It's Not Just MicroServices

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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

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One Hacker Way

Lean startup

Cassandra

Programmer anarchy

MicroServices

Industry "Hot" Topics

Docker

Go Faster

Dev/Ops

Cloud

Full-stack developer

Agile

Event bus

MVP (minimum viable product

No-SQL

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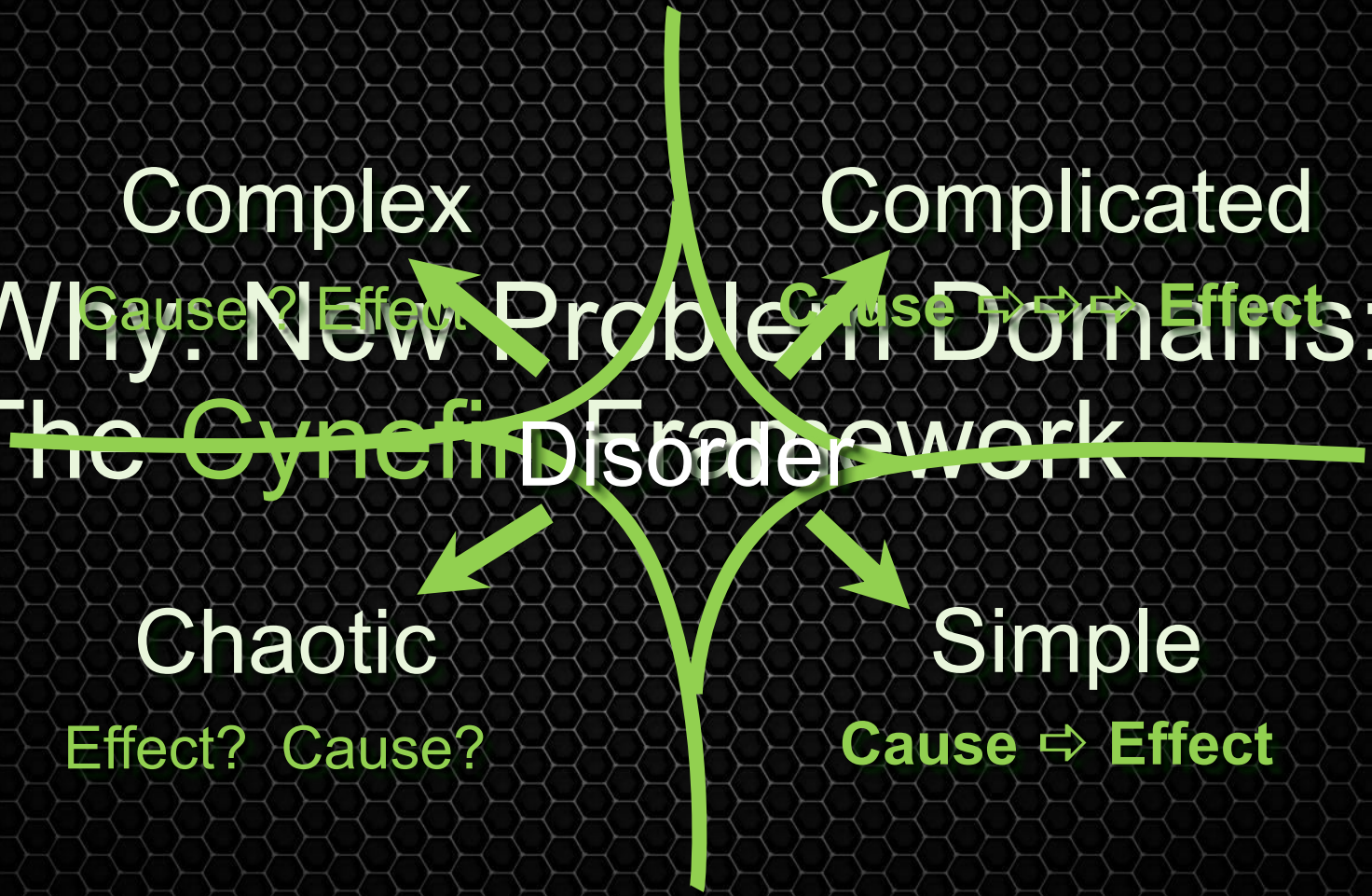
Why: New Problem Domains: The ~~Cynefin~~ Framework



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How Fast Can You Go?

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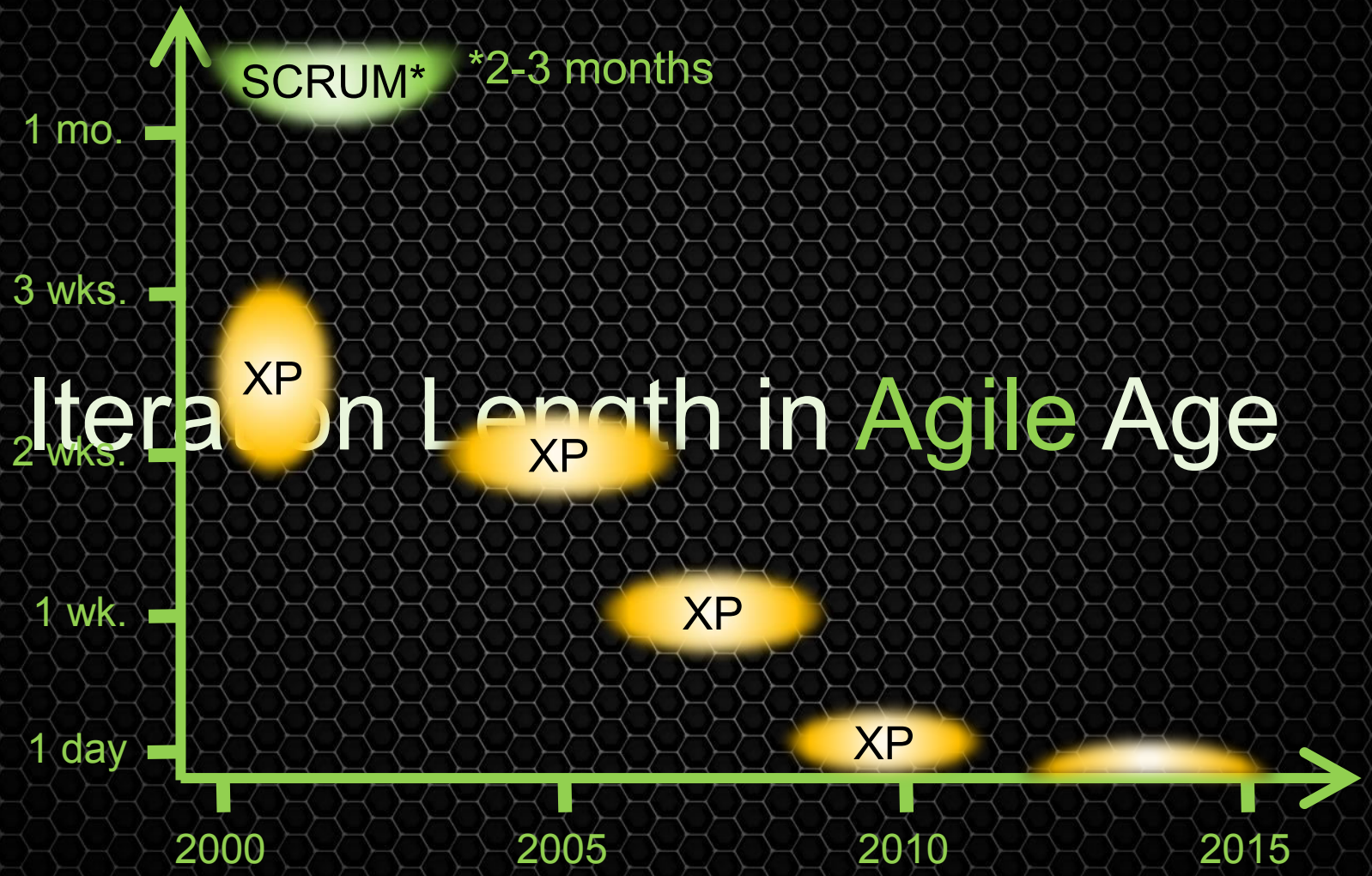
Iteration Length in Agile Age



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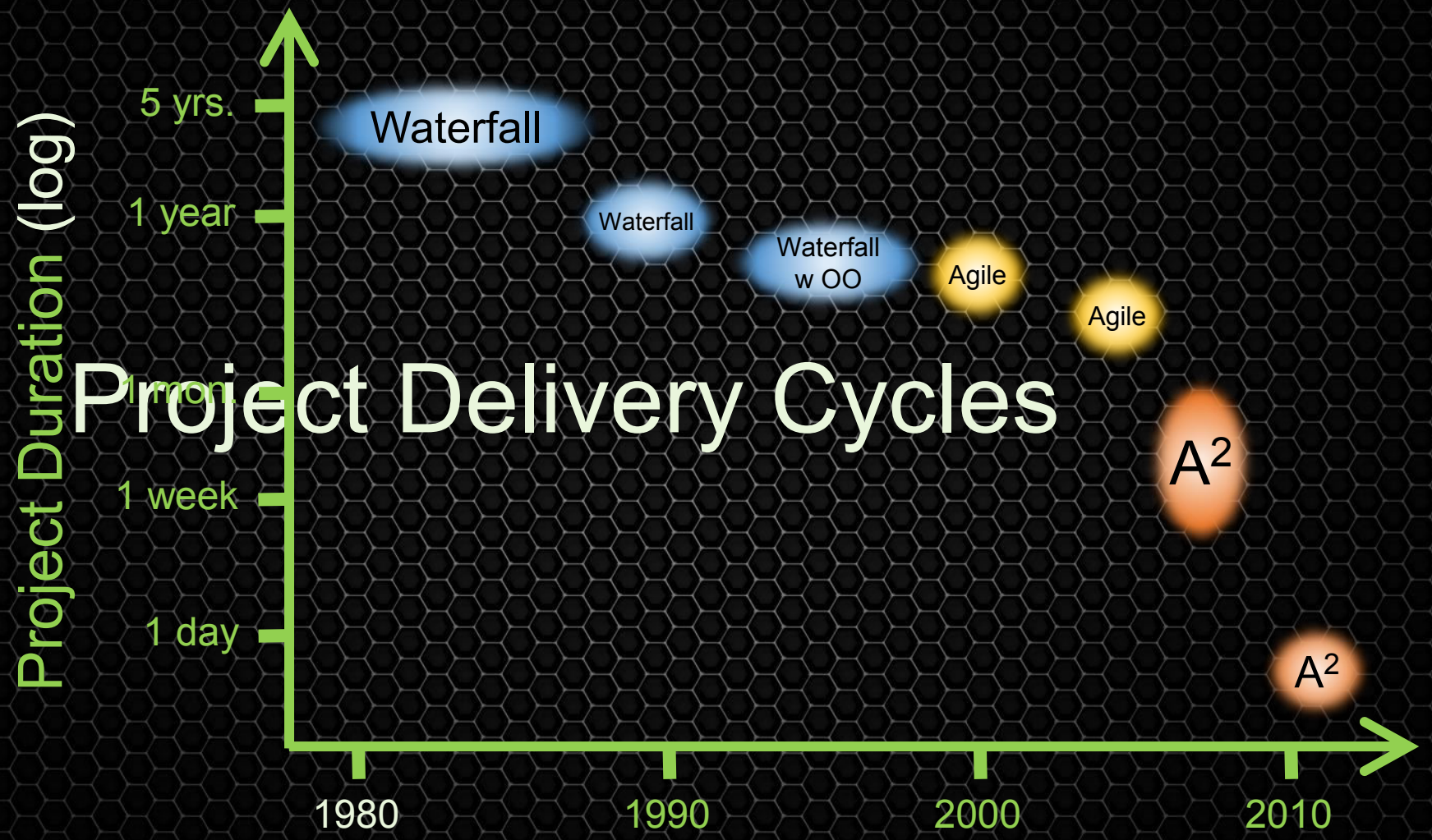

Project Delivery Cycles

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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

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Inhibitors

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- Cloud exploitation
- Specialized databases
- New programming languages
- Open source frameworks (users and creators)
- Continuous releases

"Valley Tech"

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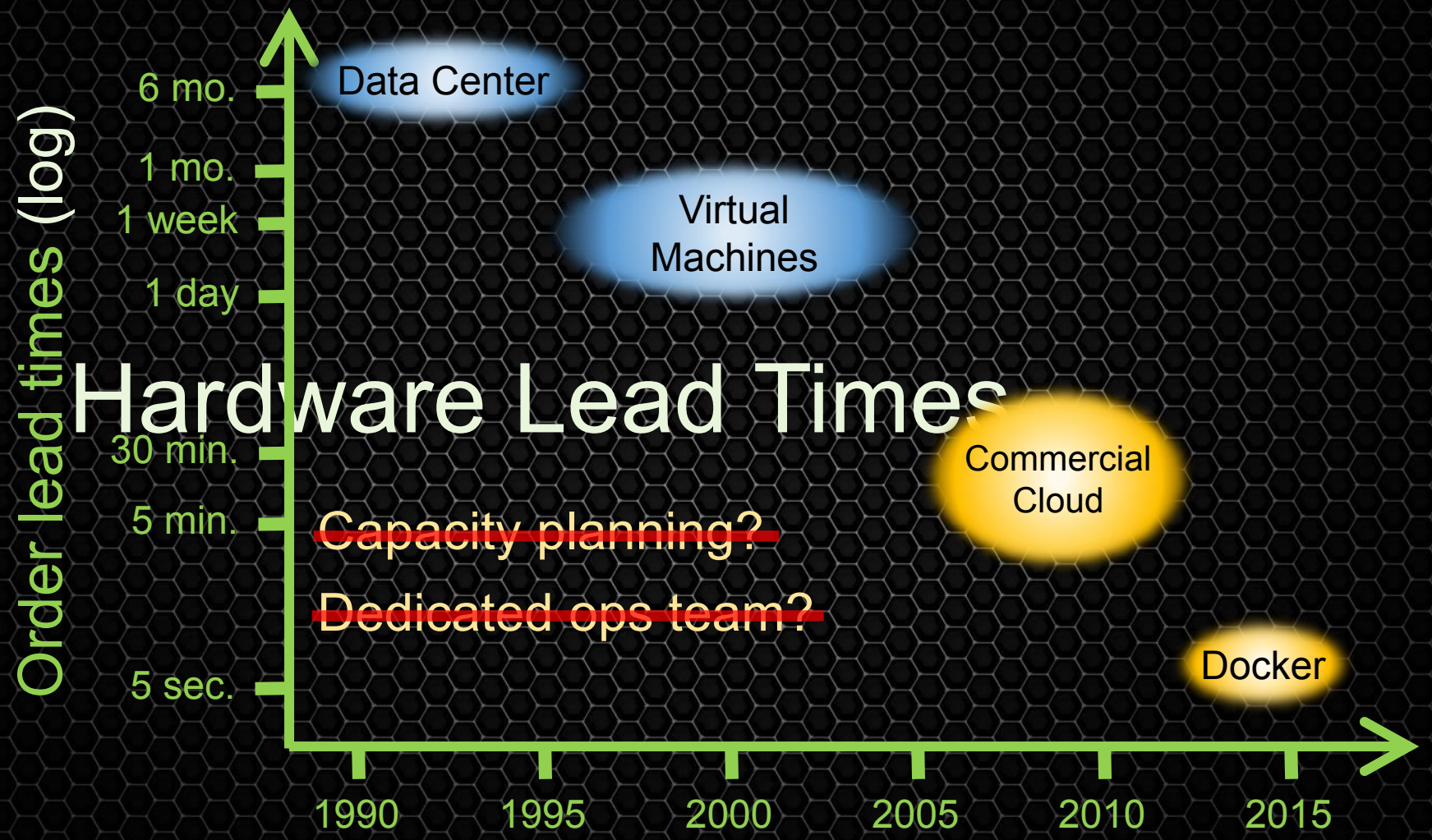

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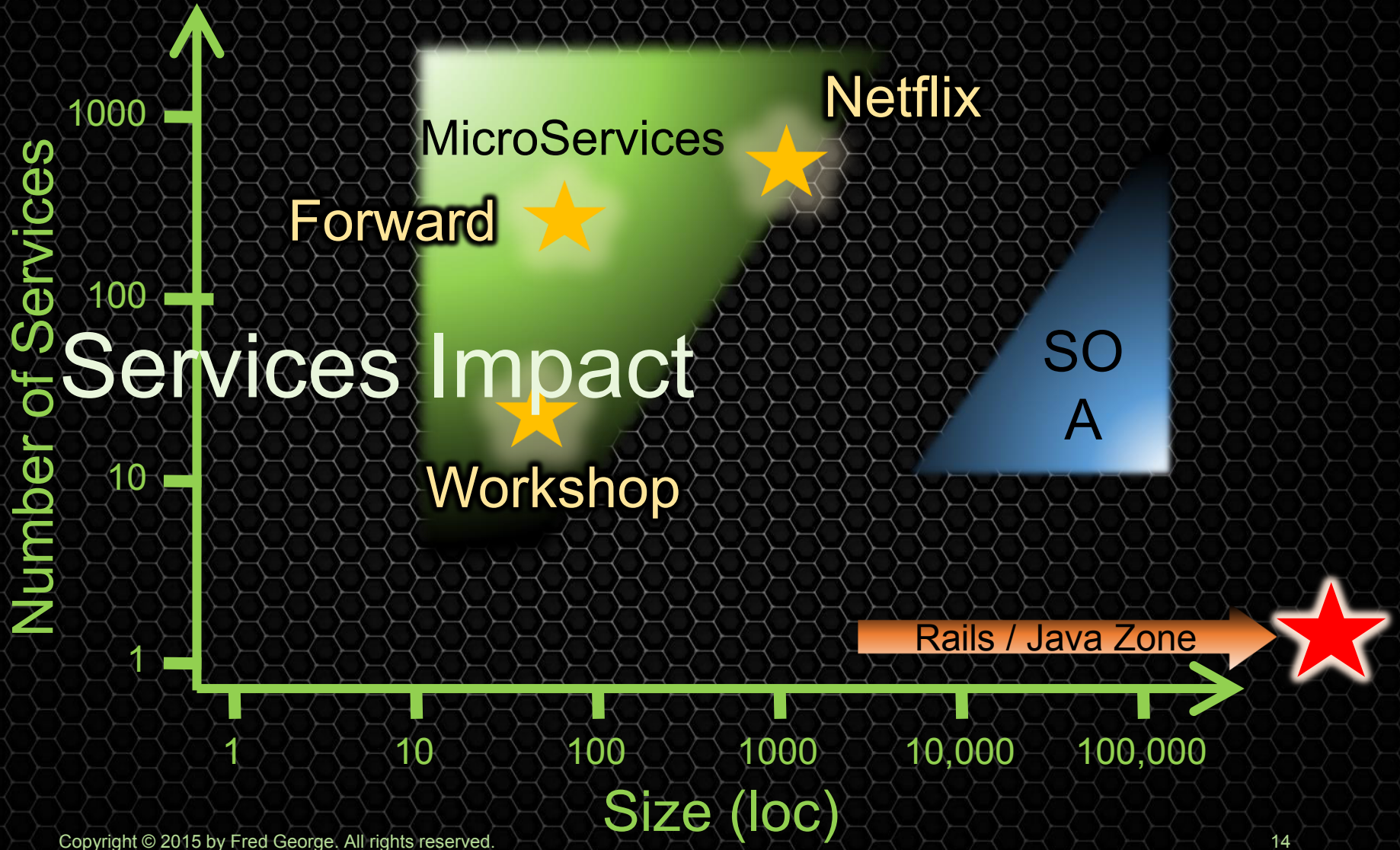

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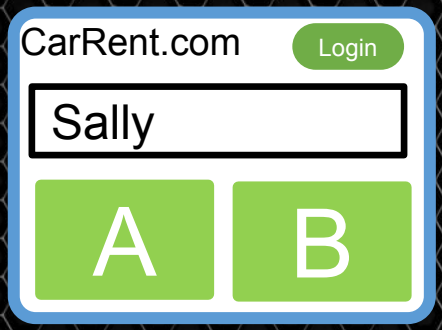

Car rent

Rental offers

Legacy server

Incremental Applications

Event Bus

Segmentation

Membership

Location offers

Brand offers

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Databases: Holy Grail or Ball-and-Chain?

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

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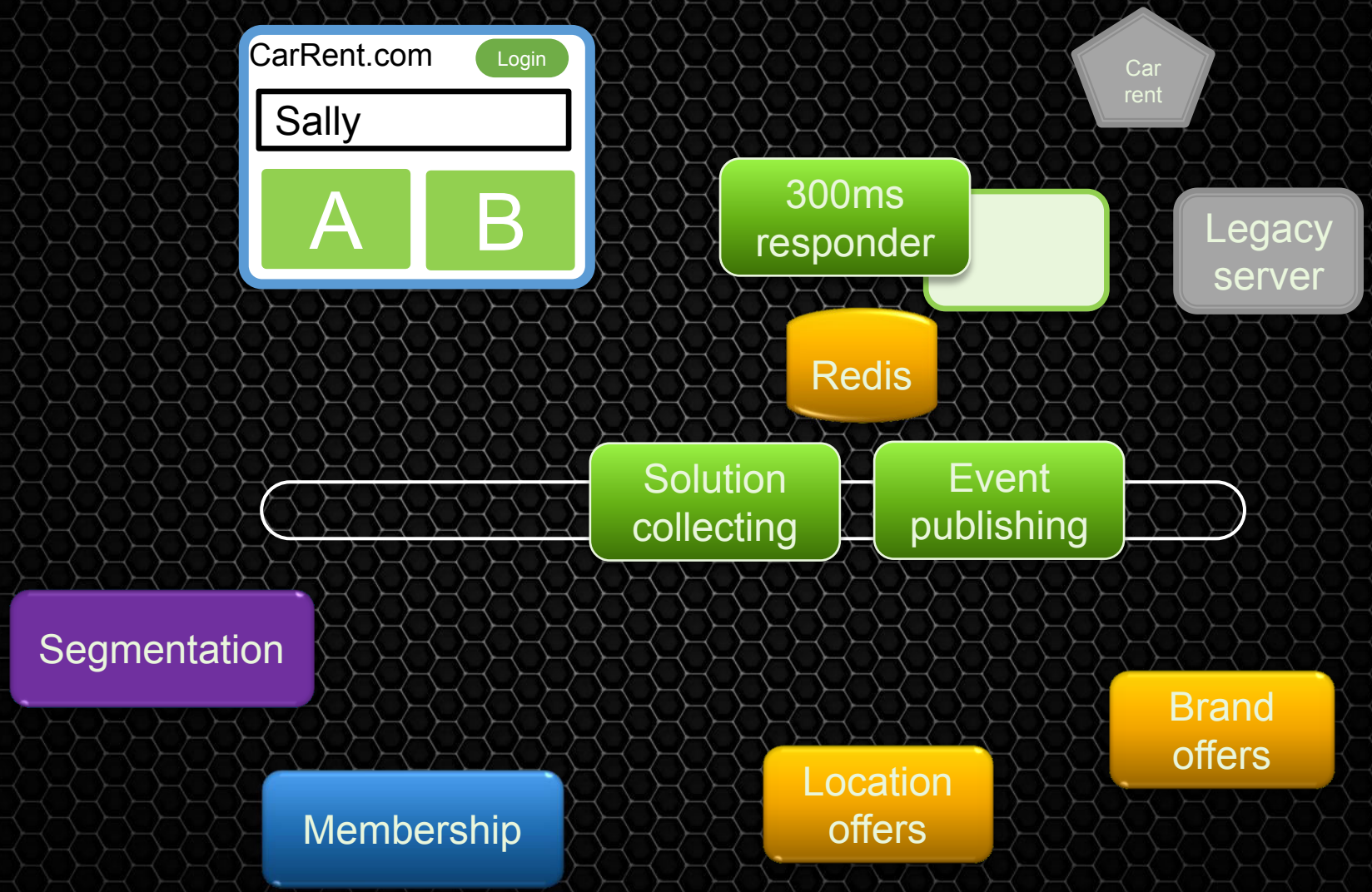

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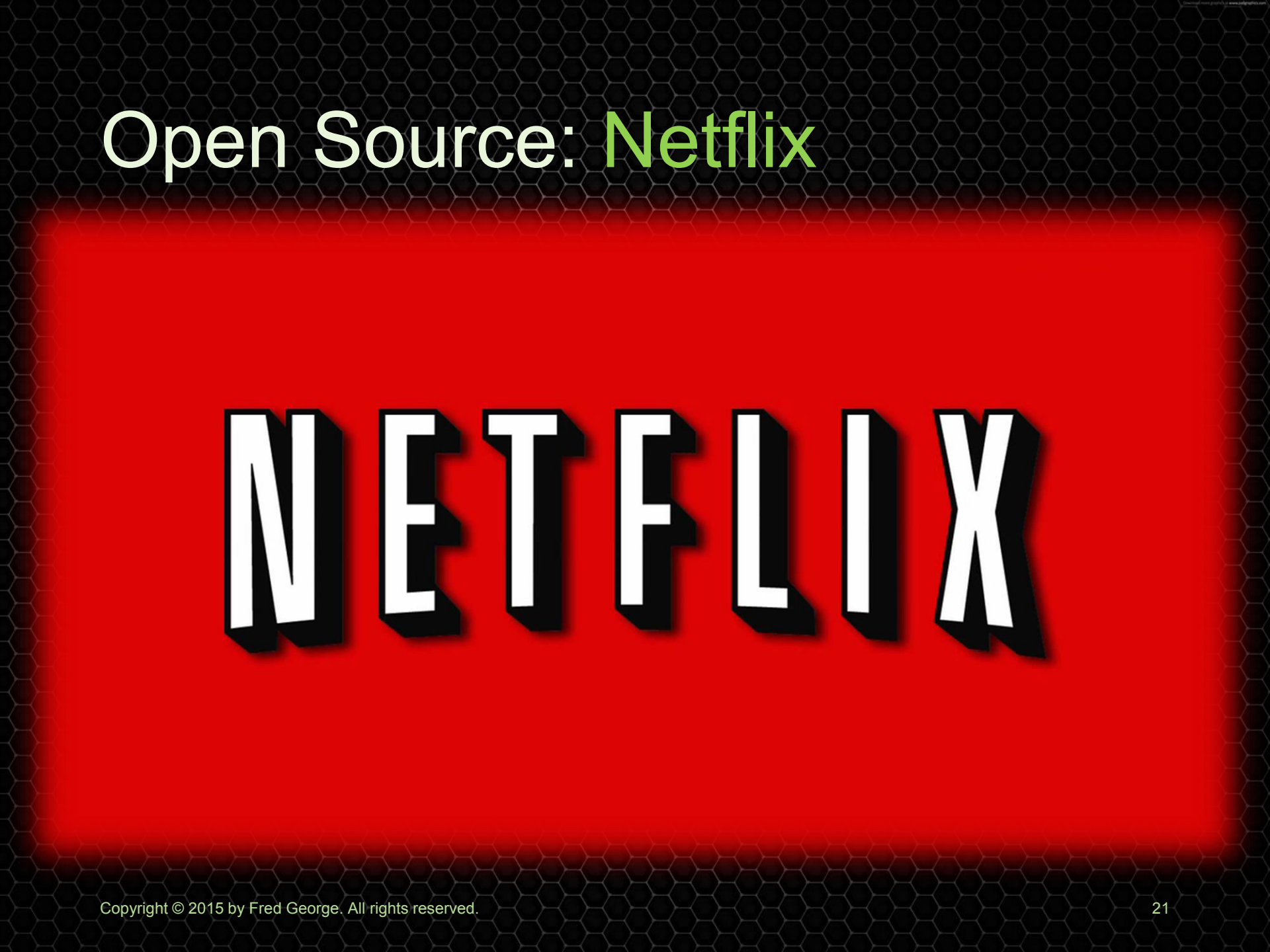
Open Source: Netflix



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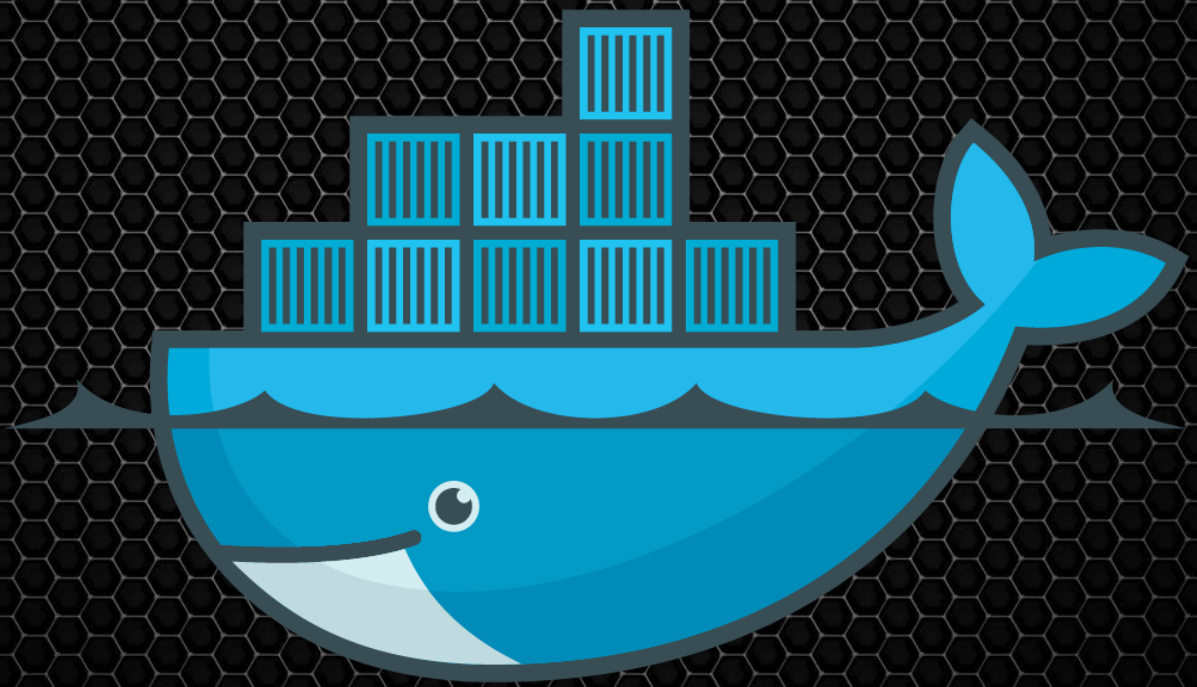
Open Source: Docker



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Disruptive Technology: Functional Languages

- Middleware exploiting:
  - Kafka written in Scala
  - RabbitMQ written in Erlang
- Case study: MailOnline page rendering
  - Legacy system: 130K loc Java/JSP's
  - Replacement: 4,000 loc Clojure

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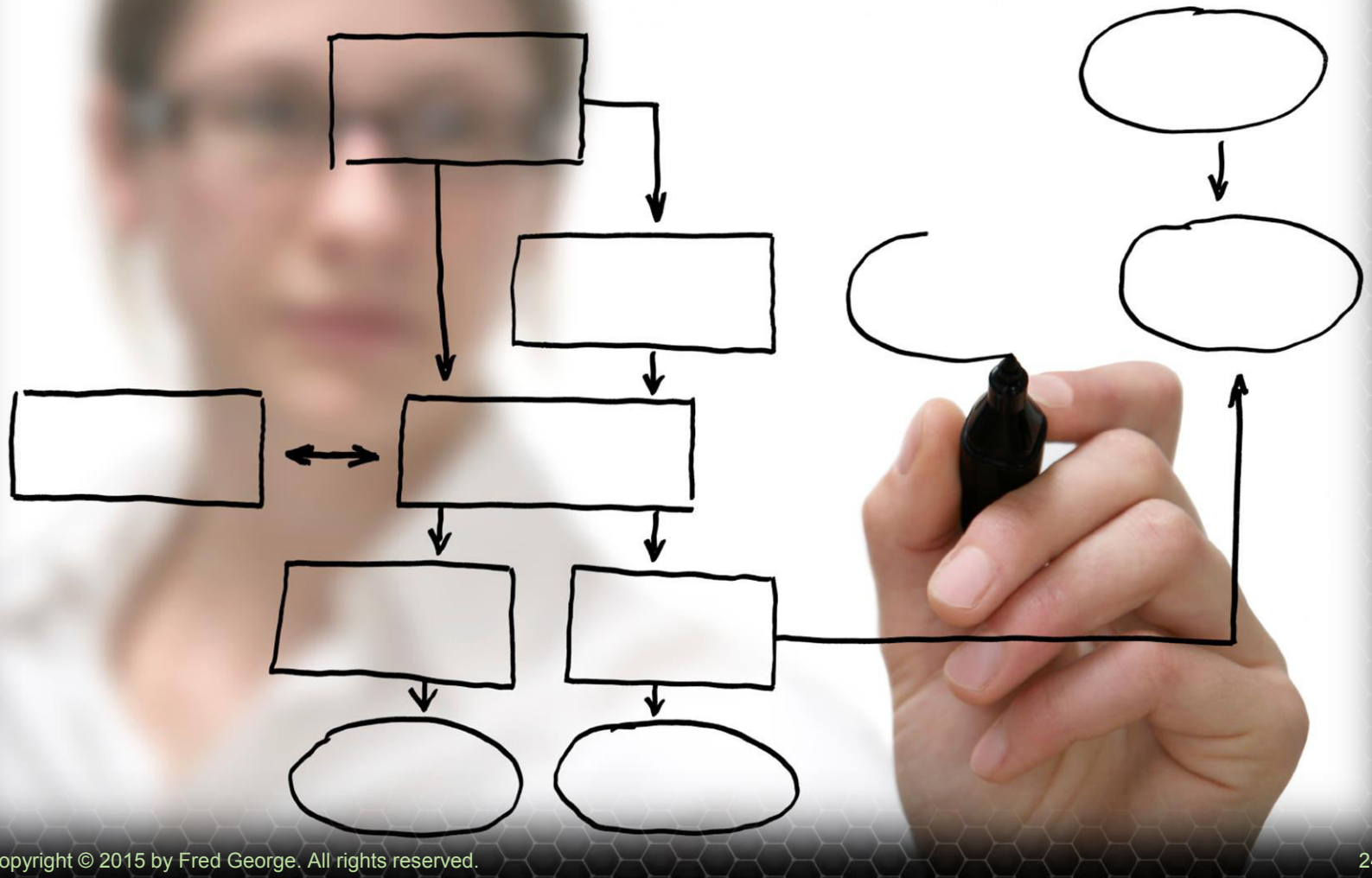
Mitigate Process Inhibitors



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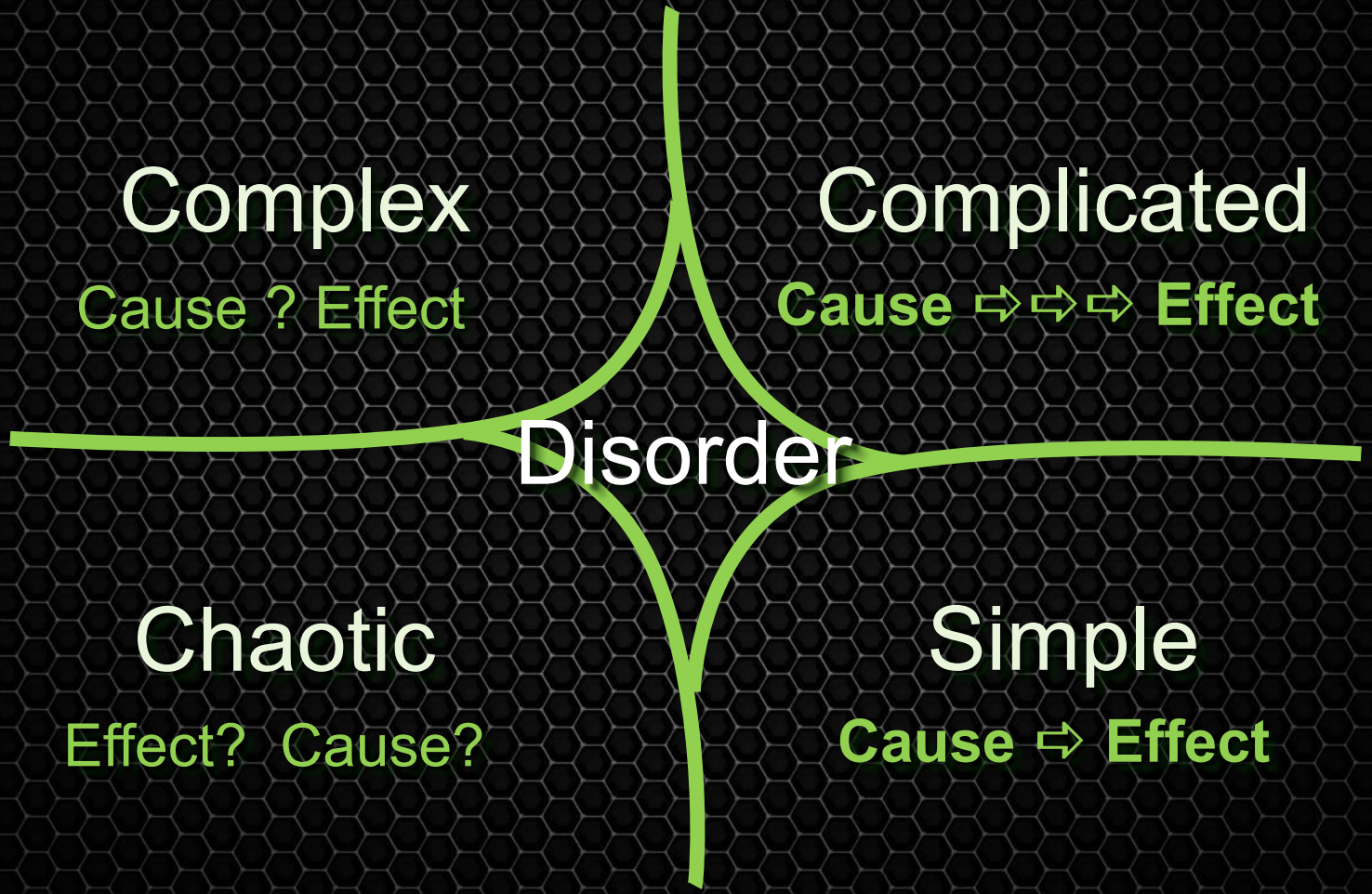
Understand Your Problem



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New Vision of "What" to Build

Requirements

Trying ideas

"Experimentation drives Innovation"

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Re-think Interactions

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Co-Credit: Greg Reiser, ThoughtWorks

Measure What Matters

- Bad metrics:
  - Lines of code
  - Development stages and milestones met
- Business success metrics:
  - Sales, clicks, registrations, customer retention, etc.

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Mitigate Organization Inhibitors

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Over-Specialization

- Theory:
  - Specialist are more productive
- Practice:
  - Overhead of communication is under-estimated
  - Unbalanced workload creates delays

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Case Study:

Specialization Institutionalized with Titles

- 50 IT professionals
- 75 titles
- 0 people understanding projects

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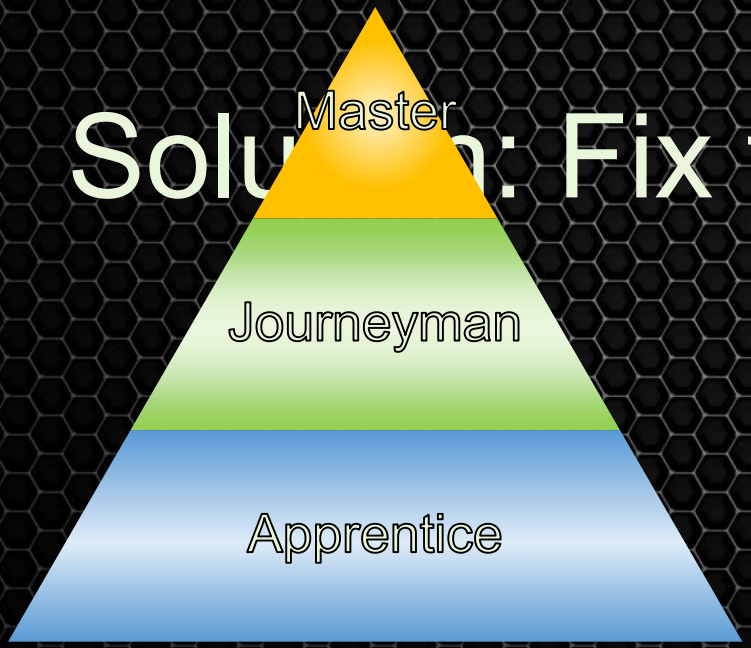
Step 1: Define competence in key technologies



Solution: Fix the Titles

Strategic Technologies

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

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New Titles

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“Fix the Furniture”*

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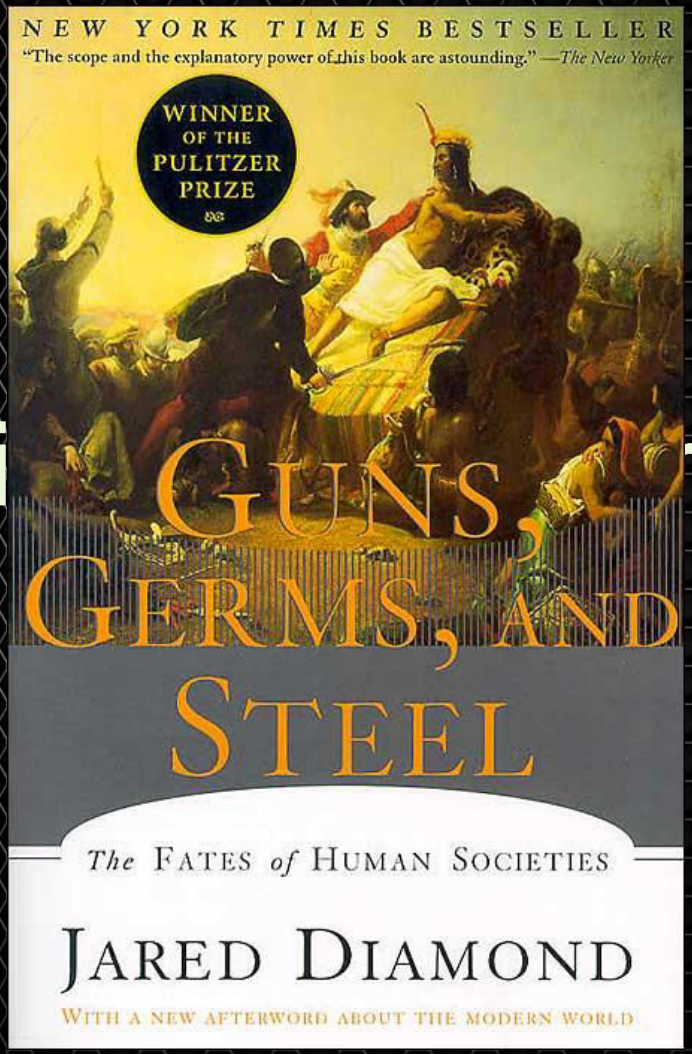
*Kent Beck, XP Explained

Non-dedi rship



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Bring Work to the Team…

Not musical chairs for each small project

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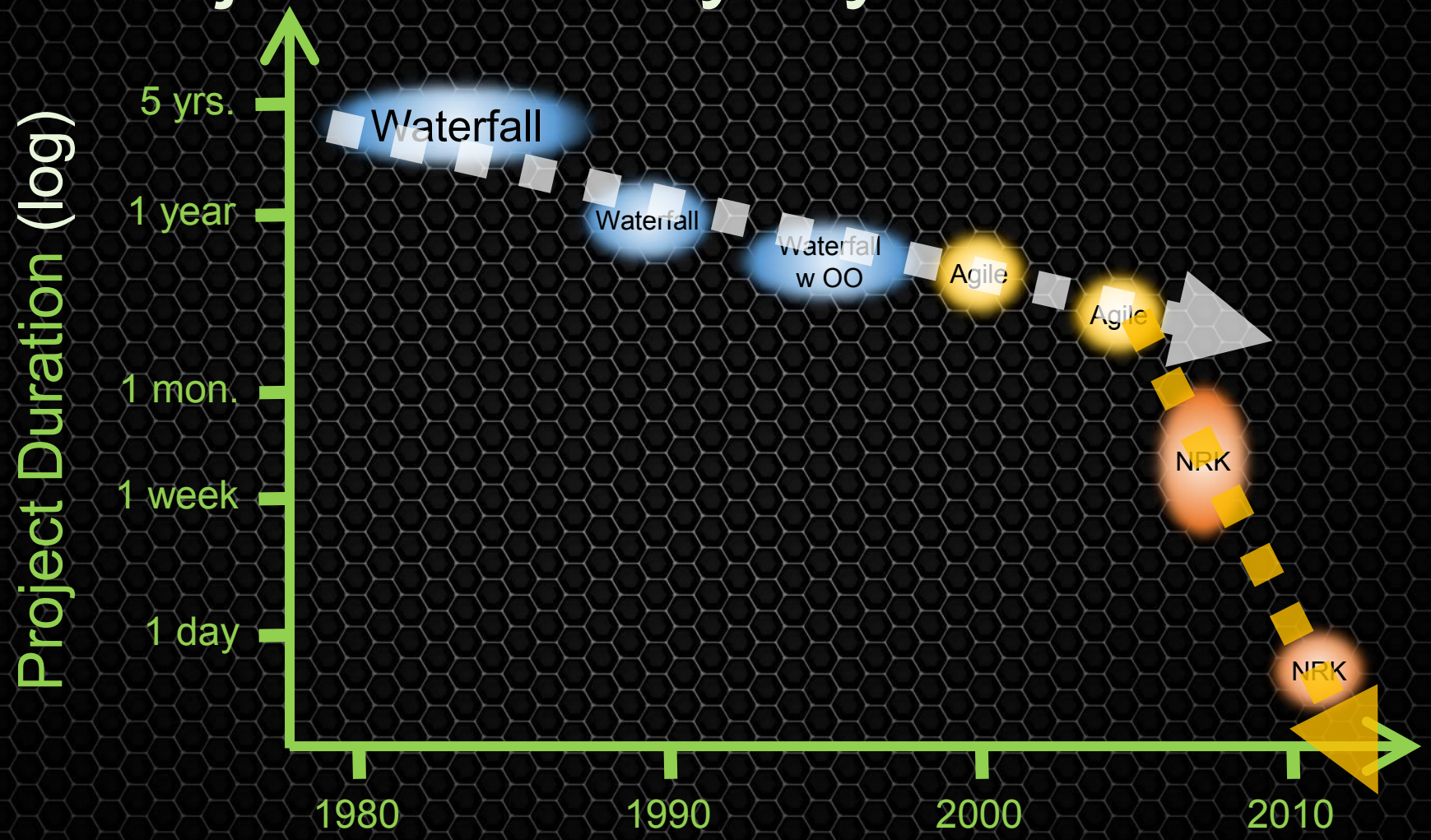

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Acknowledgements

- Neil Hutchinson – Founder of Forward
  - Adopting a "Fail Fast" culture
- Carl Caywood
  - Former programmer who wanted to Go Faster
- Paul Ingles and Mike Jones
  - Implementers of "Experimentation drives innovation"

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More Information...

- Google:
  - MicroService Architecture for videos
  - MicroXchg 2015/6 conference and others
  - MicroServices Meetups in Berlin
  - Programmer Anarchy for managerless teams
  - Docker for latest container deployment

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