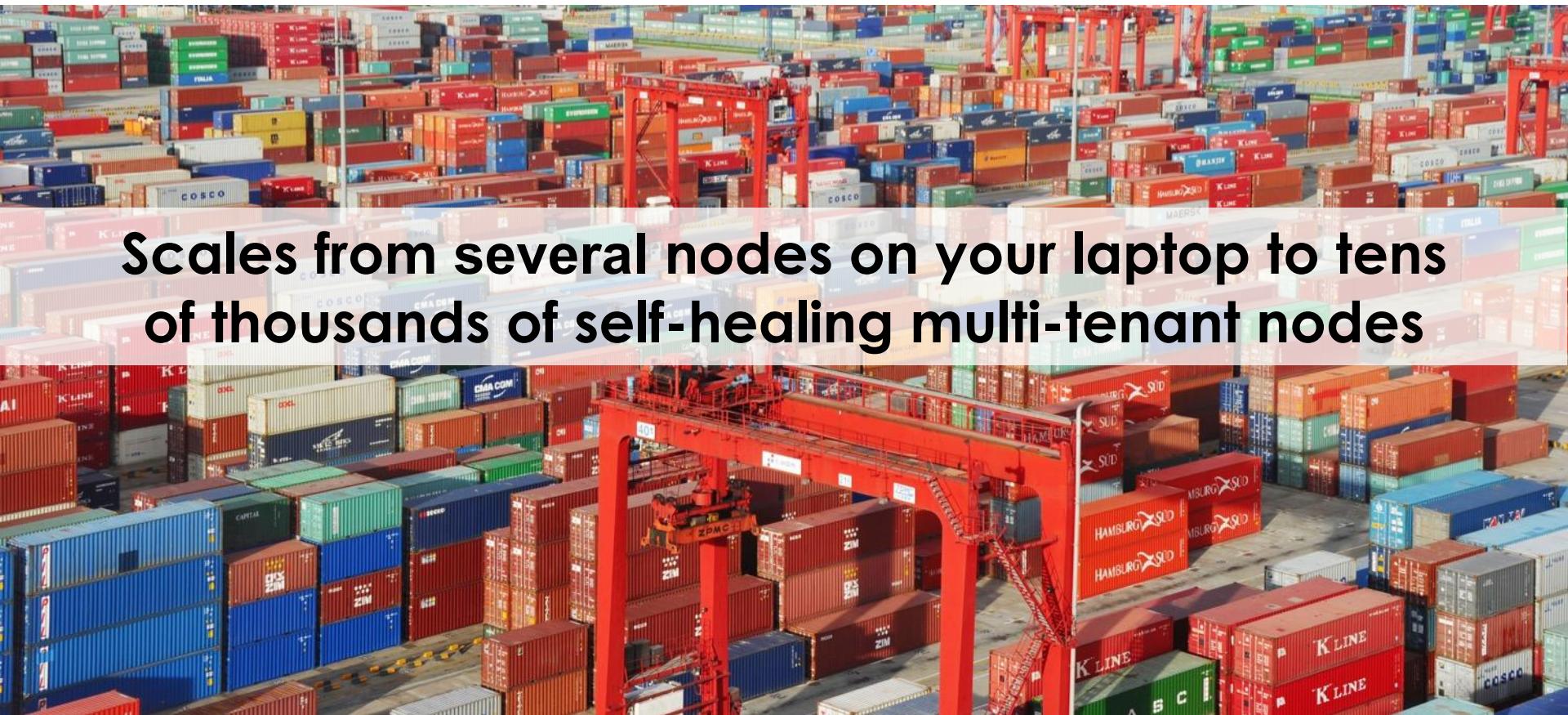
Core OS



Cloud Native Infrastructure

Infrastructure is NOW managed by SOFTWARE

Enable Unlimited Scalability



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

Increase Agility and Maintainability



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

Improve Efficiency and Resource Utilization

A photograph of a conductor in a white dress shirt and dark trousers, holding a baton and gesturing, leading an orchestra. The orchestra members are in dark suits, and the audience is visible in the background. The lighting is dramatic, with strong highlights on the conductor and musicians.

Via a central orchestrating process that dynamically manages and schedules microservices

What is the lesson?



CLOUD NATIVE
COMPUTING FOUNDATION

Key Takeaways

Stop managing Infrastructure the OLD way

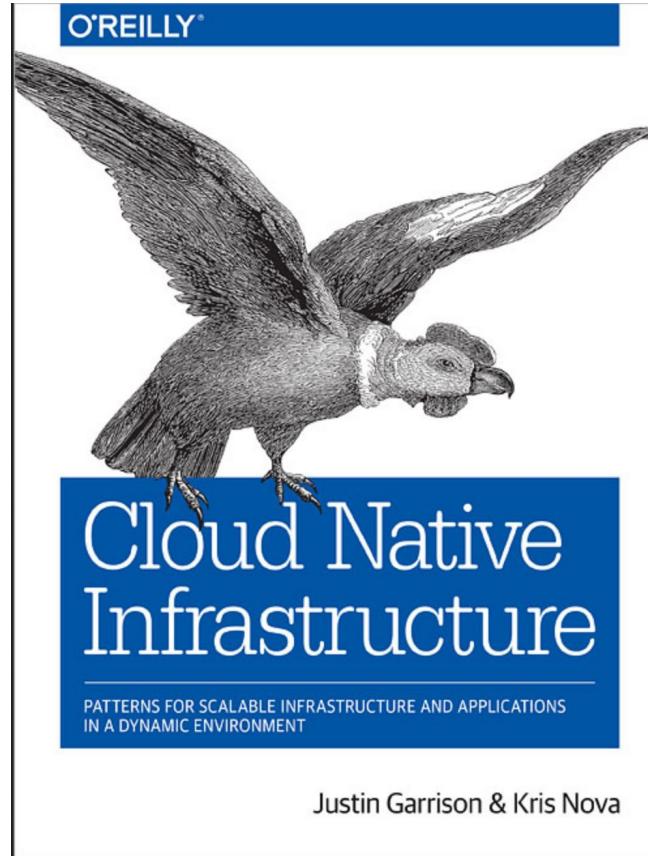


Key Takeaways

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,
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