How SoundCloud scales

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“Youtube for Audio”
Fakten
Fakten

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Fakten

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- Employees (190) - 80 engineers
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- >35 million registered users
- partners (BBC, CNN)
- > 10,000 Apps
How SoundCloud scales
What is the foundation?
What's culture?
Principles
Principles

Top-Down vs. Bottom-Up
Principles

Top-Down vs. Bottom-Up

Trust
Principles

Top-Down vs. Bottom-Up

Trust

How to react to mistakes
Principles

Top-Down vs. Bottom-Up

Trust

How to react to mistakes

Continuous Improvement
Principles

Top-Down vs. Bottom-Up

Trust

How to react to mistakes

Continuous Improvement

Innovation
Top-Down vs. Bottom-Up

• Flat Hierarchies? Everybody has them...

• Engineering teams responsible for architecture (not architecture teams)

• Influence on the product
Trust

- Deployment
- Change Management
- Process
- Time for “technical debt”
Reaction to mistakes

- What will be changed if a mistake happens?
Innovation

• R&D Department?
• Only Product?
SoundCloud’s basic principles
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• No dedicated QA roles
SoundCloud’s basic principles

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• “You build it - you run it”
SoundCloud’s basic principles

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• Team Building (Rotation, constant changes)
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SoundCloud’s basic principles

• No dedicated QA roles
• “You build it - you run it”
• Team Building (Rotation, constant changes)
• Hacker Time
• Continuous Improvement
• Move fast and break things
No QA

Does that mean we don’t test?
“You build it - you run it”
Flat Hierarchy
Innovation

Hacker Time
Continuous Improvement
Retrospectives
Post Mortems (Projekte)
Mistakes...
Scrum? Kanban? Process?
What is the most important thing you have to do so that this works?
Initial Culture
Initial Culture

Hiring!!!
SoundCloud Hiring Process
How does it look like in reality?
Organisation
How do we structure teams?

cross functional?
Do teams stay the same?

Change!
Technology
Ruby/Scala/Go/Clojure/ Javascript
Scale Horizontally/Vertically?
Rails -> Mysql

RabbitMQ -> Cassandra

http://backstage.soundcloud.com/2012/08/evolution-of-soundclouds-architecture/
MySQL

- 7 Master, 9 slaves, 900GB data
- Additional slaves in EC2
- Master Peak is 15K IOPS writes, 45k reads
- one slave lags intentionally 1 hour behind
- Je nach Konsistenzanforderung wird Slave oder Master gewählt (für reads - unterstützt read-only mode)
Cassandra

- 3 Cluster
- 88 Nodes
- 15 TB of data
- up to 70K reads/sec
Hadoop
Elastic Search
Proprietary Spam Detection
ElasticSearch

80 Mio Docs (gaining 1 Mio every 6 days)

175 QPS (gaining 15 QPS every month)
Hosted in S3/EC2 and physical DCs
Outages
Post Mortems
Summary

• Move fast and break things

• Don’t get slow because you fear to make mistakes
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www.soundcloud.com/jobs