

# It's Not Just MicroServices

**Fred George**

**fredgeorge@acm.org**



**@fgeorge52**



**Click 'engage'  
to rate sessions  
and ask questions**





# Fred George

- **Programmer**

- Since 1968 (Basic)
- 65,000 hours experience
- 70+ languages
- Computer Science Degree 1973

- **Manager**

- 17 years IBM
- Business degree, MIT Sloan School 1986
- Product Owner, IBM
- VP, ThoughtWorks
- Co-founder, Outpace (Silicon Valley)
- Senior Advisor to 3 tech companies



- **Technologist**

- Computer networks – 70's
- Token Ring LAN – 80's
- GUI's – late 80's
- OO – late 80's
- Agile – late 90's
- MicroServices – mid-2000's



# Fred George

## Consulting Roles

- **Change Agent**
- **Disruptor**
- **“Hand grenade I am throwing into development”**
  - **CTO describing Fred to his Vice President**



Lean startup

Programmer  
anarchy

MicroServices

Cassandra

Industry "Hot" Topics

**Go Faster**

Docker

Dev/Ops

Cloud

Full-stack  
developer

Agile

Event bus

MVP (minimum  
viable product)

No-SQL



# Why? New Problem Domains: The Cynefin Framework

**Complex**  
Cause? Effect?

**Complicated**  
Cause => Effect

**Chaotic**  
Effect? Cause?

**Simple**  
Cause => Effect

- **Enablement through technologies**

- **Cloud computing**
- **Ubiquitous, high bandwidth**
- **Languages (and supporting frameworks)**

# **Why: Competition is coming**

- **Recognition of business opportunities**

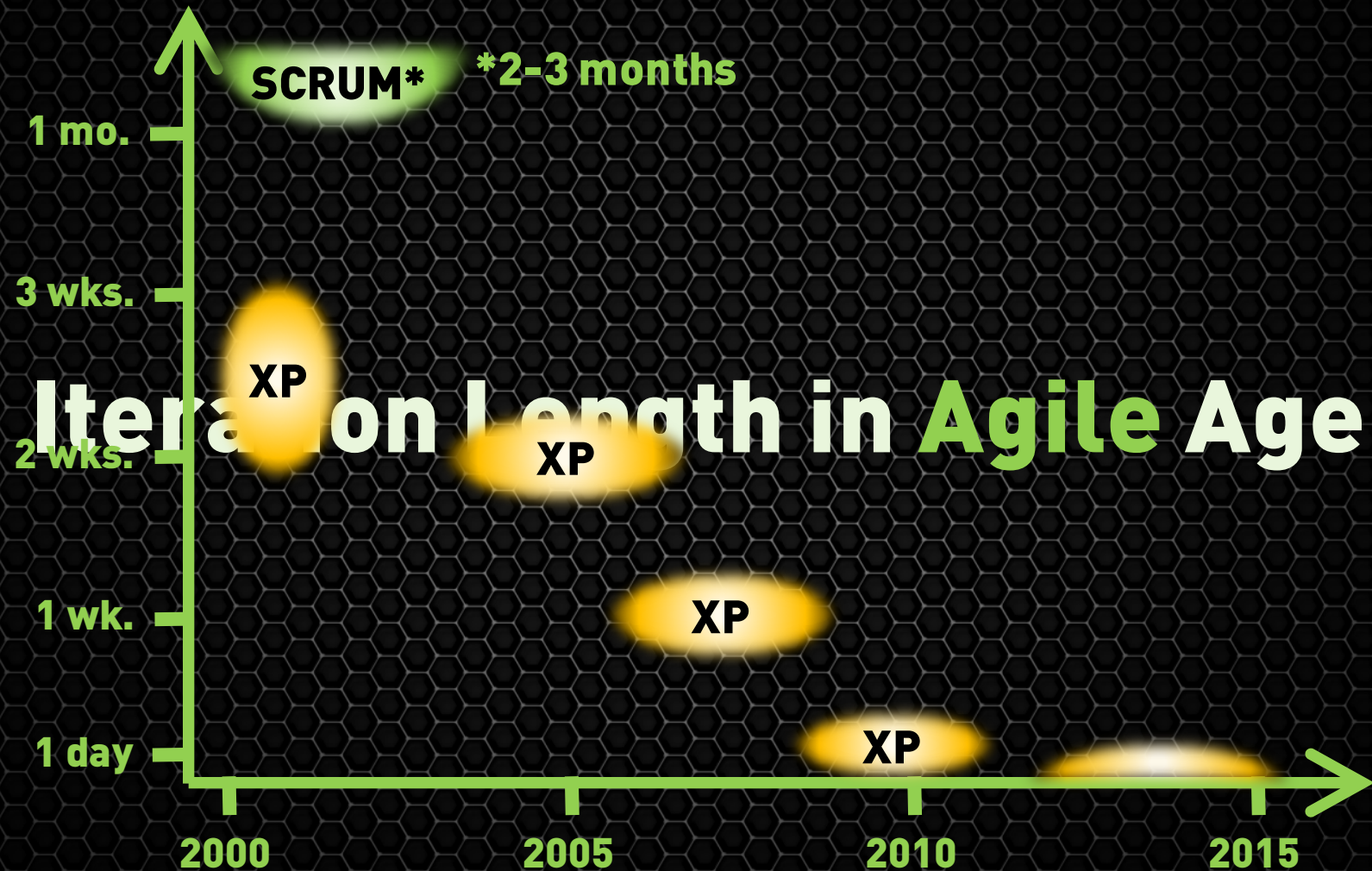
- **Silicon Valley innovators as role models**
- **Accelerating business needs**
- **Few inhibitors for global competitors**
- **Reduction of entry barriers for niche competitors**
- **Micro-marketing to specific customer niches**

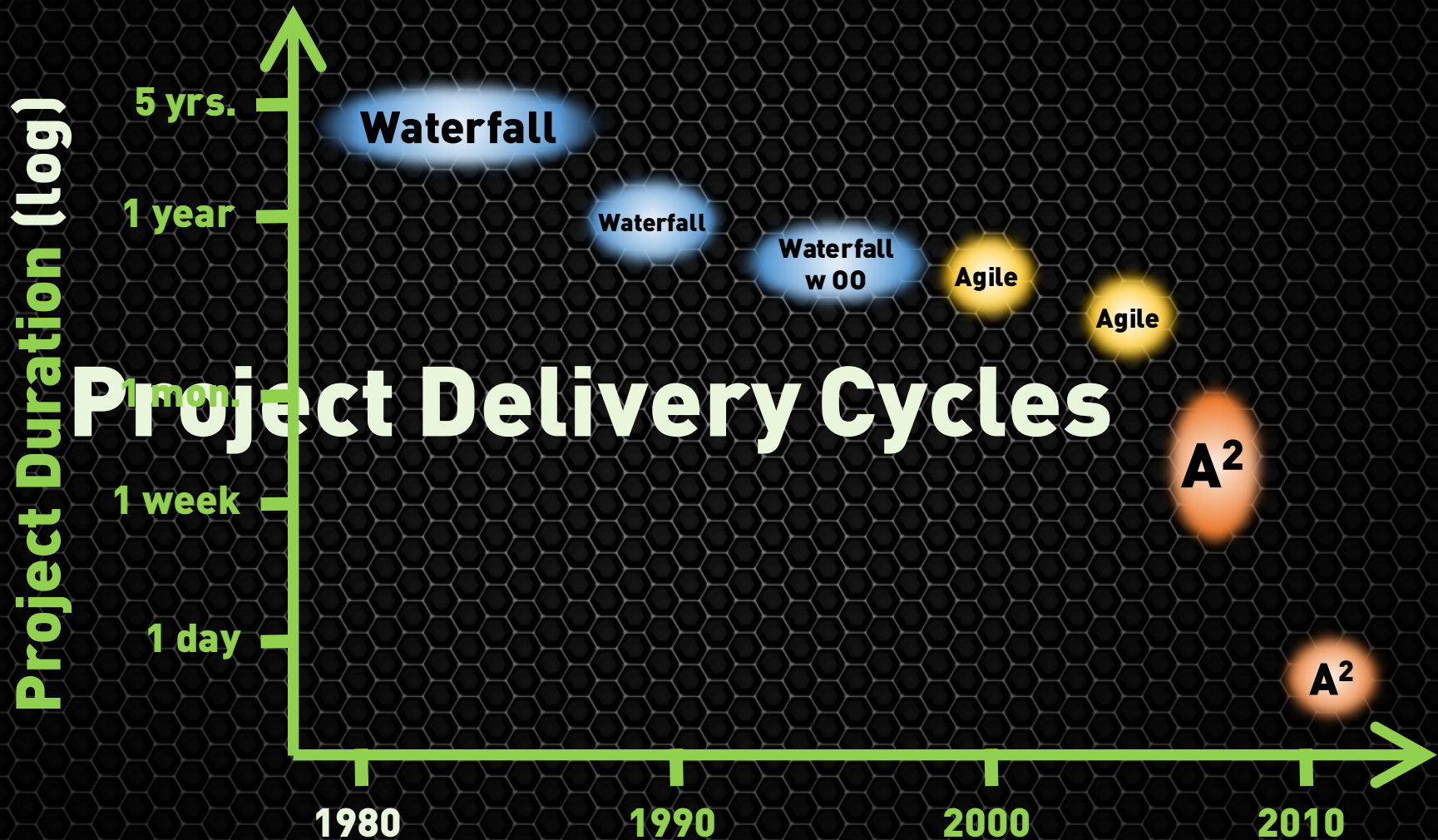


# How Fast Can You Go?











# We've Been Busy

In the last 7 days **53** developers have made **882** commits resulting in **652** deploys

**Deployment to Production Every 3.5 minutes**



# Inhibitors



- **Cloud exploitation**

- **Specialized databases**

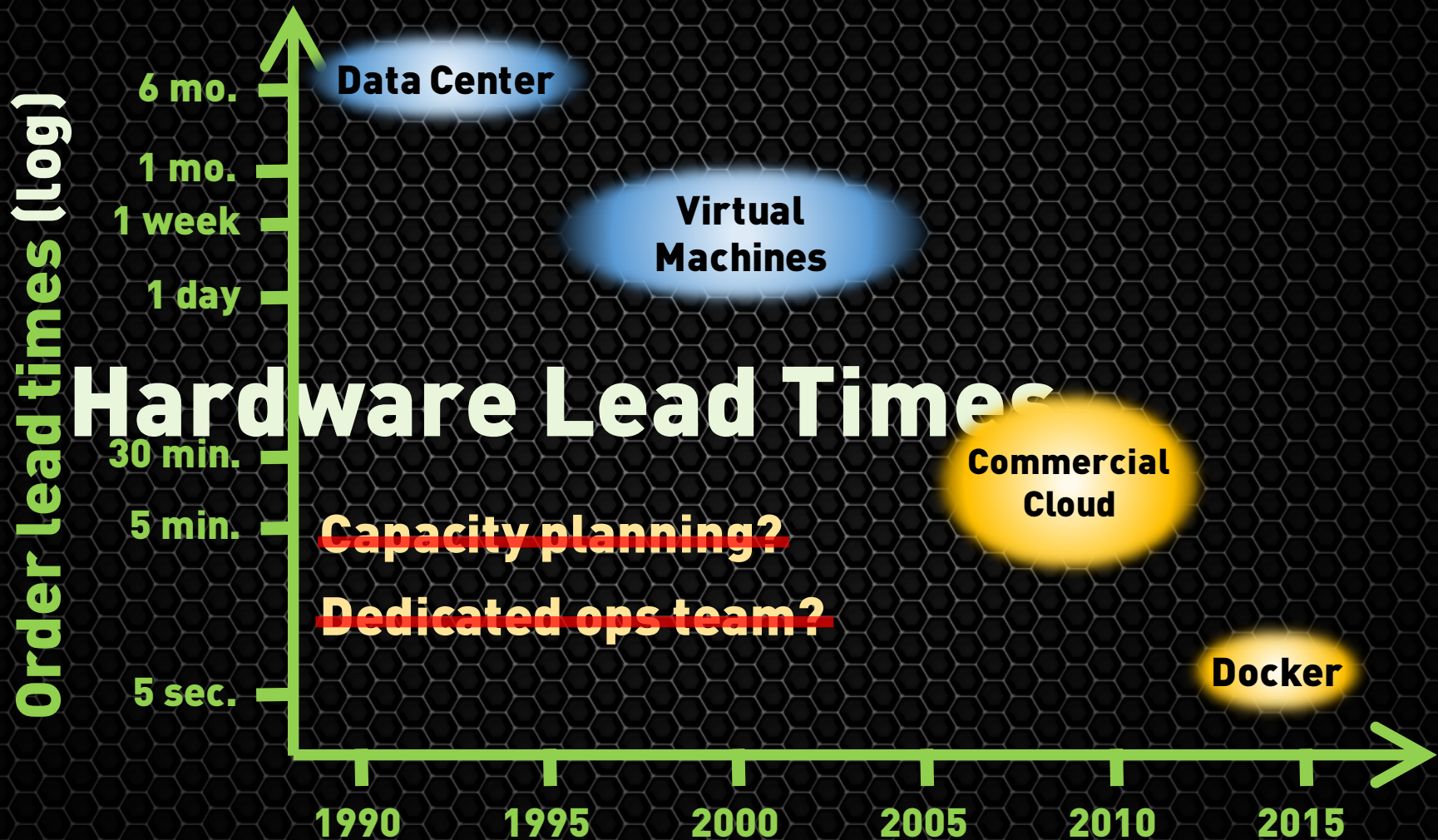
**“Valley Tech”**

- **New programming languages**

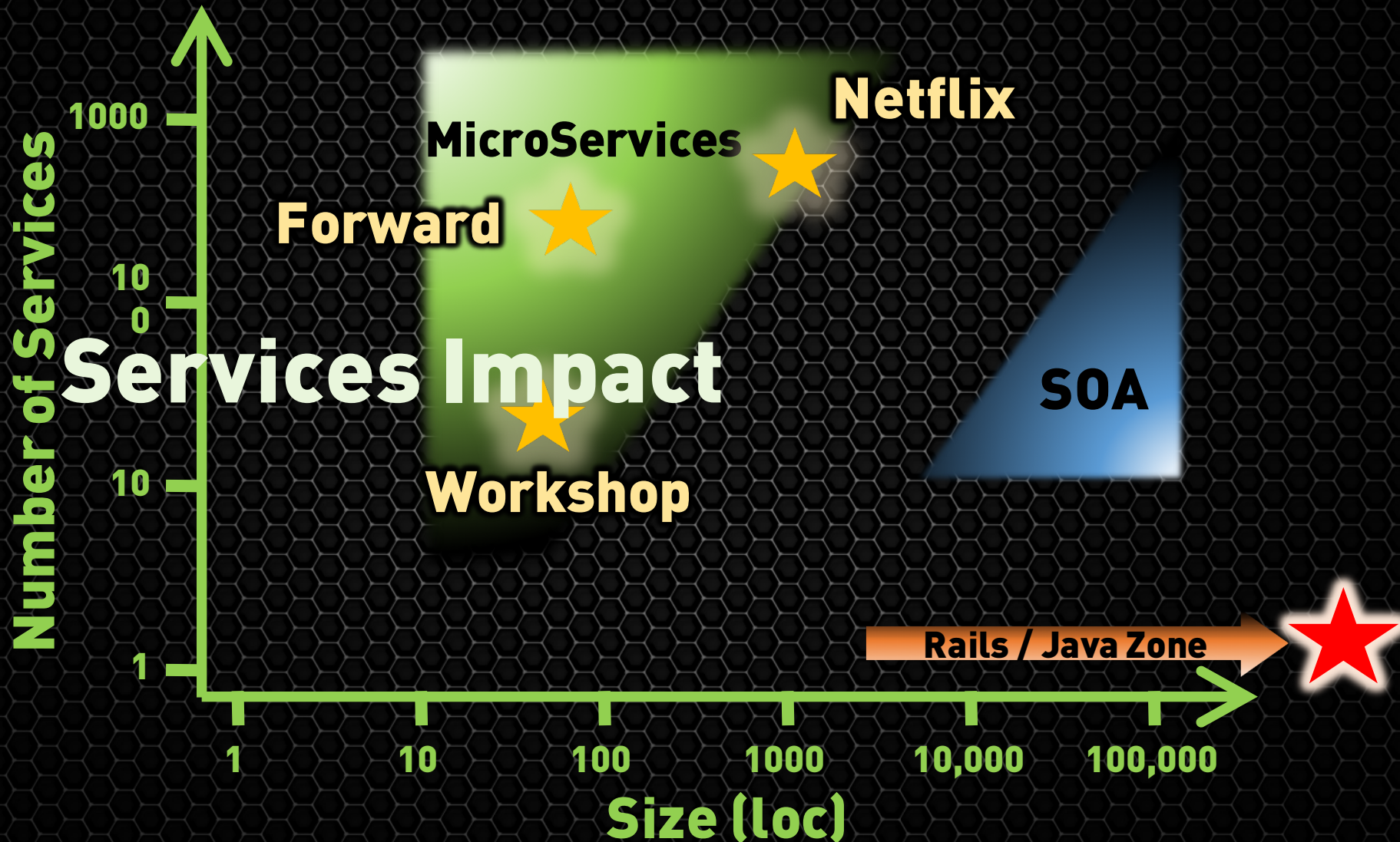
- **Open source frameworks (users and creators)**

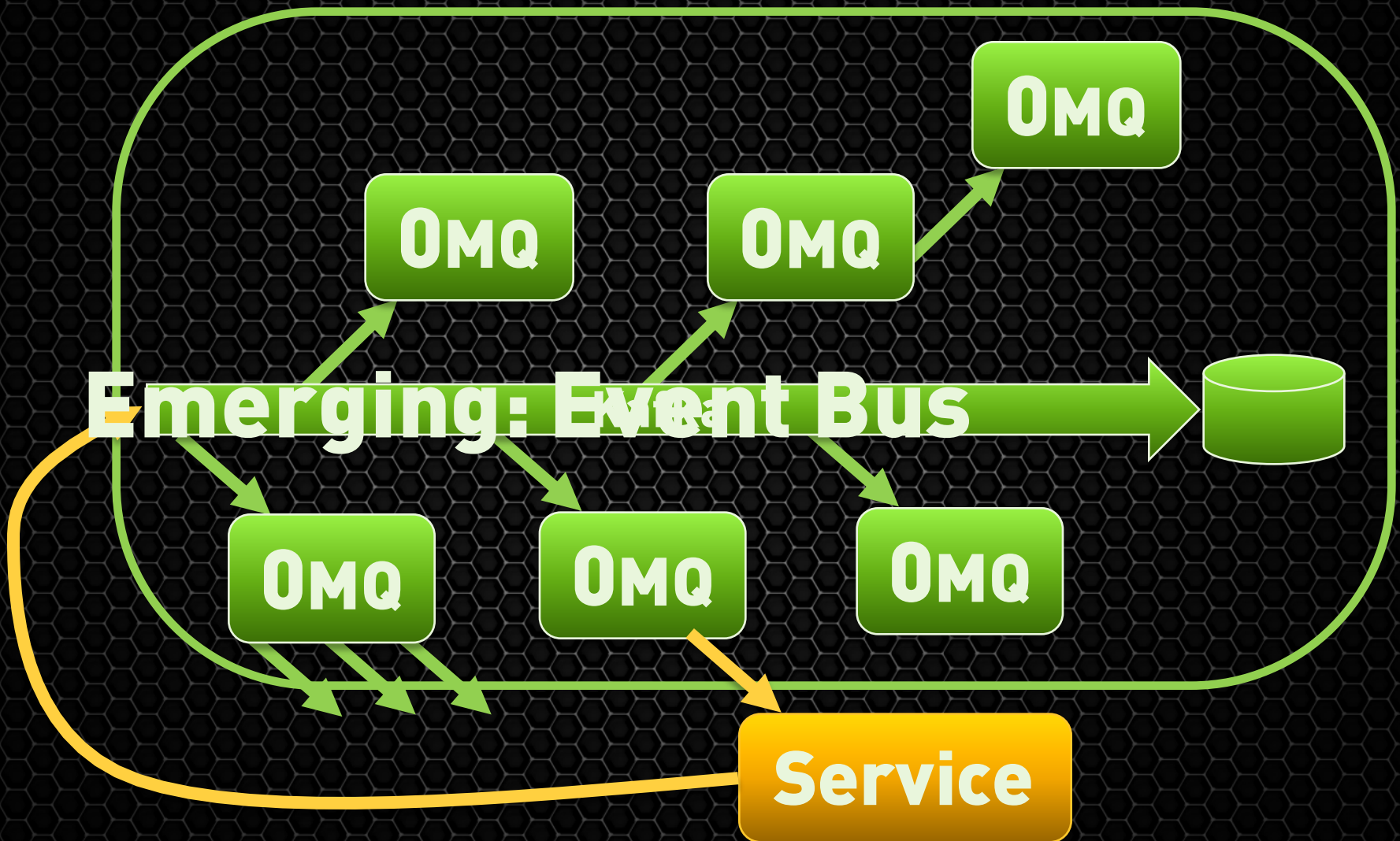
- **Continuous releases**



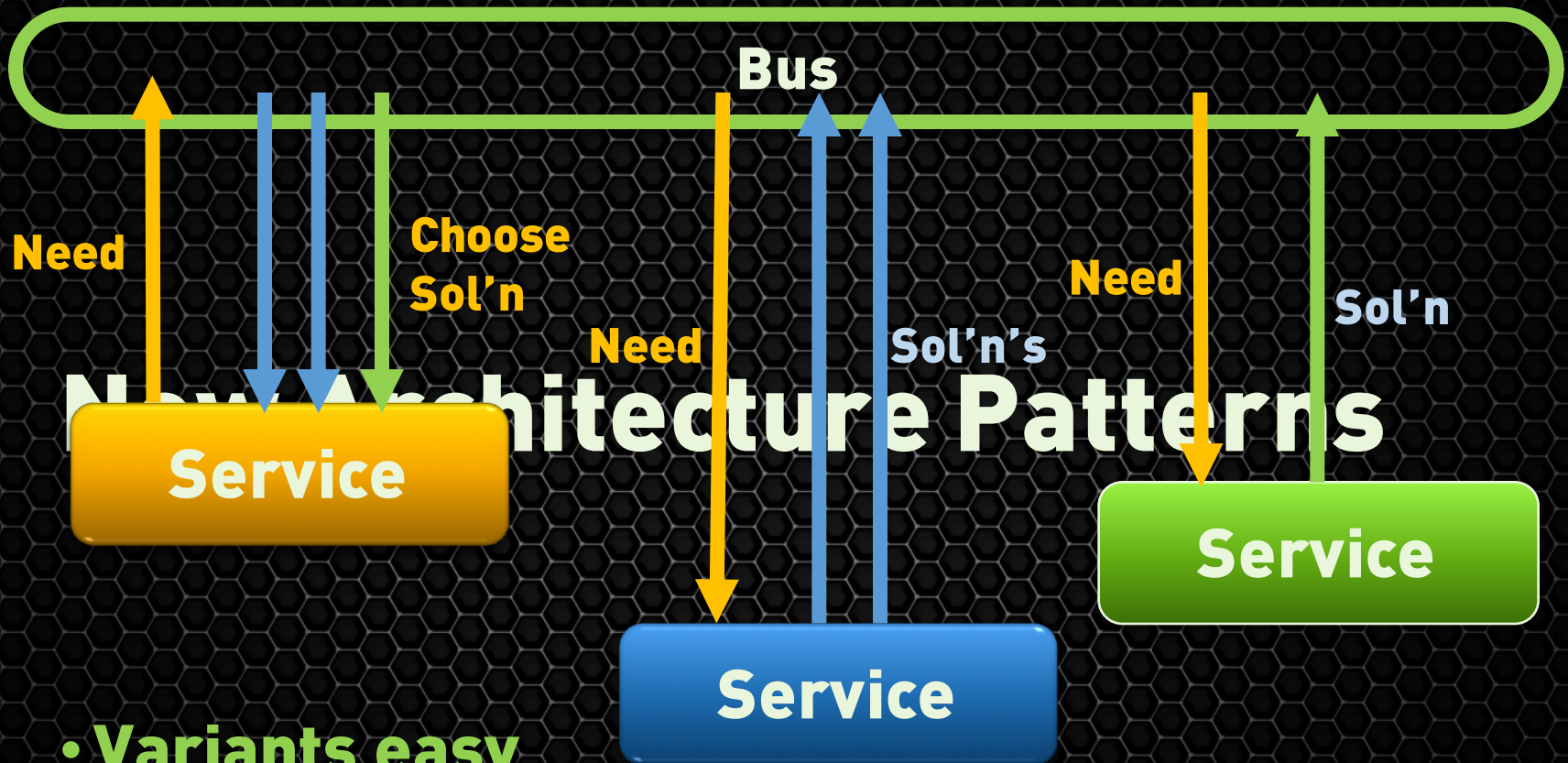




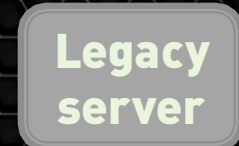
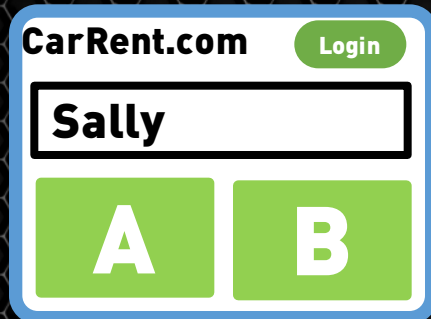




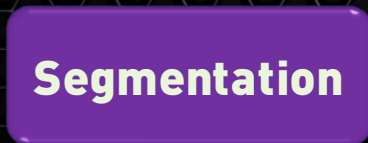




- Variants easy
- Graceful degradation



# Incremental Applications

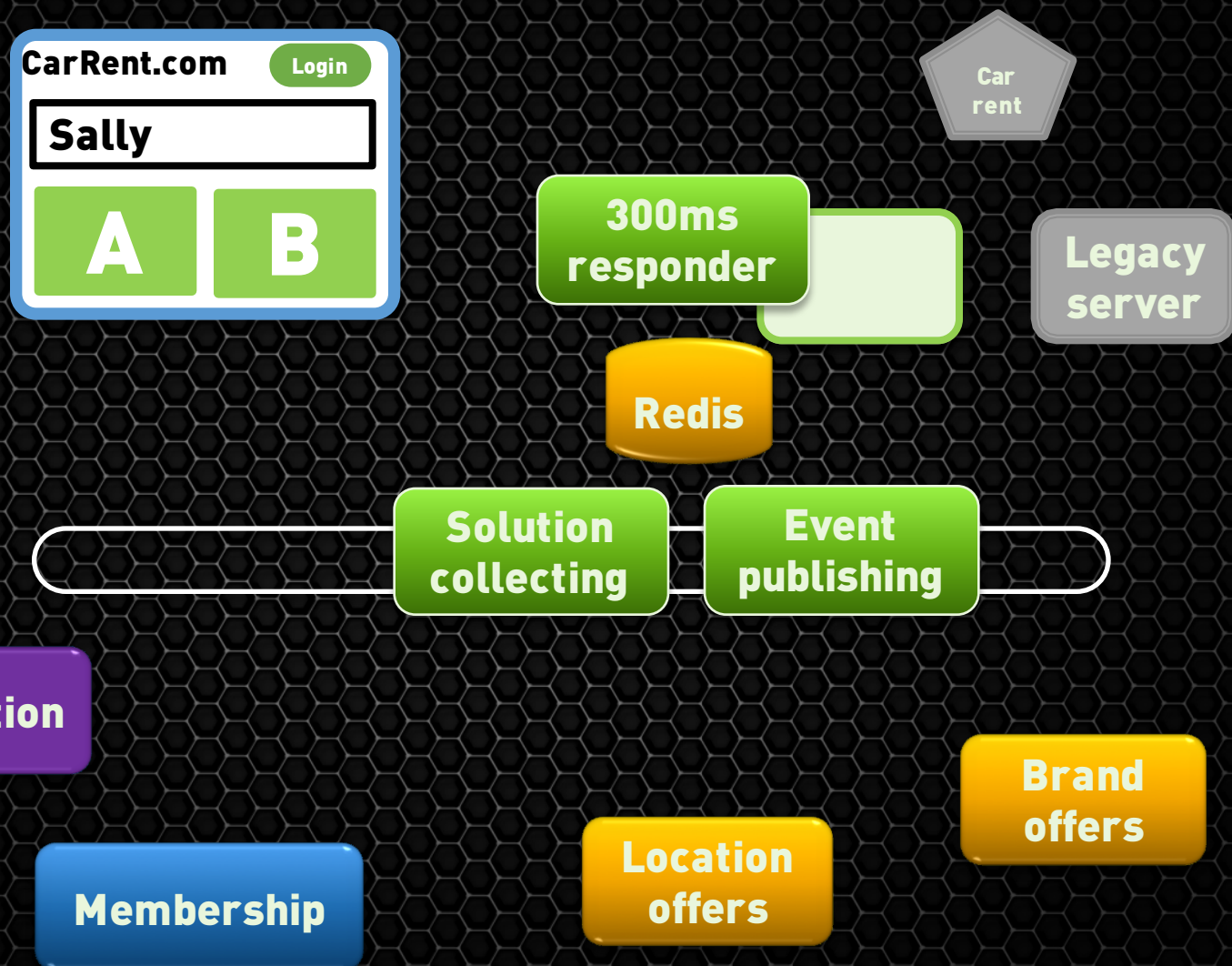




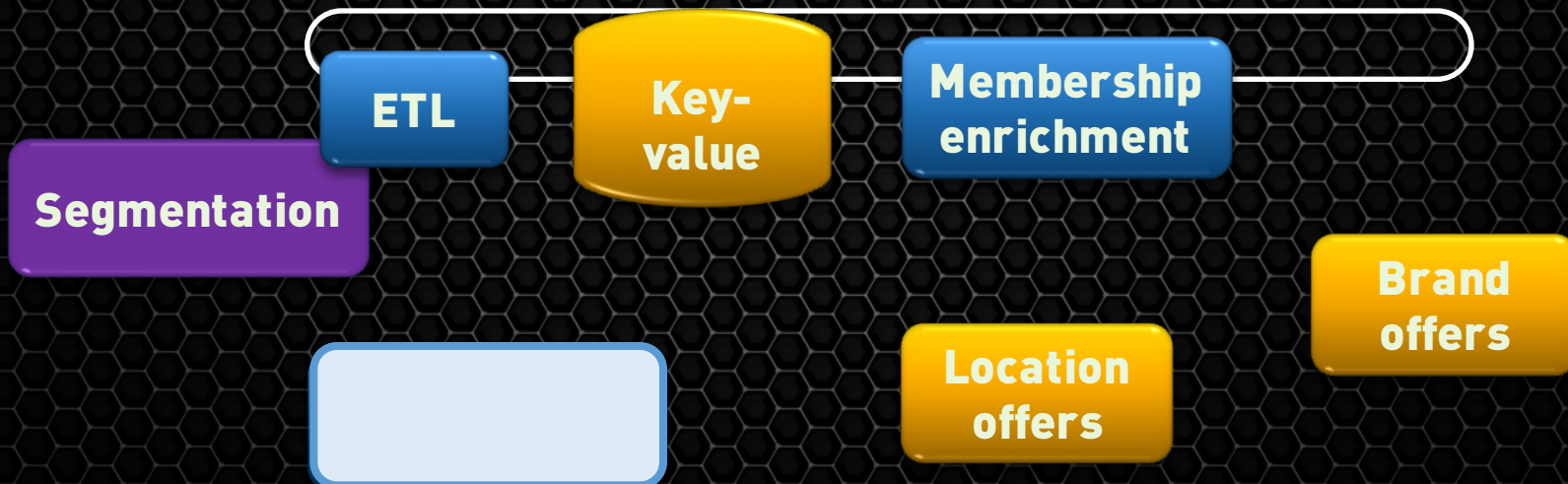
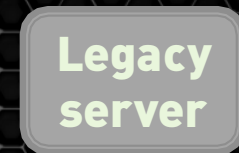
- **Fortune 100 view:**
  - **Entity-oriented; consistency essential**

**Databases:**

- **As few as possible**
- **MicroService view:**
  - **Shift to Event Bus, plus**
  - **DB per MicroService (if persistence needed)**
  - **Poly-glot (various NoSQL, SQL) + event buses**
  - **Few (10%) writable; even fewer transactional**





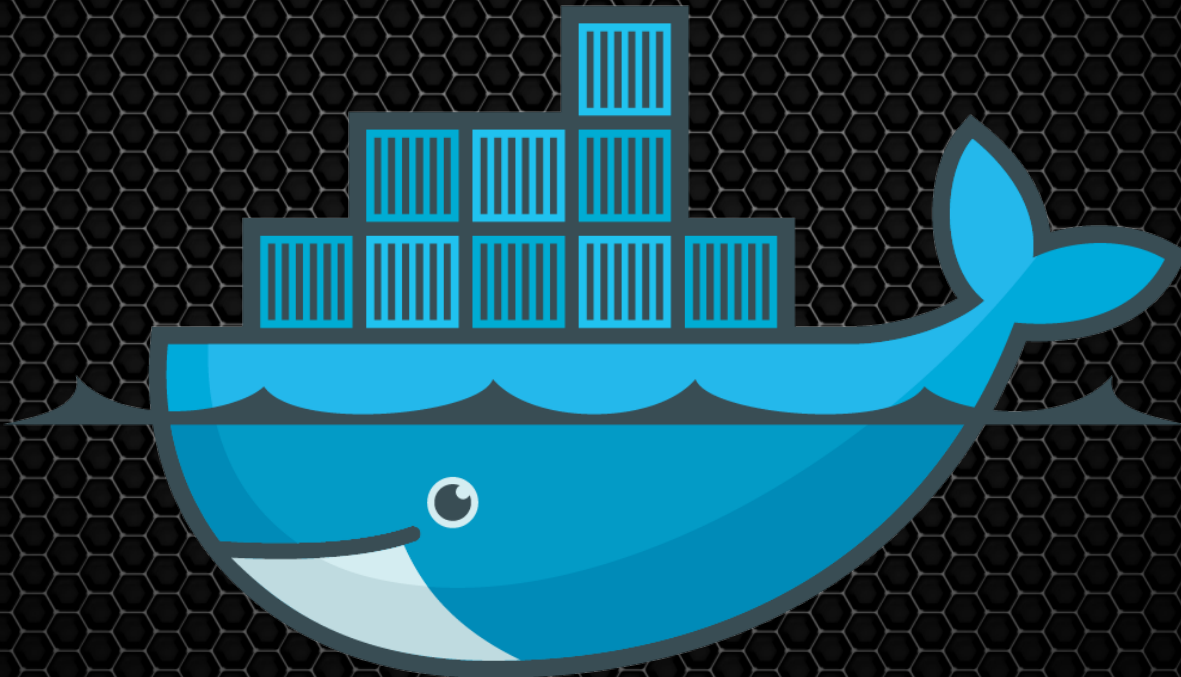


# Open Source: **Netflix**

The word "NETFLIX" is displayed in a large, bold, white, sans-serif font. Each letter has a thick black outline and a subtle 3D effect, appearing to float slightly above the red background. The letters are evenly spaced and centered horizontally within the red rectangular area.



# Open Source: **Docker**



- **Middleware exploiting:**

- Kafka written in Scala

- RabbitMQ written in Erlang

# Disruptive Technology: Functional Languages

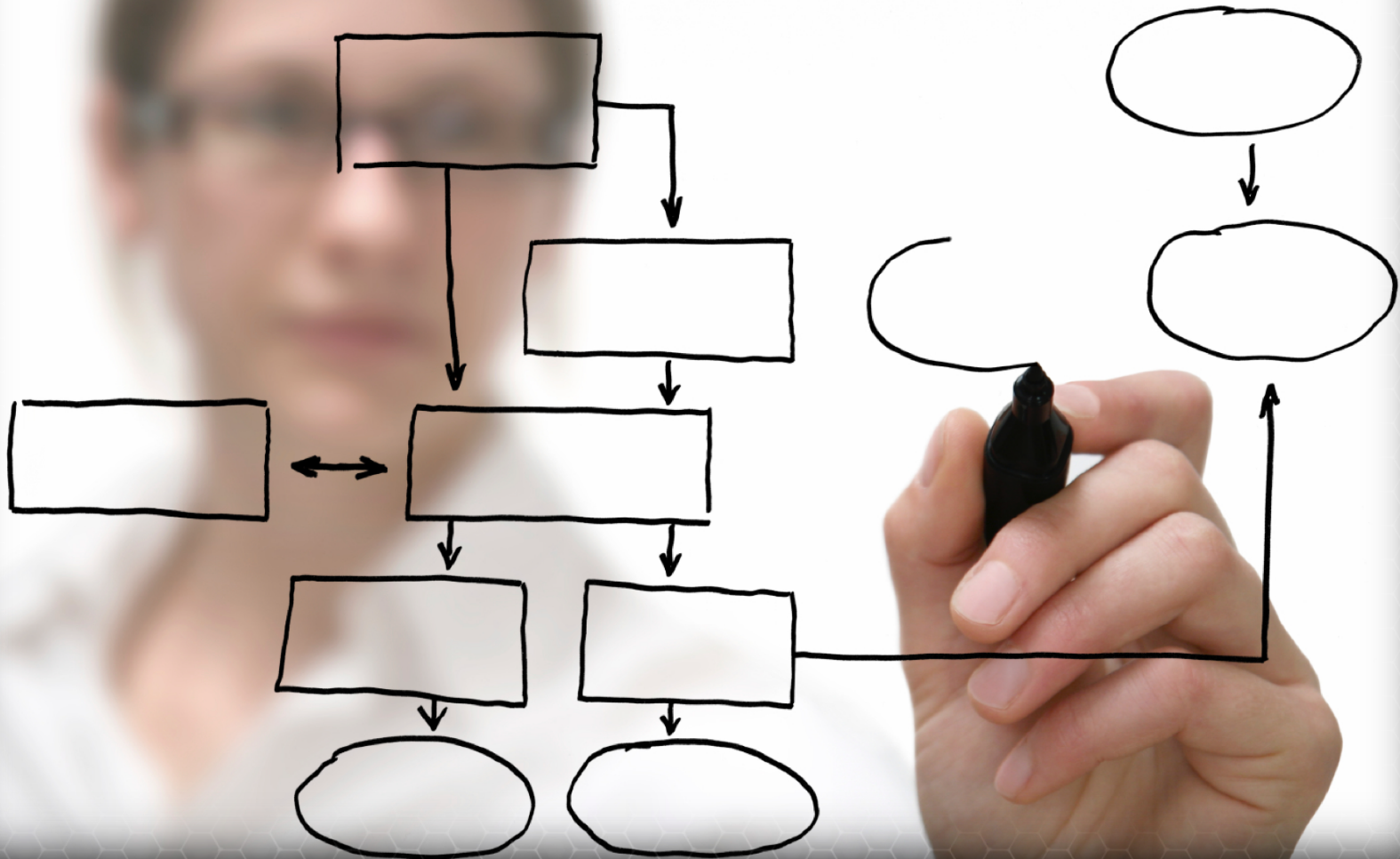
- **Case study: MailOnline page rendering**

- Legacy system: 130K loc Java/JSP's

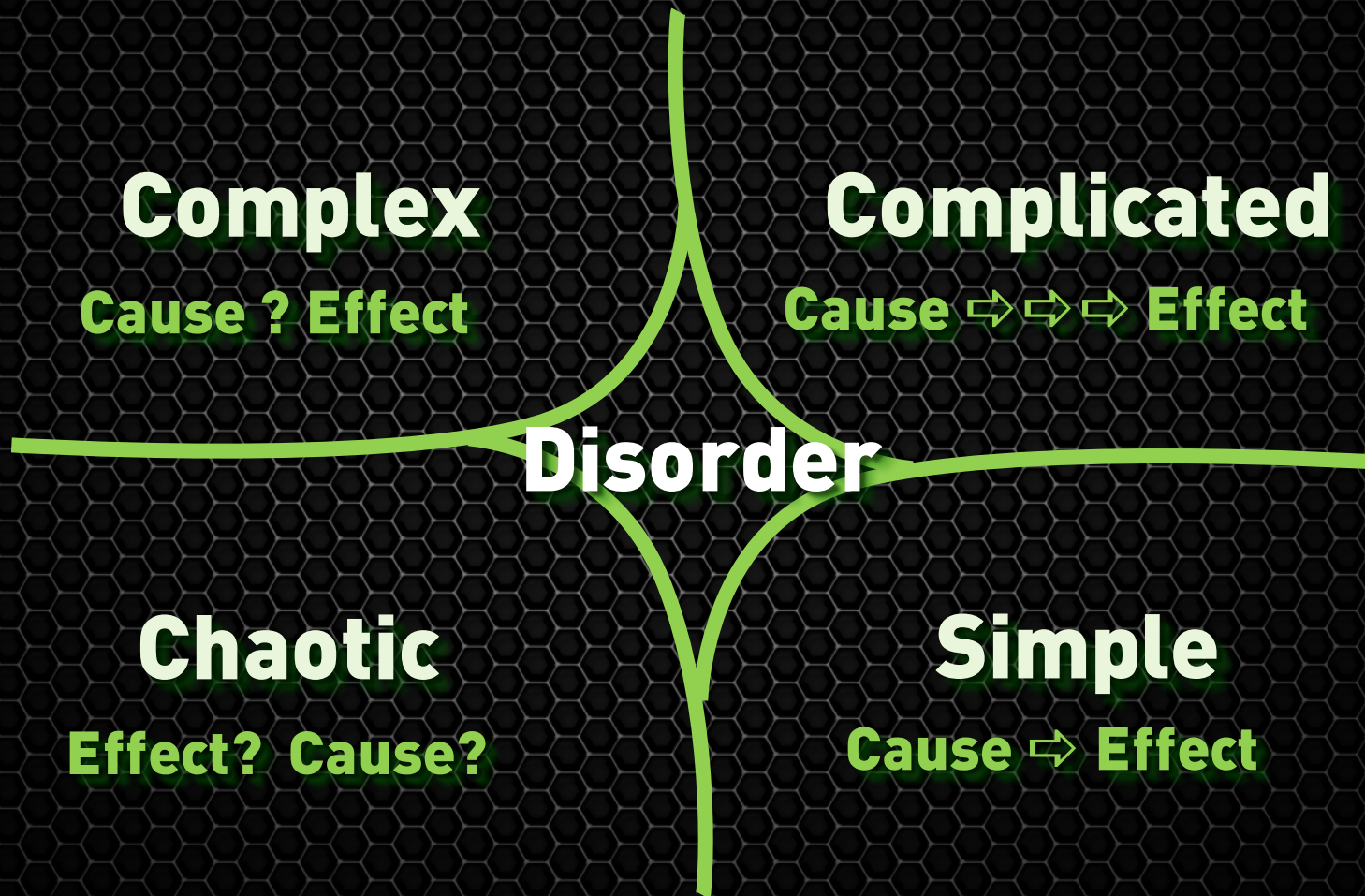
- Replacement: 4,000 loc Clojure



# Mitigate **Process** Inhibitors



# Understand Your Problem





# New Vision of “What” to Build



**Requirements**



**Trying ideas**

**“Experimentation  
drives Innovation”**





- **Bad metrics:**

- **Lines of code**

# **Measure What Matters**

- **Development stages and milestones met**

- **Business success metrics:**

- **Sales, clicks, registrations, customer retention, etc.**

# Mitigate **Organization** Inhibitors





- **Theory:**

- **Specialist are more productive**

- **Practice:**

# Over-Specialization

- **Overhead of communication is under-estimated**
  - **Unbalanced workload creates delays**

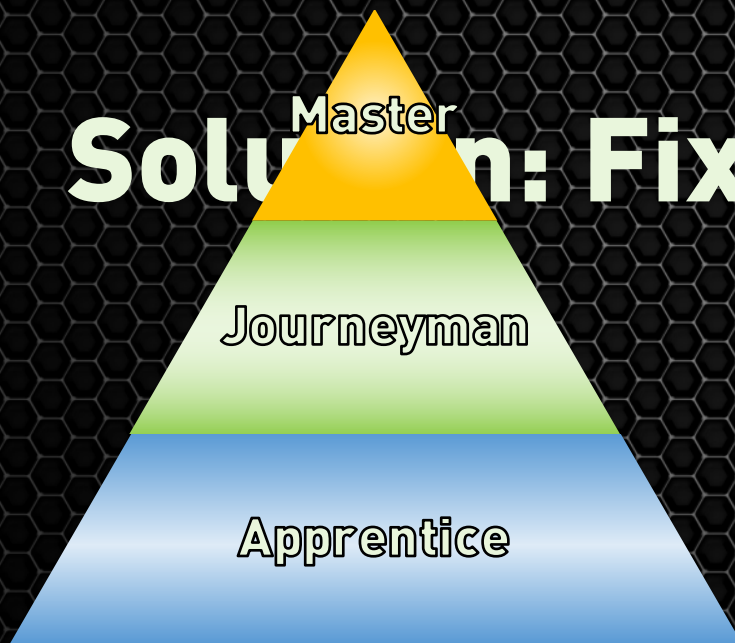
## Case Study:

50 IT professionals  
Specialization  
Institutionalized with Titles

- 0 people understanding projects



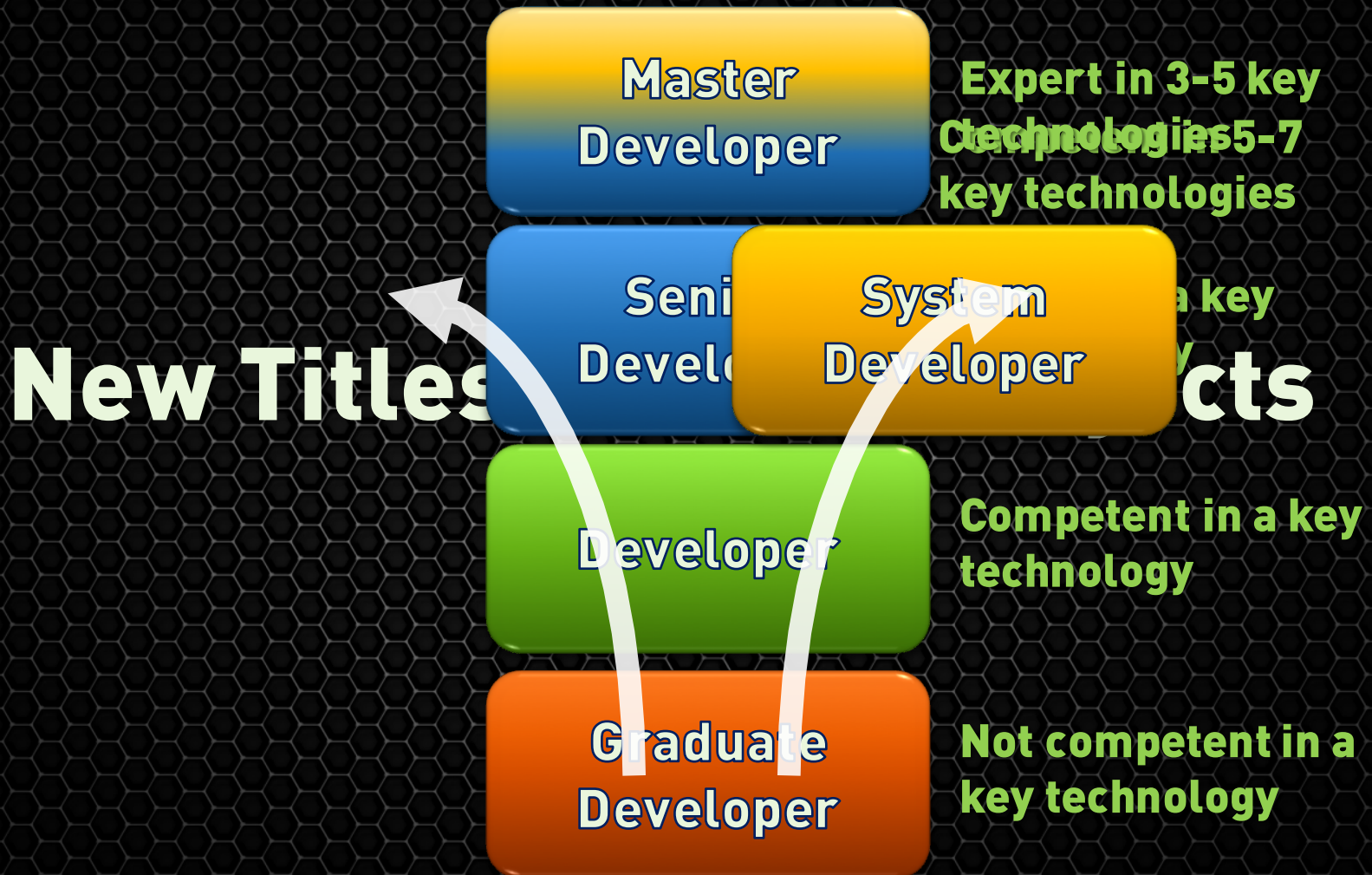
# Step 1: Define competence in key technologies



**Solution: Fix the Titles**

## Strategic Technologies

- Ruby
- Java
- iOS
- Android
- DB (SQL and non-SQL)
- Testing
- OO Design
- Node.js
- HTML/CSS/JavaScript
- ...



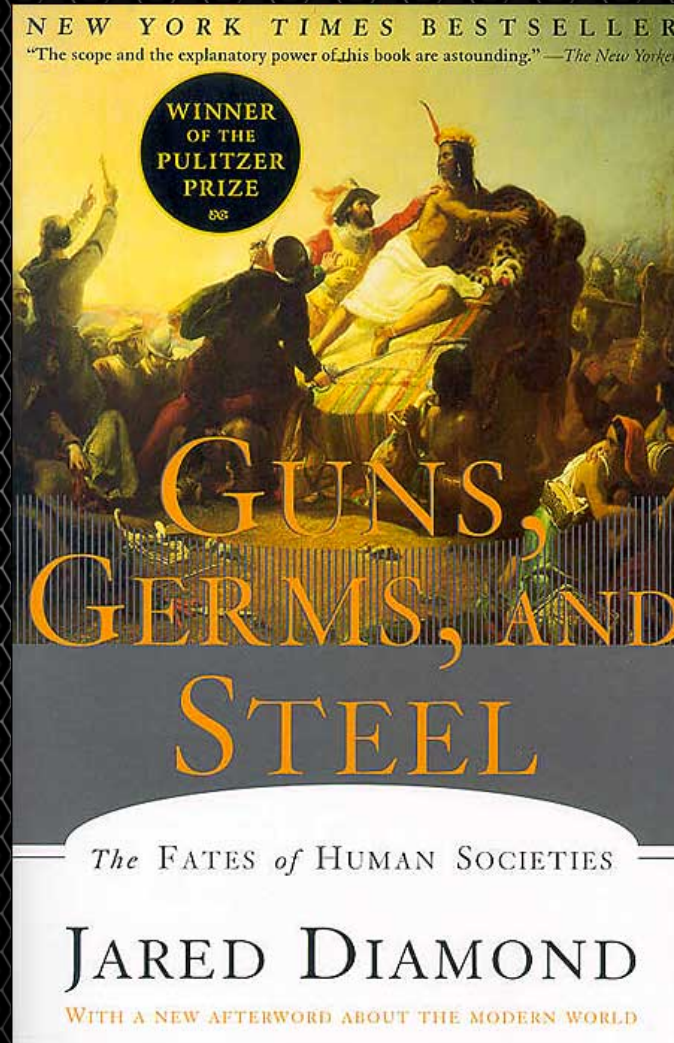


# “Fix the Furniture”\*





Non-ded



rship





# Bring Work to the Team...

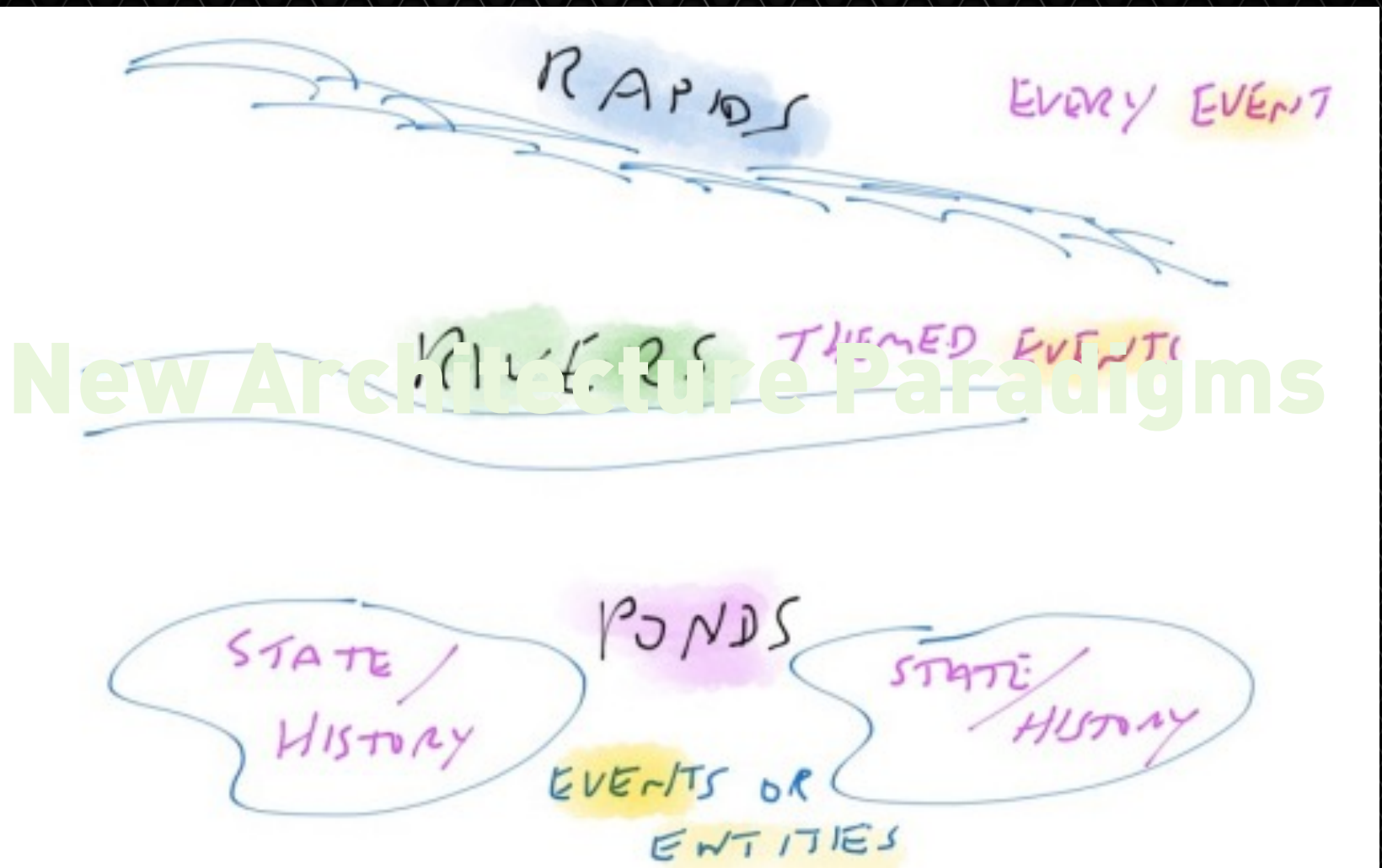
**Not musical  
chairs for each  
small project**



- **Very, very small**
- **Team size of one to develop/maintain**
- **Loosely coupled (including flow)**
- **Multiple versions acceptable (encouraged?)**
- **Self-monitoring of each service**
- **Publish interesting “stuff” (w/o explicit requirements)**
- **“Application” seems to be a poor conceptualization**

# Summary Principles of MicroServices





A word cloud on a dark background with a light hexagonal pattern. The central text is **Go Faster** in a large, bold, yellow font with a diagonal hatching pattern. Surrounding it are several other terms in white and green fonts: **MicroServices** (green), **Managerless process**, **Cassandra**, **Docker**, **Agile**, **No-SQL**, **MVP (minimum viable product)**, **Event bus**, **Cloud**, **Full-stack developer**, **Dev/Ops**, **Programmer anarchy**, **Lean startup**, and **Programmer**.

**Go Faster**

**MicroServices**

**Managerless process**

**Cassandra**

**Docker**

**Agile**

**No-SQL**

**MVP (minimum viable product)**

**Event bus**

**Cloud**

**Full-stack developer**

**Dev/Ops**

**Programmer anarchy**

**Lean startup**

**Programmer**



**Go Faster**

Managerless process

Cassandra

Lean startup

Programmer anarchy

MicroServices

Docker

Dev/Ops

Cloud

Full-stack developer

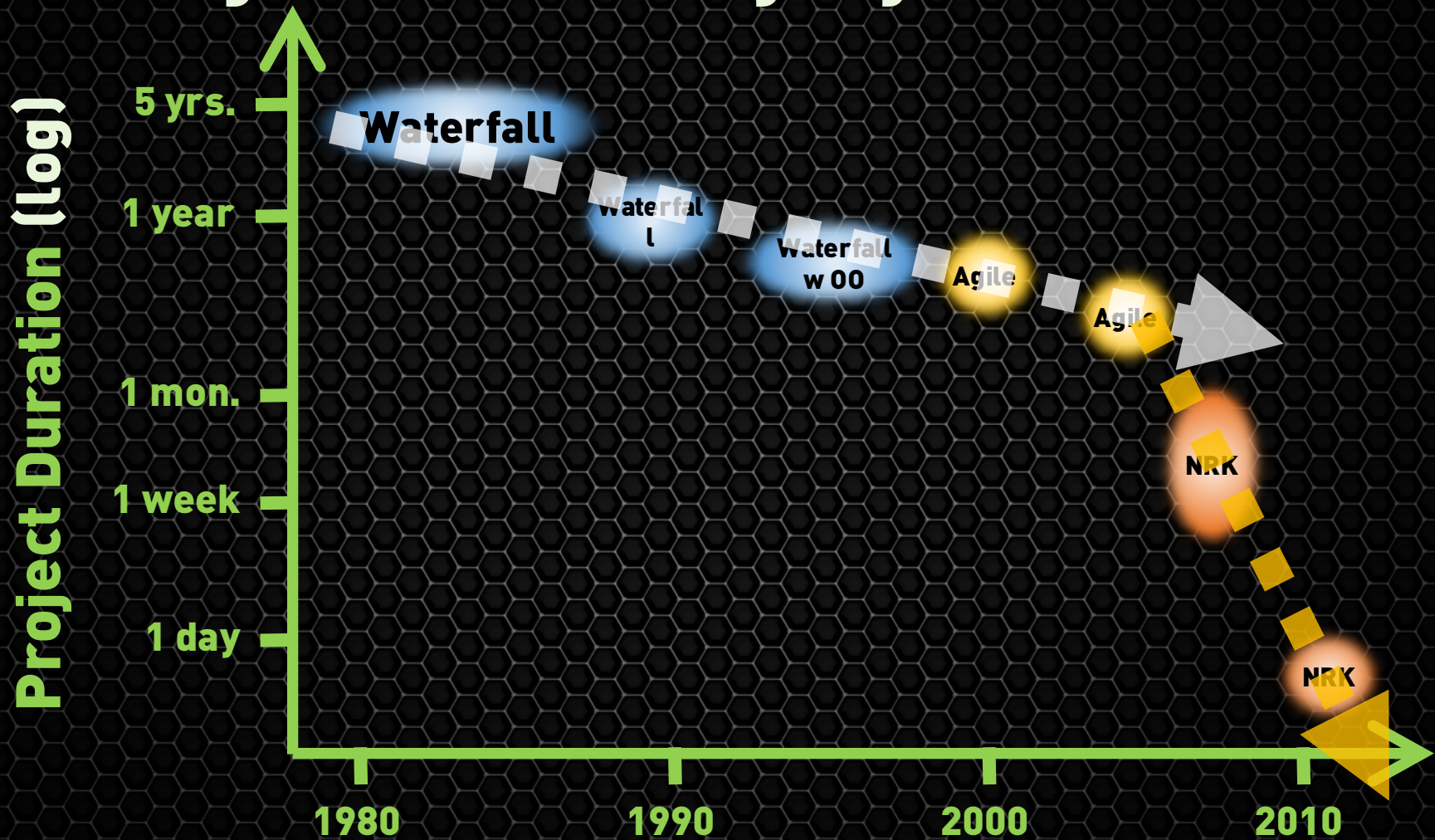
Agile

Event bus

MVP (minimum viable product)

No-SQL

# Project Delivery Cycles





- **Neil Hutchinson – Founder of Forward**
  - **Adopting a “Fail Fast” culture**

## **Acknowledgements**

- **Former programmer who wanted to Go Faster**
- **Paul Ingles and Mike Jones**
  - **Implementers of “Experimentation drives innovation”**

- **Google:**

- **MicroService Architecture for videos**

## **More Information...**

- **MicroXchg 2015 conference... and it's back soon!**
  - **MicroServices Meetups in Berlin**
  - **Programmer Anarchy for managerless teams**
  - **Docker for latest container deployment**





*Please*

**Remember to  
rate session**

*Thank you!*



# It's Not Just MicroServices

**Fred George**

**fredgeorge@acm.org**



**@fgeorge52**