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The Enterprise Fast Lane

What Your Competition Doesn't Want You to Know
about Enterprise Cloud Transformation

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Fed up with stop and go in your data center? Shift into overdrive and pull into the fast lane! Learn how AutoScout24, the largest online car marketplace Europe-wide, is building its Autobahn in the Cloud. The secret ingredient? Culture! Because “cloud” is only half of the digital transformation story. The other half is how your organization deals with cultural change as you transition from the old world of IT into building microservices on AWS, with agile DevOps teams in a true „you build it, you run it fashion. Listen to stories from the trenches, powered by Amazon Kinesis, Amazon DynamoDB, AWS Lambda, Amazon ECS, Amazon API Gateway and much more, backed by AWS Partners, AWS Professional Services, and AWS Enterprise Support. Learn how to become cloud native, evolve your architecture, drive cultural change across teams, and manage your company’s transformation for the future.

What to expect from this session

- How to become **cloud native**
- How to transition from “difficult to change” to **evolutionary architecture**
- How to drive **cultural change** across your organization
- Real-world enterprise IT **transformation experience**
- **Tools and ideas** for your own digital journey



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Average life span of an
S&P 500 company in the year 2015:

15 years

In the 1920s:

67 years

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The world is changing
faster



NETFLIX



Pinterest



Digital
innovation

Digitization
=
creating **value** out of **data**

You need to put data as the center of your value creation process

Digitization
=
creating **value** through
software

Digitization
=
no **physical** limitations

Cloud is "digital IT"

- Unlimited resources
- No financial risk
- Software-defined, dynamic architecture
- 100% automated
- Flexible
- Deployed in minutes
- Worldwide
- Secure
- Robust



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Cloud is...

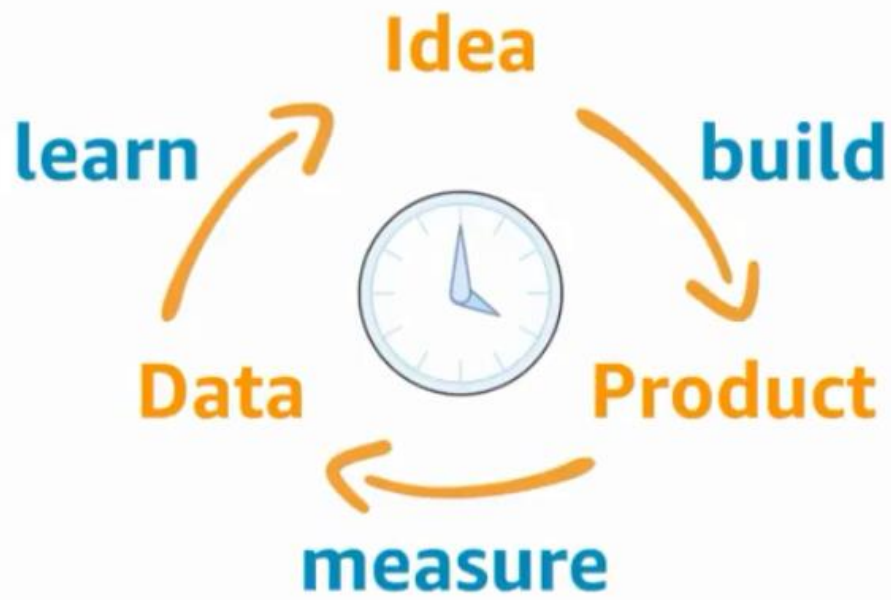
**no physical
limitations**

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Digital innovation



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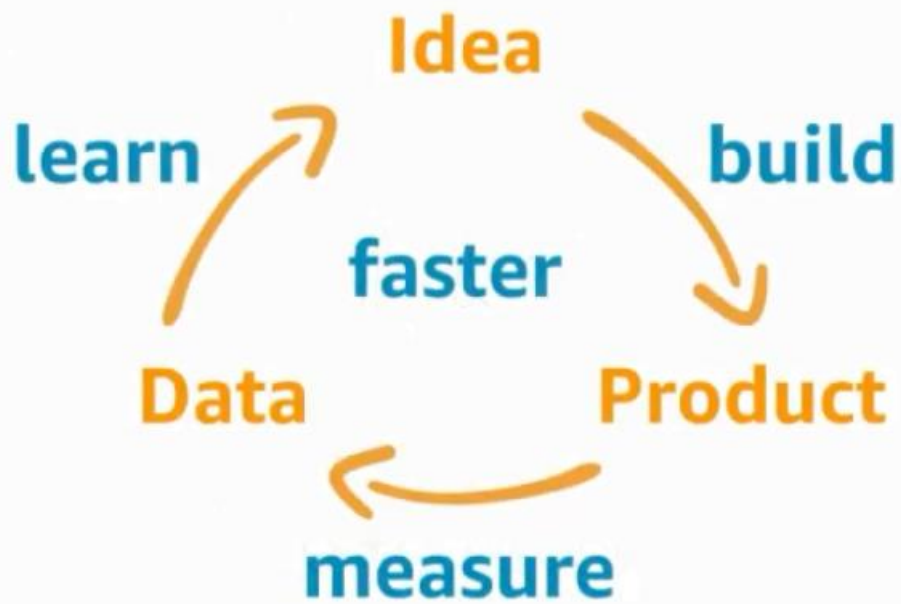
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Your new KPI



Time to revenue



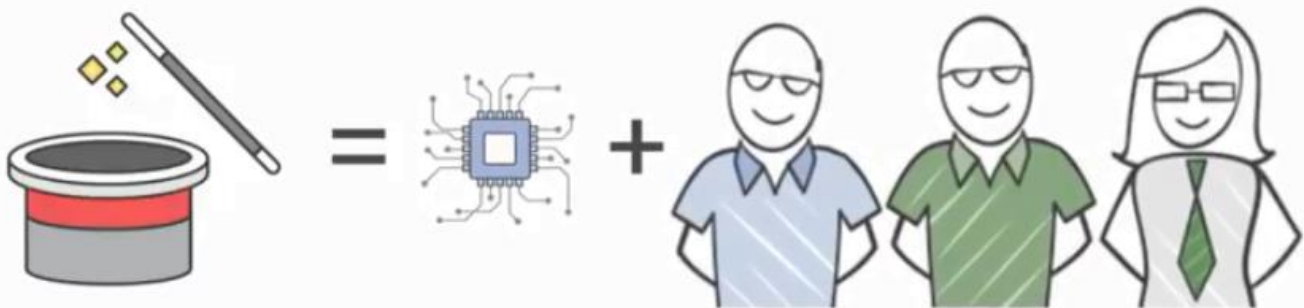
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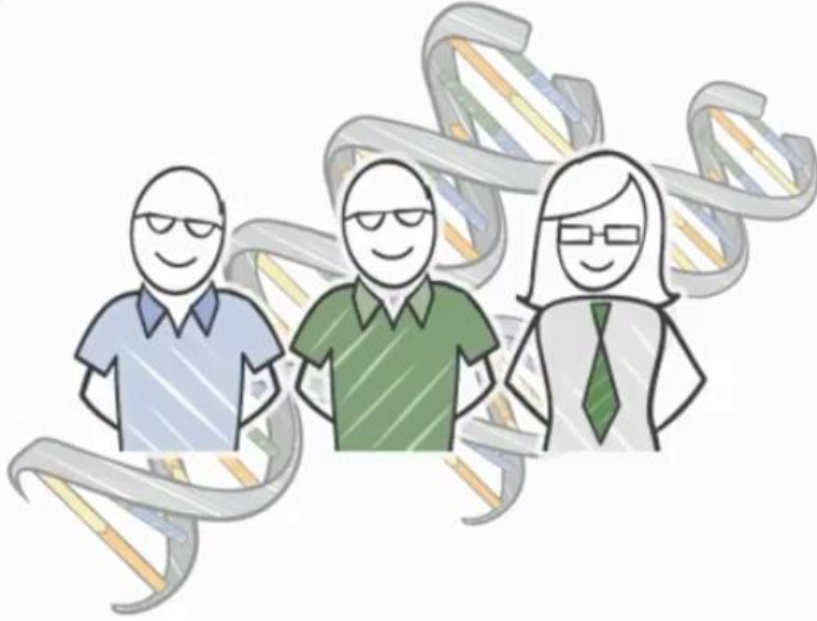


How?

Digital transformation



Culture



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AUTO

SCOUT 24

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2.4 million vehicles



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"HotWheels - '69 Ford Torino Talladega" by Leap Kye, licensed under CC BY-ND 2.0



Largest used car online listing in Europe

ORACLE

Microsoft ASP/.NET

2000 servers



2 data centers

MTBF optimized

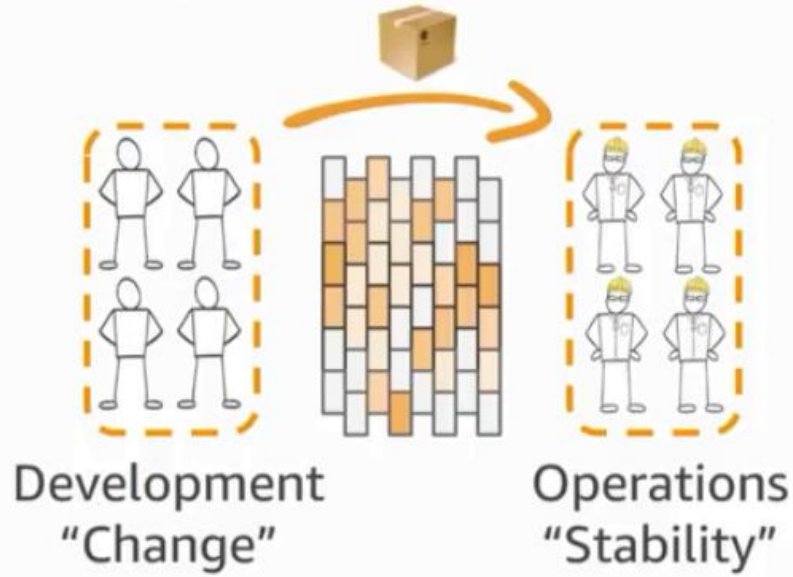
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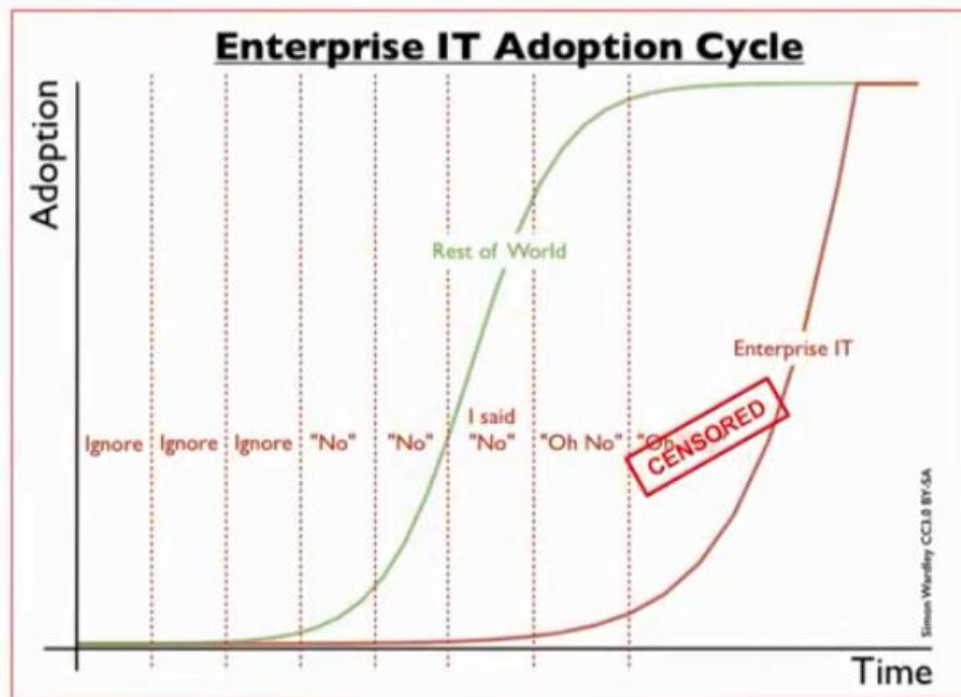
This is our legacy IT platform that we are transforming from at the moment

Dev and ops silos



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New
CEO

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Do you attract

talent?



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What does a 21st century tech company look like?



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.NET/Windows to **JVM/Linux**
Monolith to **microservices**
Data center to **AWS**
Devs + ops to **collaboration culture**
Involve **product** people

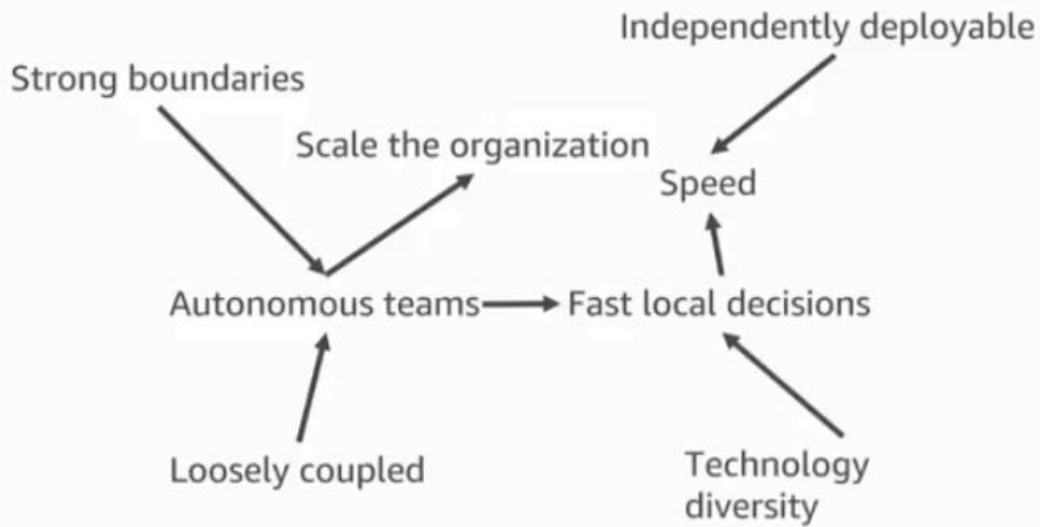


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Why microservices?

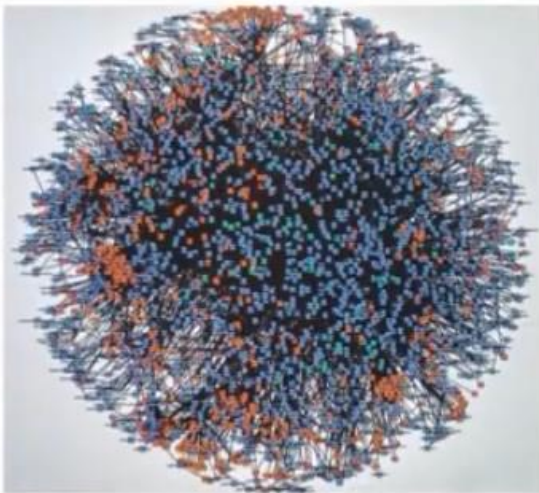


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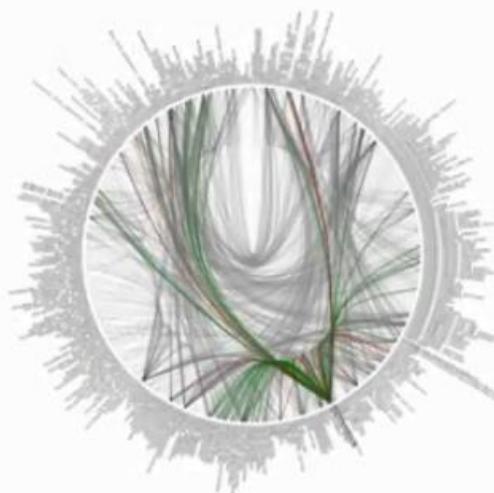
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"Death Star" diagrams



Amazon 2008



Twitter 2013

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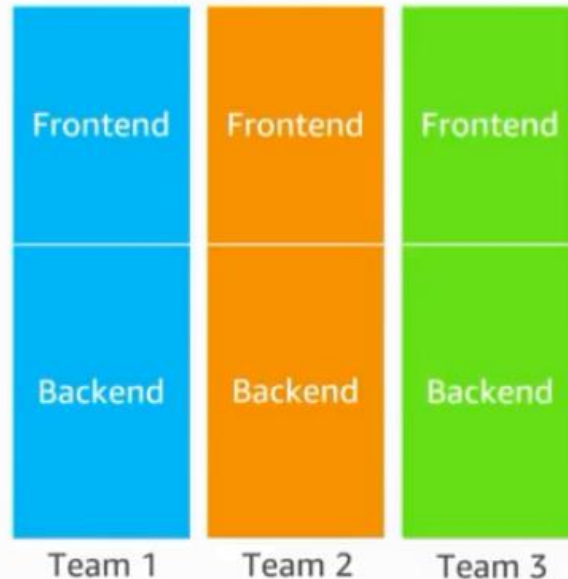
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Self-contained systems = microservices flavor

Self-contained systems are microservices as vertical slices integrated at the UI

One business capability is owned, built, and run by one team



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Same
direction



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STRATEGIC GOALS

Goals of the business side



REDUCE TIME TO MARKET

Establish fast feedback loops to learn, validate, and improve. Remove friction, hand-offs, and undifferentiated work.

SUPPORT DATA-DRIVEN DECISIONS

Provide relevant metrics and data for user and market insights. Validate hypothesis for problems worth solving.

MOBILE FIRST

Start small and use device capabilities.

BEST TALENT

Autonomy, purpose, and mastery: We know why we do things, we decide how to approach them, and we deliberately practice our skills.

COST EFFICIENCY

Run your segment in the right balance of cost and value.

ONE SCOUT IT

Foster collaboration. Harmonize and standardize tools. Pull common capabilities into decoupled platform services.

ARCHITECTURAL PRINCIPLES

High-level principles



ORGANIZED AROUND BUSINESS CAPABILITIES

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

ELIMINATE ACCIDENTAL COMPLEXITY

Strive to keep it simple. Don't over-engineer. Focus on necessary domain complexity.

LOOSELY COUPLED

By default, avoid sharing and tight coupling. No integration database. Don't create the next monolith.

MACRO AND MICRO ARCHITECTURE

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

SECURITY, COMPLIANCE AND DATA PRIVACY

Build with least privilege and data privacy in mind. Know your threat model. Limit blast radius.

AWS FIRST

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

CROSS-FUNCTIONAL TEAMS

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. Fail fast, recover, and learn. Optimize for MTTR, not MTBF.

DATA-DRIVEN/METRIC-DRIVEN

Collect business and operational metrics. Analyze, alert, and act on them.

INFRASTRUCTURE AS CODE

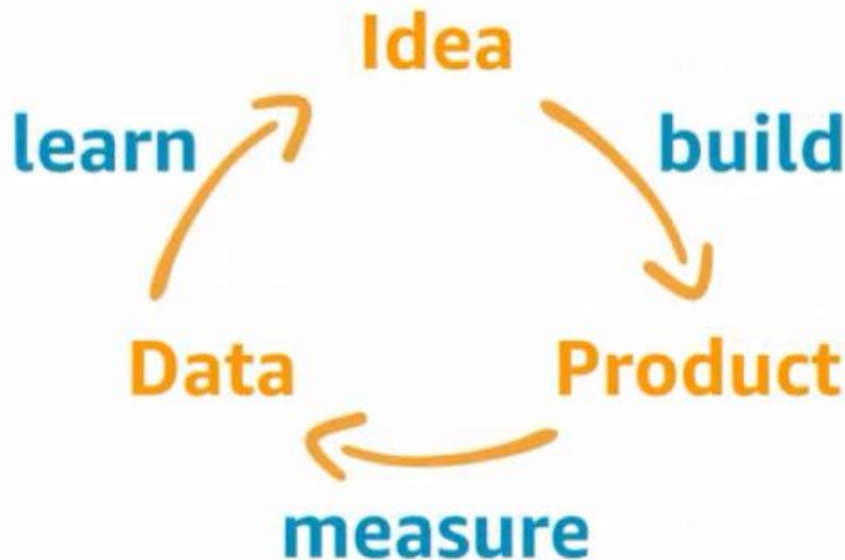
Automate everything: Reproducible, traceable, auditable, and tested. Immutable servers.

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Build-measure-learn feedback loop



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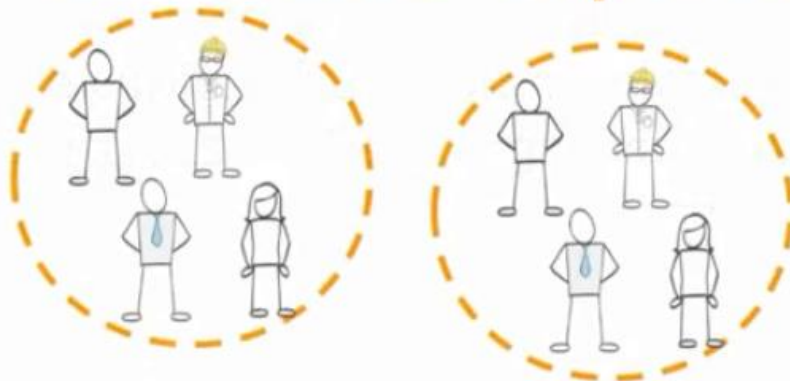


Conway's Law

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

—Melvin Conway

Autonomous teams organized around business capabilities



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Guilds



Self-organizing; common interests; across teams
Macro architecture, infrastructure, front end, QA...
Beware of silos within teams

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Wanderzettel by Sigismund von Dobner

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Continuous delivery



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Delivery pipeline—data center



Application **code** in one repository per service

Deployment **package** as artifact

Deliver package to **servers**

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Delivery pipeline—AWS



Application **code** and **infrastructure** specification in one repository per service

Deployment **package** and **infrastructure** declaration as artifact

1. Create or update service infrastructure
2. New instances pull down package and start application

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No staging environment



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Integrate in production

- Feature toggles
- Consumer-driven contracts
- Canary releases
- Shadow traffic
- Semantic monitoring



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Cattle,
not pets

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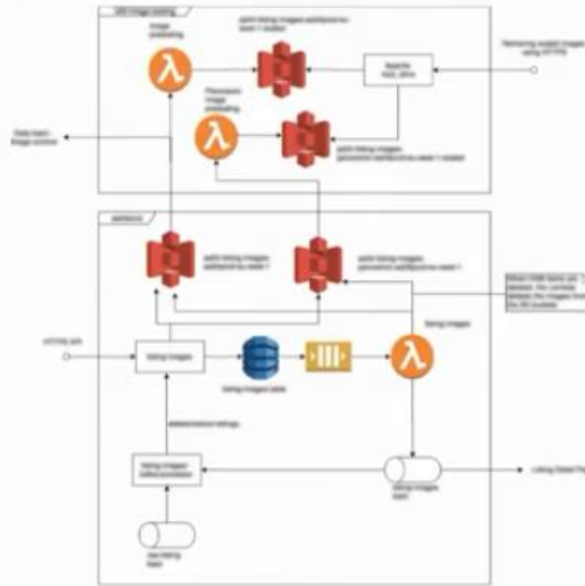
Hamburgers,
not cattle

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Sample service architecture



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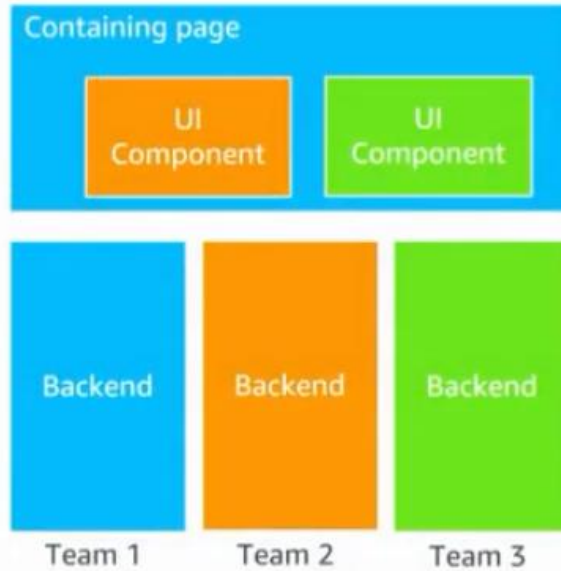
Decoupled UI composition

Containing page owned by one team responsible for core purpose of page and overall experience

Included components owned by autonomous teams



Integration of Self-Contained Systems

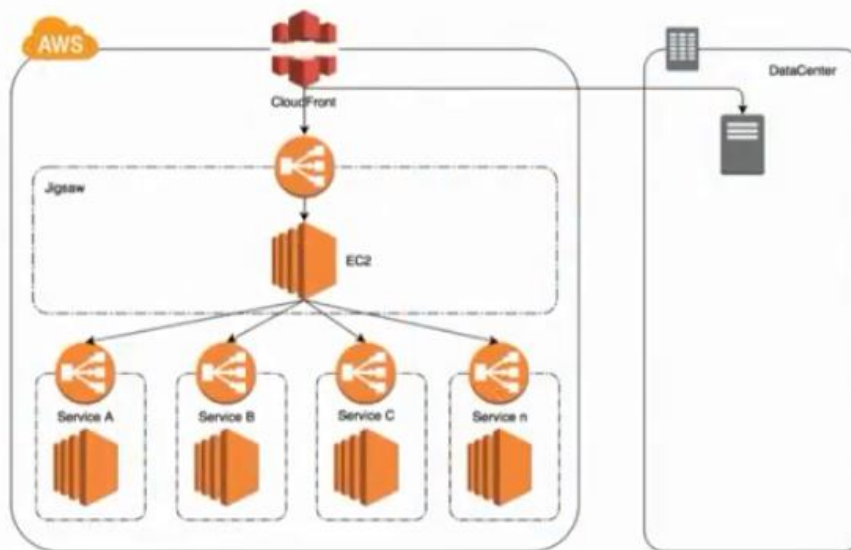


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Hybrid setup

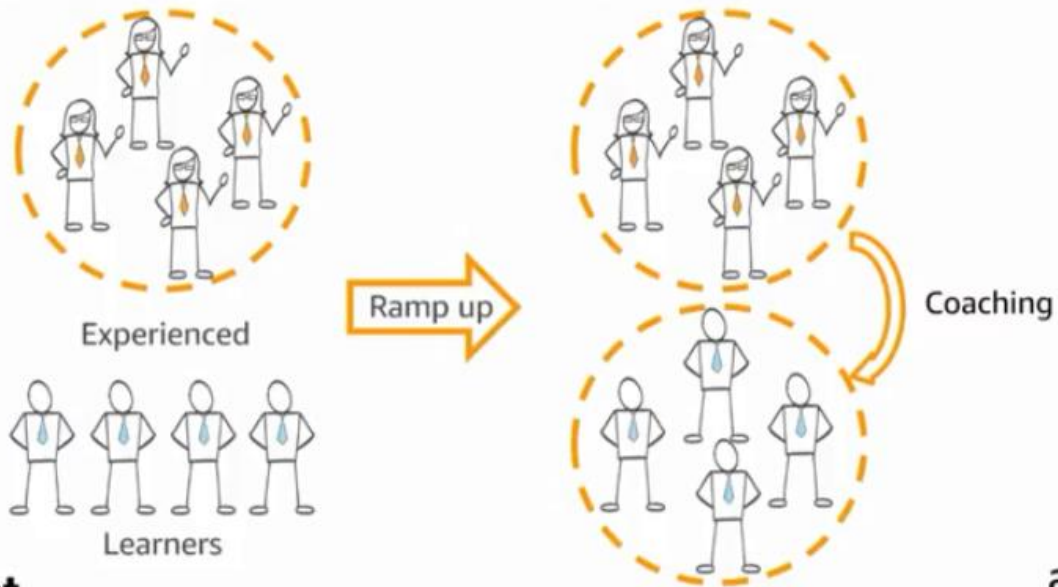


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Learned: Coach, don't split



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Day 1



**"Day 2 is stasis. Followed by irrelevance.
Followed by excruciating, painful decline.
Followed by death. And *that* is why it is
always Day 1."**

—Jeff Bezos, 2016 Letter to Shareholders

<http://www.amazon.com/shareholderletter2016>

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Avoiding "Day 2"

- **True customer obsession**

"...experiment patiently, accept failures, plant seeds, protect saplings, and double down when you see customer delight."

- **Resist proxies**

"The process is not the thing. It's always worth asking, do we own the process or does the process own us?"

- **Embrace external trends**

"If you fight them, you're probably fighting the future. Embrace them and you have a tailwind."

- **High-velocity decision making**

"If you're good at course correcting, being wrong may be less costly than you think, whereas being slow is going to be expensive for sure."



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Day 1 Workshop

- Create your first small, autonomous team

- Business + Dev + Ops
- "Builders"

- Identify your digital assets

- Brainstorm digital business models

- Build, experiment, iterate

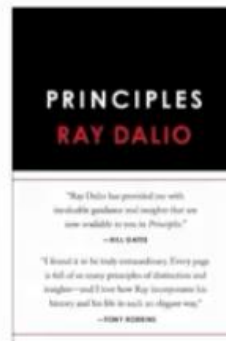
- Celebrate successes, share, coach



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Recommended reading



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Thank you!

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