

AUTO
SCOUT24

Highway to heaven Building microservices in the cloud

Microservices Day London | 10.05.2016 | Christian Deger



Christian Deger

Architect

cdeger@autoscout24.com

@cdeger



2,4 Million Vehicles



17 countries

350 employees

140 in IT





ASP.NET

ORACLE®

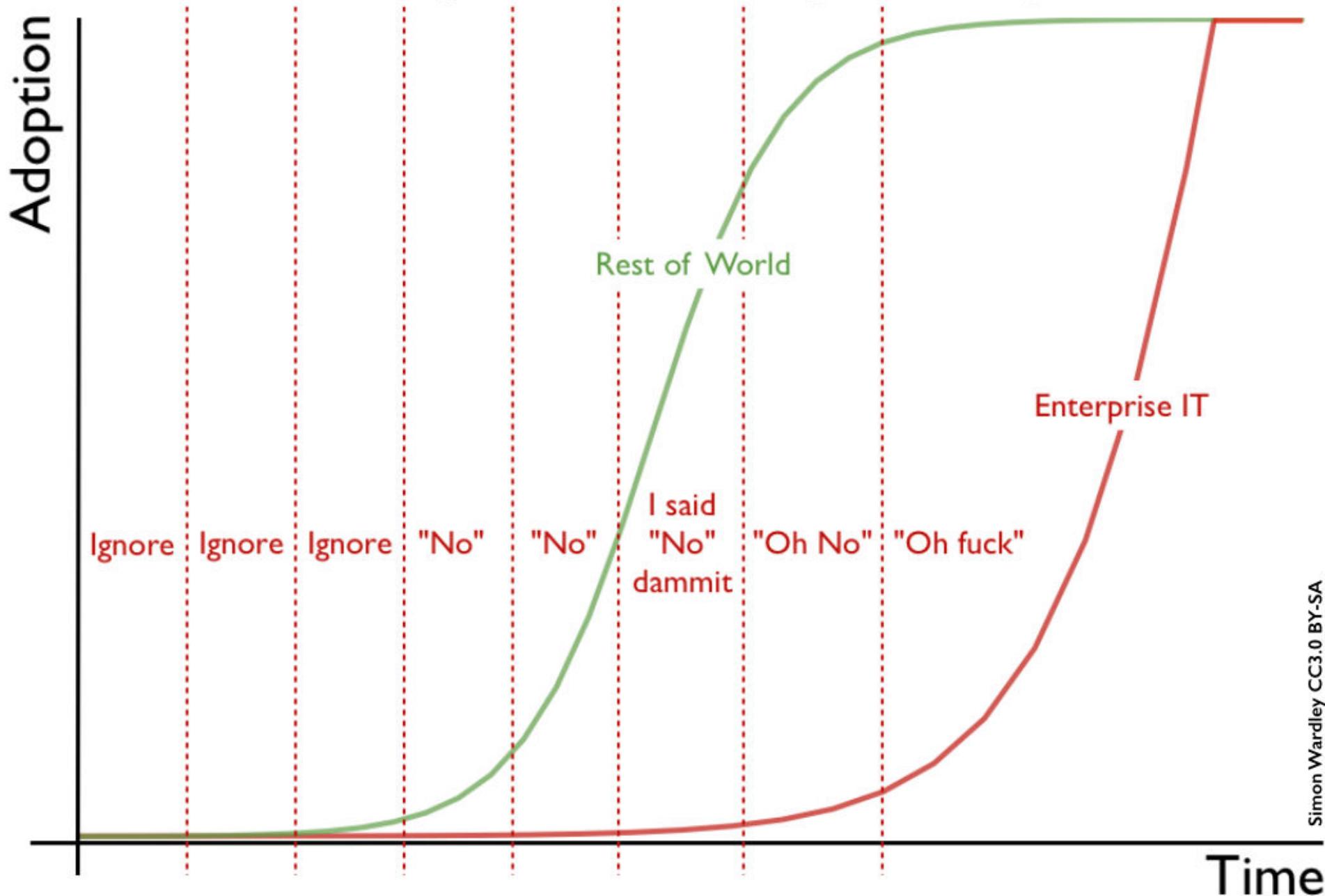


2000 Servers

2 Data Centers

MTBF optimized

Enterprise IT Adoption Cycle



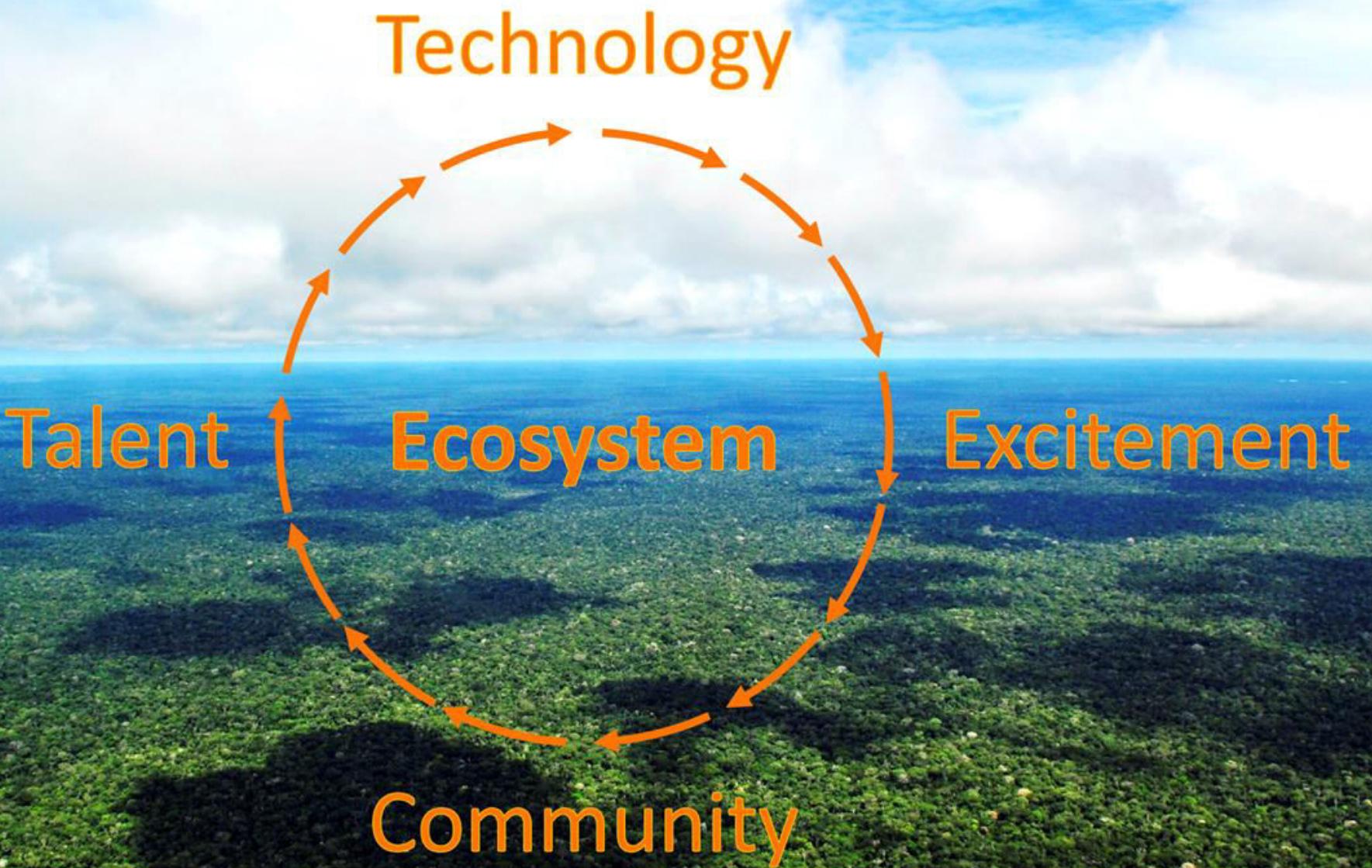
A black and white close-up portrait of a middle-aged man with short, dark hair. He is smiling broadly, showing his teeth, and looking directly at the camera. He is wearing a light-colored, collared button-down shirt. The background is solid black.

New
CEO

Do you attract

Talent?





A photograph of a surfer riding a massive, curling blue wave. The surfer is positioned in the center-right of the frame, crouching on a white surfboard and performing a maneuver where their board is nearly horizontal. The wave's face is a vibrant turquoise, transitioning to white spray at its crest. The background consists of more ocean water and the sky.

Hmm, we are
good

Reboot everything



Project

Tatsu



.NET / Windows to **JVM** / Linux

Monolith to **Microservices**

Data center to **AWS**

Devs + Ops to **Collaboration culture**

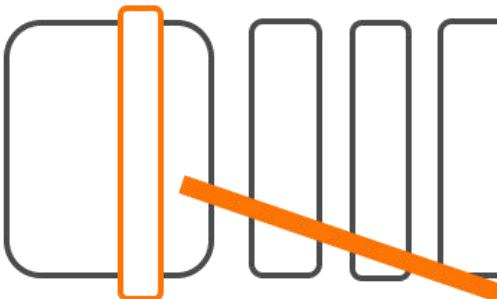
Involve **product** people



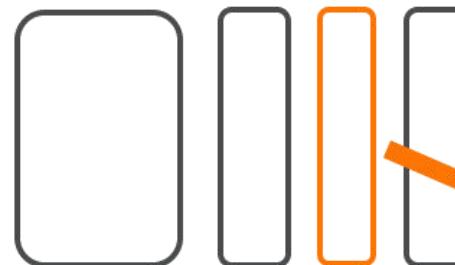
.NET in DC

JVM at AWS

①



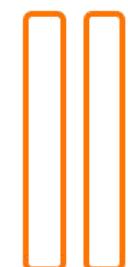
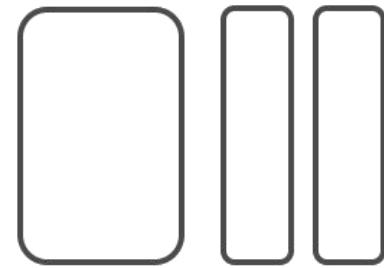
②



JVM at AWS



③



same

direction



STRATEGIC GOALS

Goals of the business side



REDUCE TIME TO MARKET

Speed, Fast Feedback

SUPPORT DATA-DRIVEN DECISIONS

Listen to users and validate hypothesis.

Provide as many relevant metrics & data as possible.

COST EFFICIENCY

Collect metrics to allow decisions cost vs. value.

ARCHITECTURAL PRINCIPLES

High-Level Principles



ORGANIZED AROUND BUSINESS CAPABILITIES

Build teams around products not projects. Follow the domain and respect bounded contexts. Inverse Conway Maneuver.

CONTAINMENT AND BOUNDARIES

Align blast radius and vendor lock-in with the boundaries of the organization or business capabilities.

ELIMINATE ACCIDENTAL COMPLEXITY

Strive to keep it simple. Focus on essential complexity. You build one, you delete one.

LOOSELY COUPLED

By default avoid sharing and tight coupling, except for the big things in common. Don't create the next monolith.

MACRO AND MICRO ARCHITECTURE

Clear separation. Autonomous micro services within the rules and constraints of the macro architecture.

SECURITY, COMPLIANCE AND DATA PRIVACY

Security must be included from the beginning and everybody's concern. Keep data-privacy in mind.

AWS FIRST

Favor AWS platform service over managed service, over self-hosted OSS, over self-rolled solutions.

DESIGN AND DELIVERY PRINCIPLES

Tactical measures



YOU BUILT IT, YOU RUN IT

The team is responsible for shaping, building, running and maintaining its products. Fast feedback from live and customers helps us to continuously improve.

COLLABORATION CULTURE

Engineers from all backgrounds work together in collaborative teams as engineers and share responsibilities. No silos.

AUTONOMOUS TEAMS

Make fast local decisions. Be responsible. Know your boundaries. Share findings.

BE BOLD

Go into production early. Value monitoring over tests. Recover and learn. Optimize for MTTR not MTBF.

DATA-DRIVEN / METRIC-DRIVEN

Collect metrics from processes and applications. Analyze, alert and act on them.

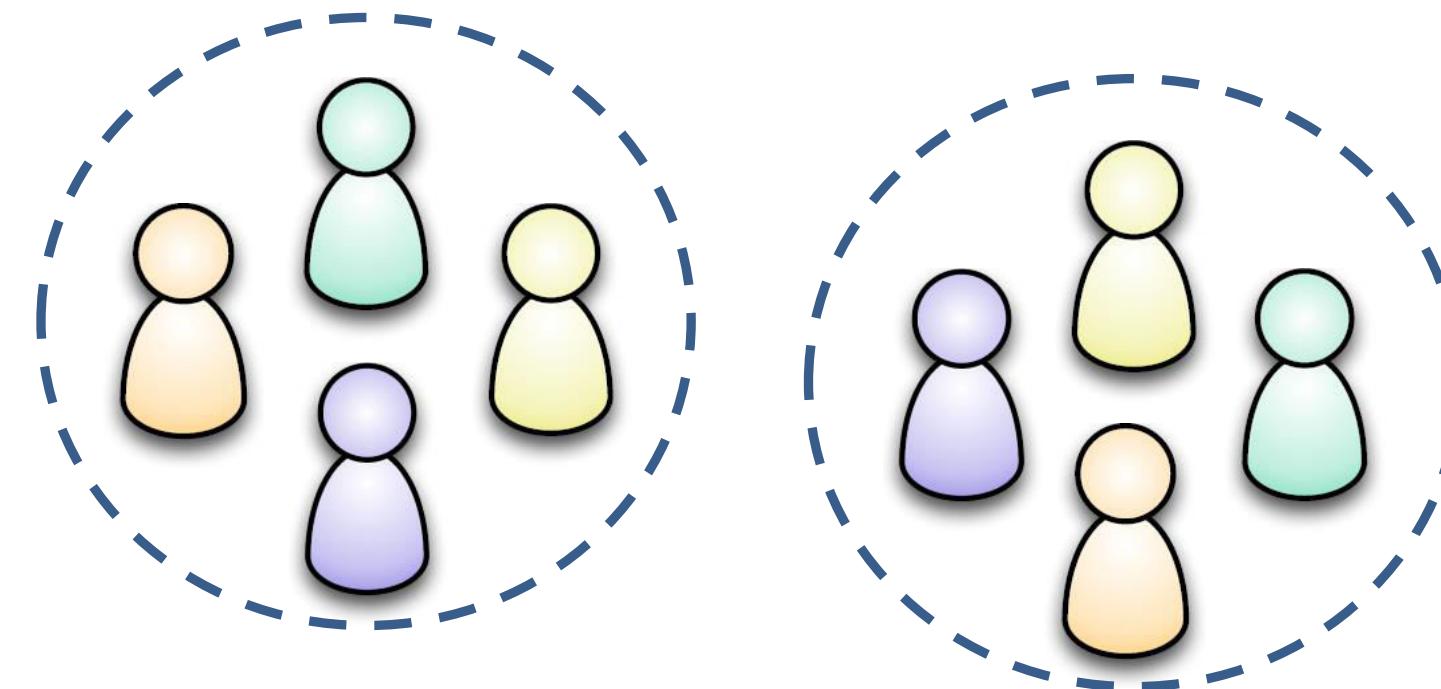
INFRASTRUCTURE AS CODE

Automate everything: Reproducible, traceable and tested. Immutable servers over snowflake servers.

Autonomous teams

organized around

business capabilities





collaboration culture

We are all
engineers!





You build it,
you run it.

Continuous Delivery



Unlimited Infrastructure with **APIs**



O'REILLY®



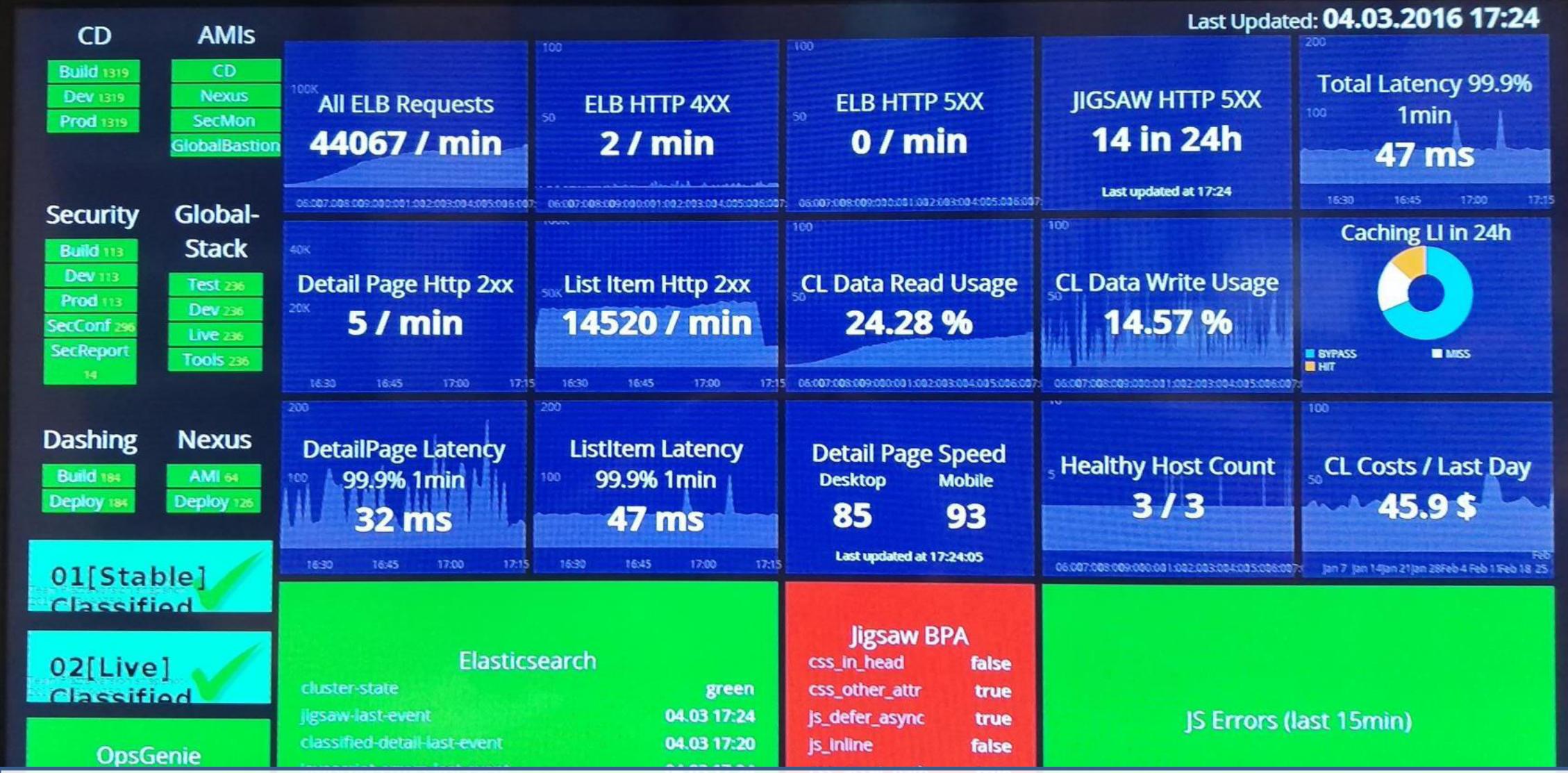
Infrastructure as Code

MANAGING SERVERS IN THE CLOUD

Kief Morris

Immutable Servers





Monitoring is the new testing

Separate

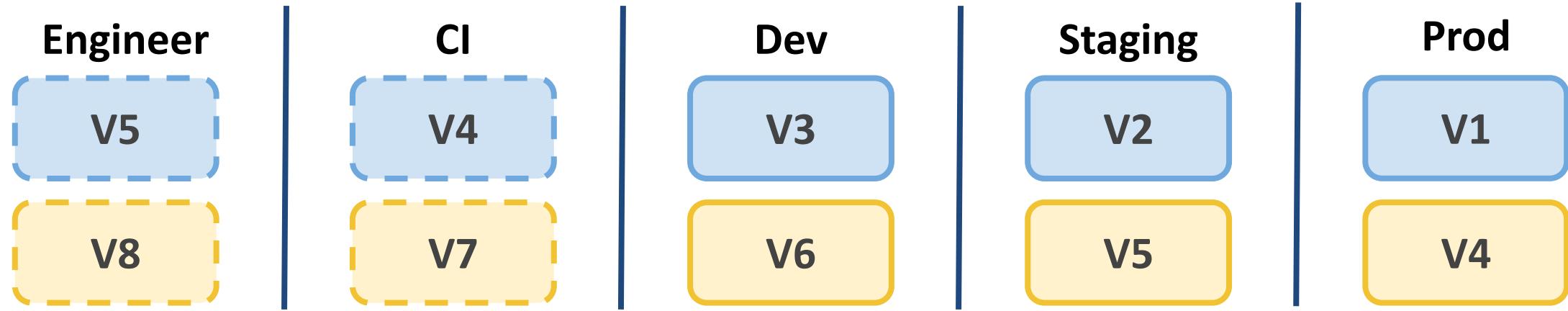
code deployment

from

feature release



How many environments?



Which versions on staging?

Prod differs anyway: Load, data, patterns



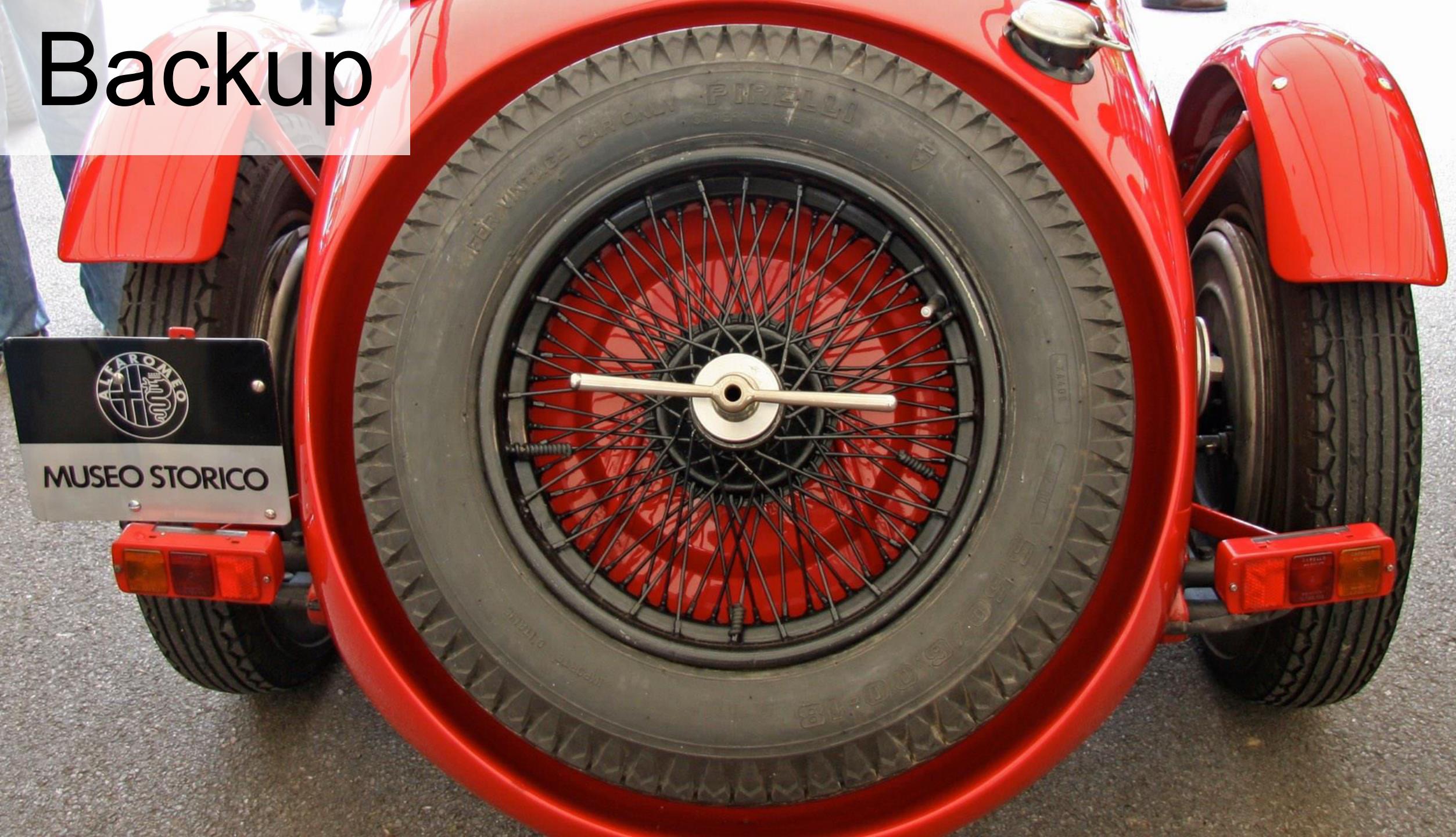
No
staging
environment

TWENTY QUESTIONS

1 2 3 4-5 6 7 8 9 10 11-12 13-14 15-16 17 18 19 20



Backup

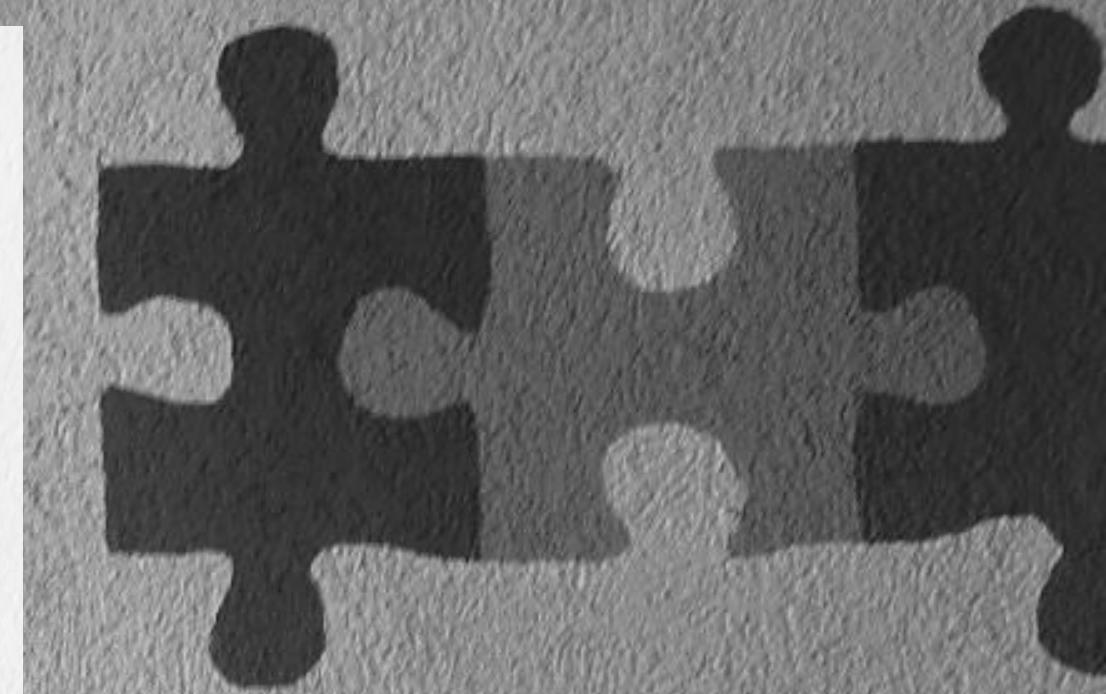


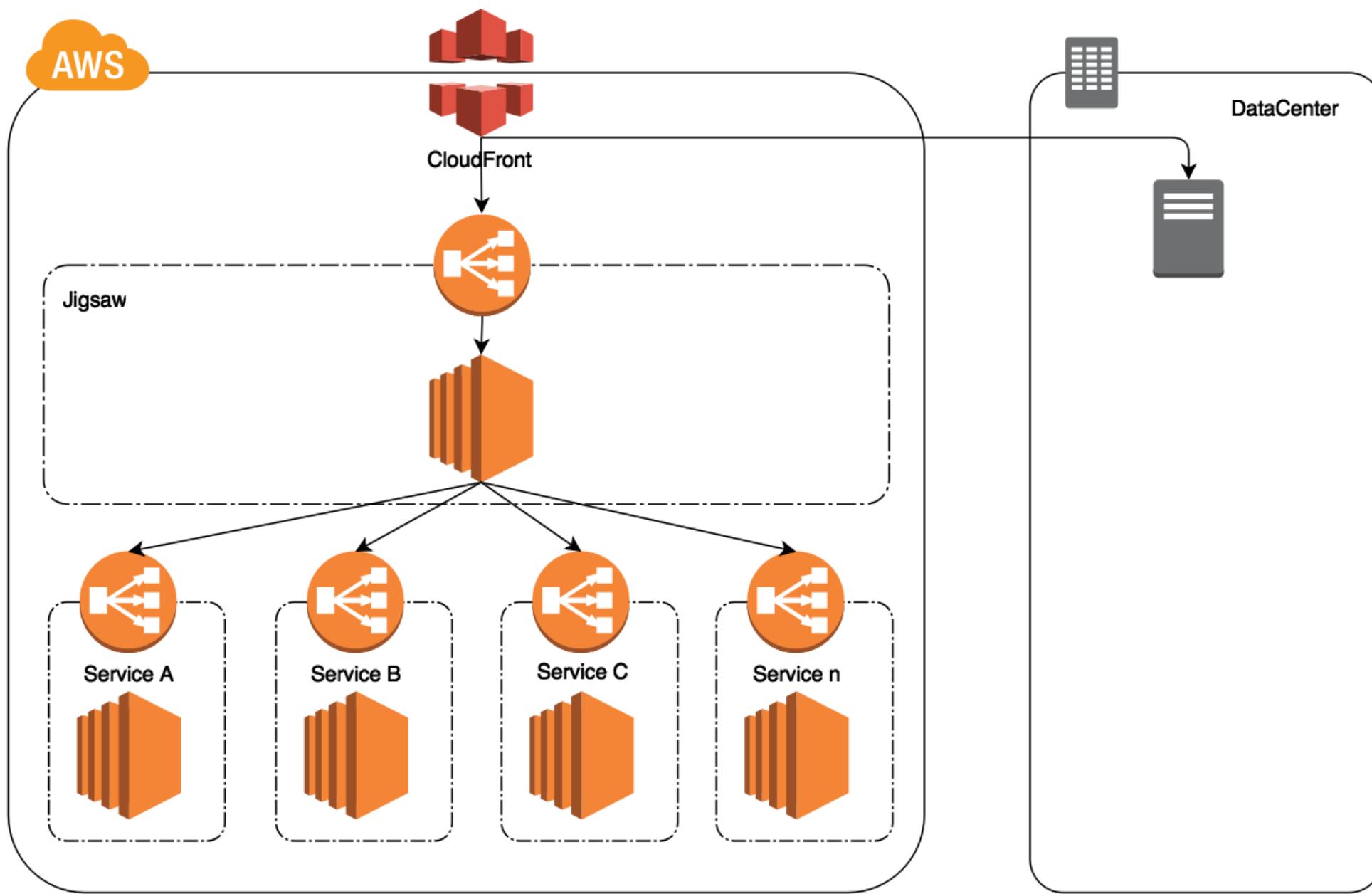
Frontend integration

Loosely coupled

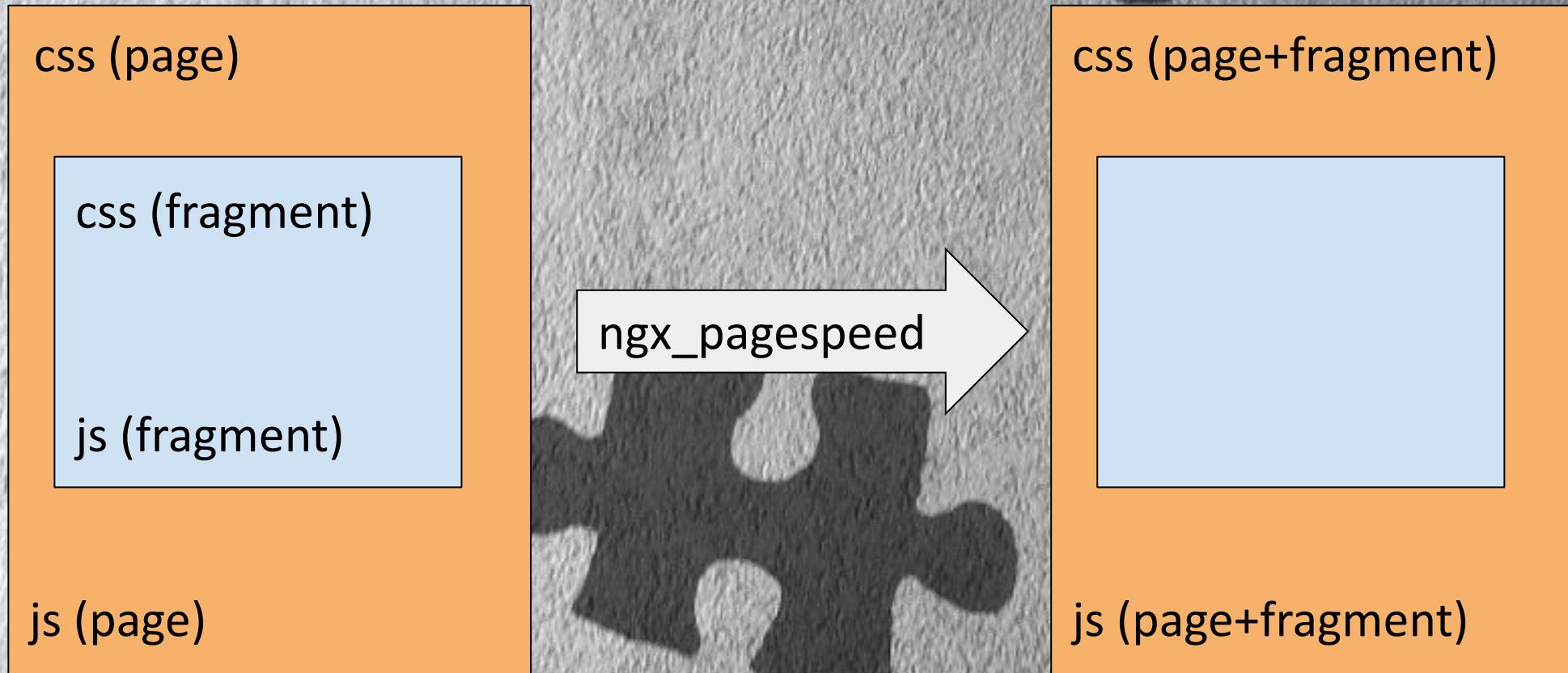
Autonomous team

High optimization



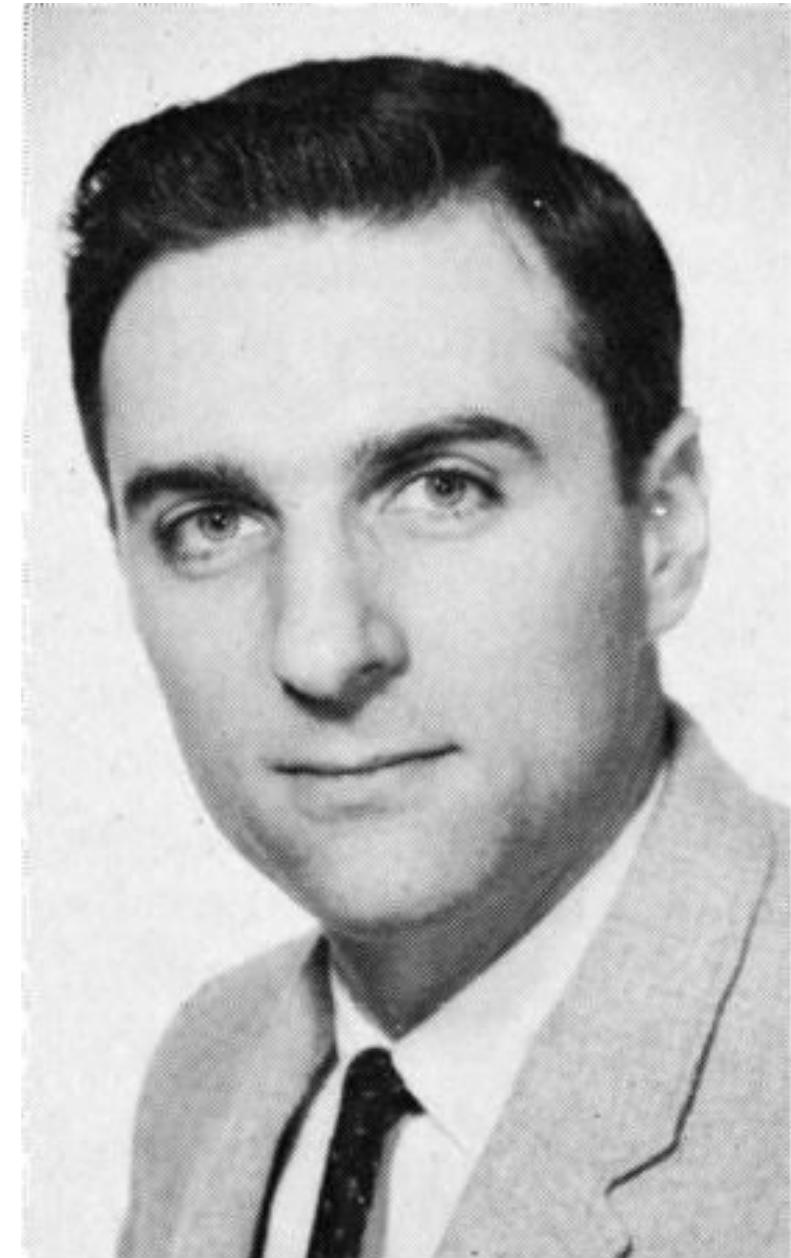


PageSpeed Module

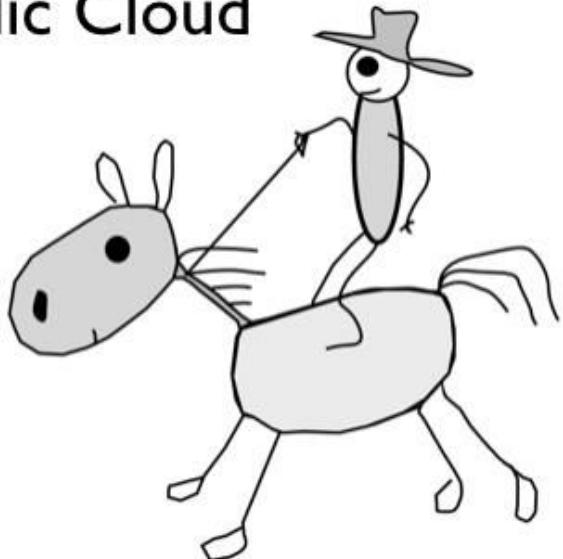


Conway's Law

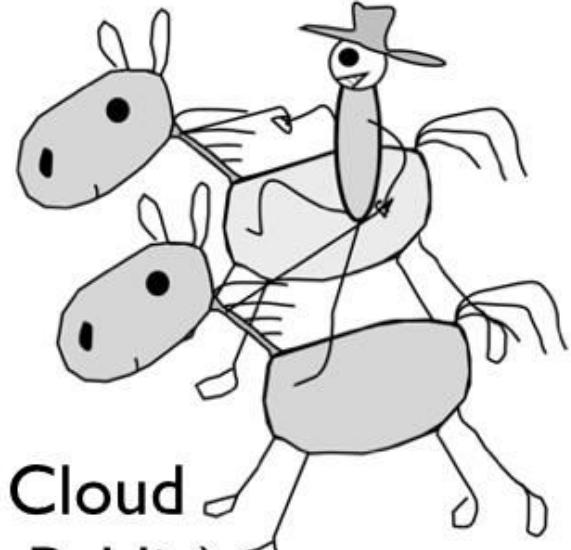
“organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations”



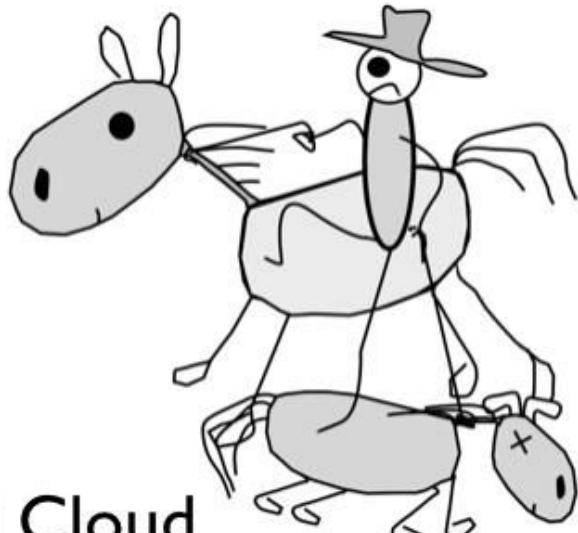
Public Cloud



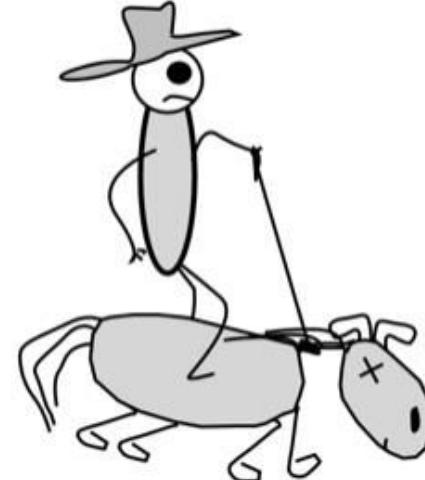
**Hybrid Cloud
(Public + Public)**



**Hybrid Cloud
(Public + Private)**



Private Cloud



Simon Wardley CC3.0 BY-SA, extension of @adrianc "Roman Riding"

What does a
21st Century
tech company
look like?



Great Design

Universally Connected

Mobile First

Instant Business Value

Massive Data Insight

Highly Available

Stand on the
Shoulders of



Giants



U B E R



How (not) to share

shared nothing as **default**

loosely coupled

fast local decisions

voluntary adoption

exception: macro concerns



Infrastructure guild



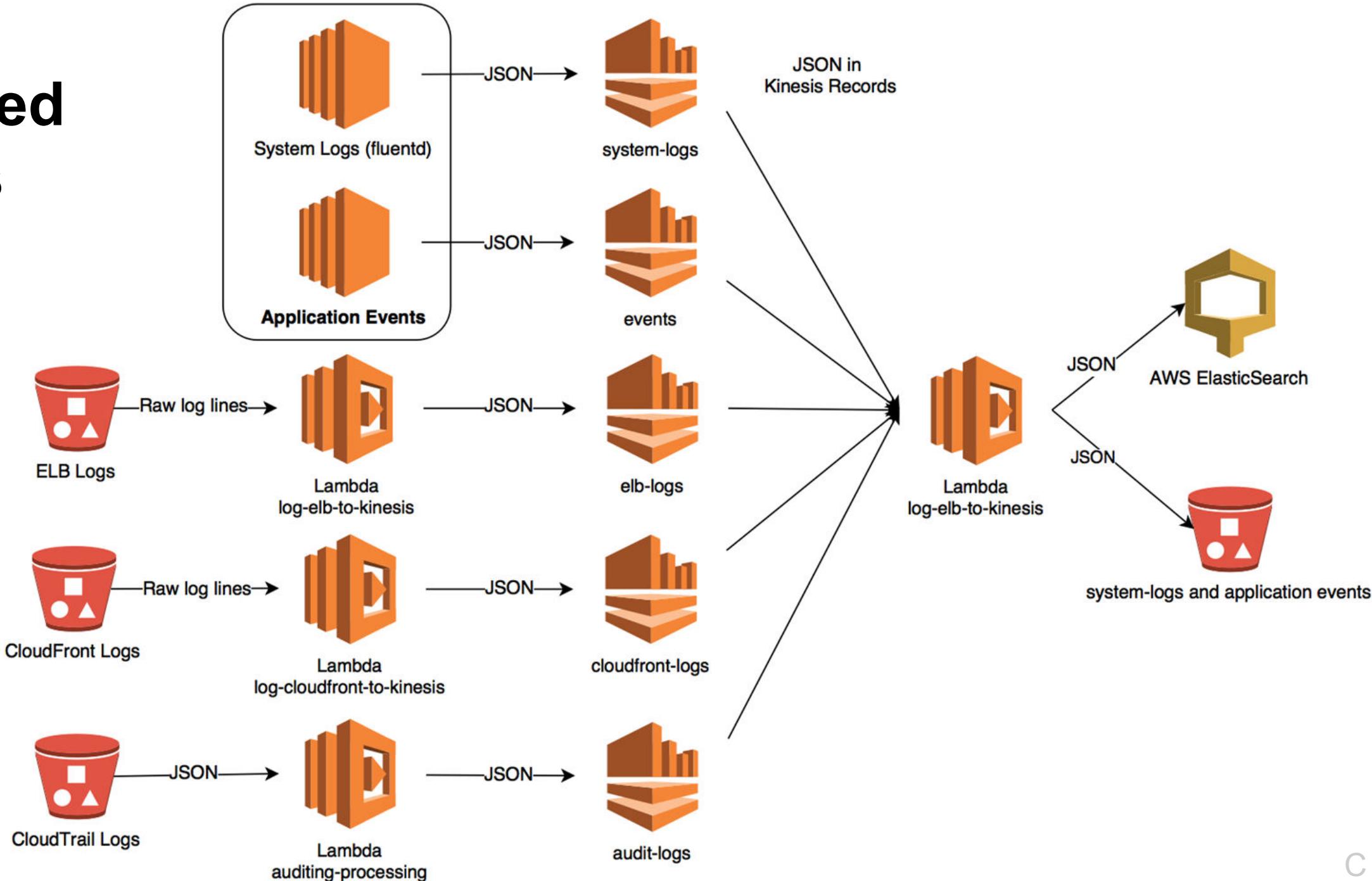
Agree on things to do

Share learnings

Delegate implementation to teams

Infrastructure product teams needed?

Unified Logs



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