


Availability Objectives of SoundCloud's Microservices

Bora Tunca





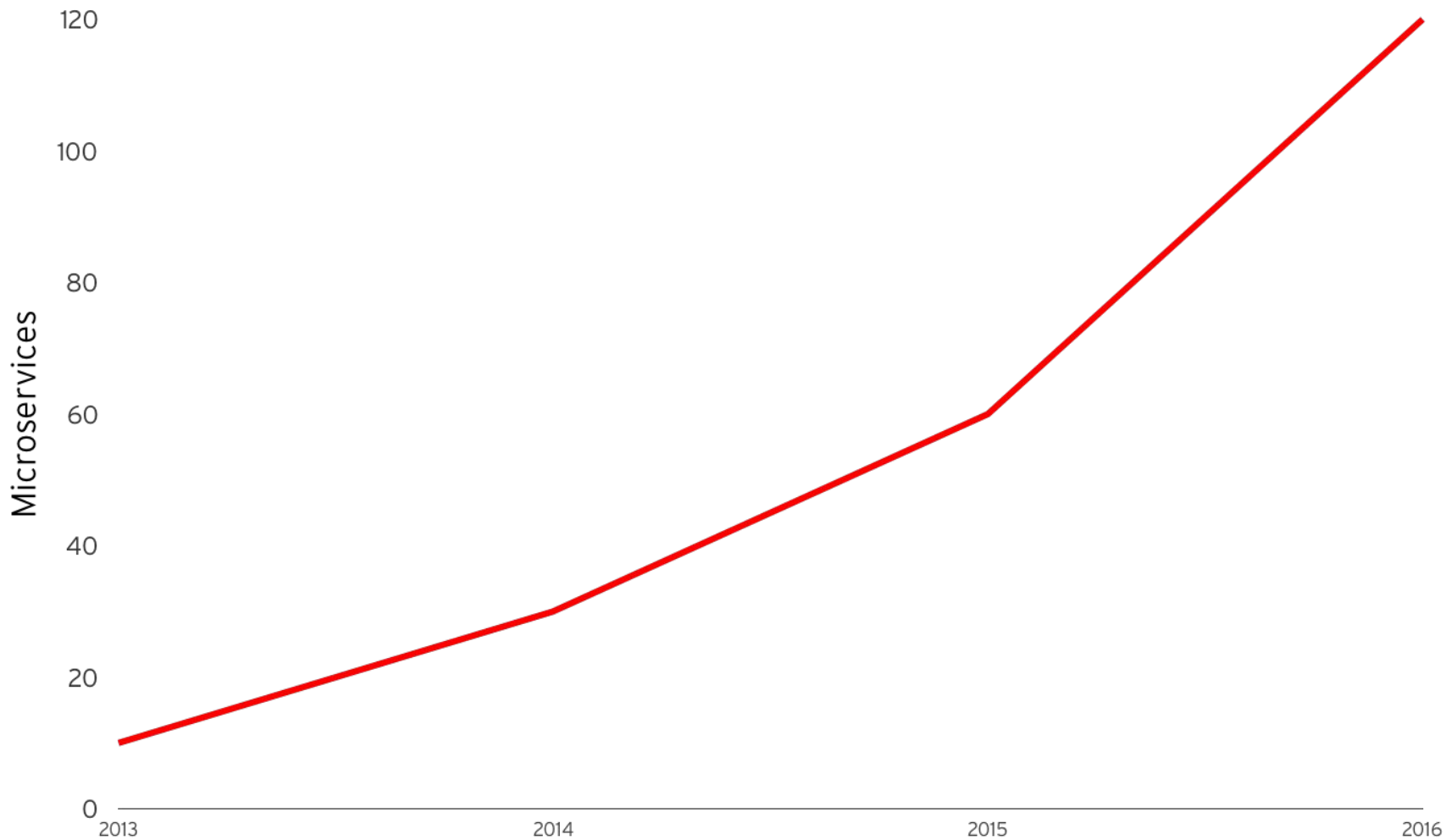
SoundCloud is the largest
online audio distribution
platform

Bora Tunca

@grandbora

- Backend developer
- @SoundCloud ~3 years
- Core engineering

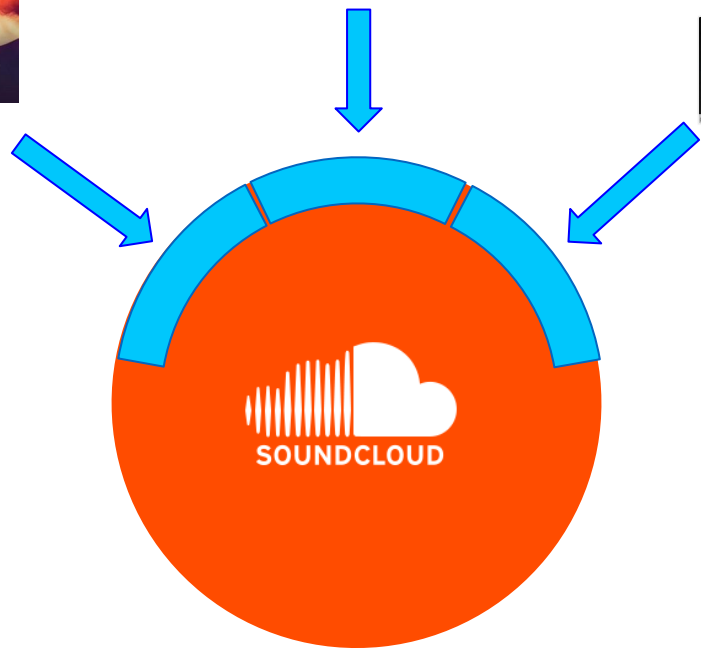
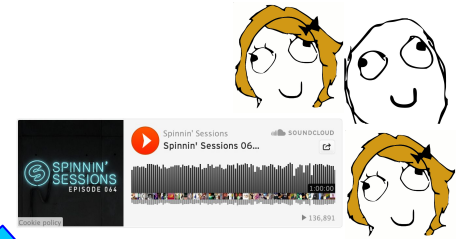
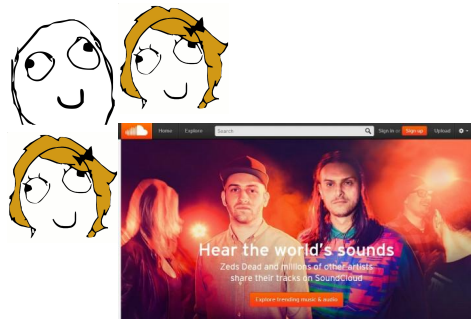
Microservices



~140 services

~140 engineers

How do we improve
availability
in a microservices architecture?







Monstercat  @Monstercat  

@ShorneMarkley @SoundCloud Seriously WTF. Broke 700+ descriptions...

prizmo @pr_zmo  


why the fuck is soundcloud broken

ARCZEN     @ArcienMusic  





Week 3: Either my music really sucks ass or soundcloud's stats are still broken as fuck.

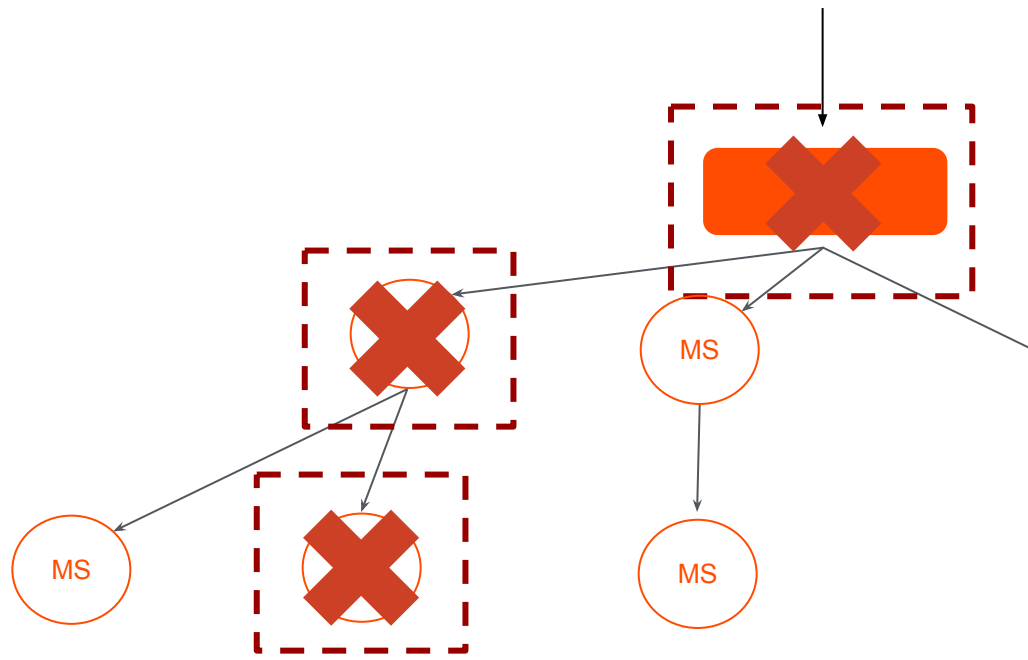
(THIRTY) @ExMCMXCIV  

Kanye broke Soundcloud wtf

RETWEET 1 LIKE 1 

10:07 AM - 8 Jan 2016

  1  1 



Post Mortem Meetings

help us spot “risky” services

Service Level Objectives

define an availability objective for each microservice

*If the availability of a service
drops below its objective,
we raise the red flag.*

Service Level Objectives

- SLO infrastructure
- Usage analyses

A group of people at a party or club. The scene is lit with vibrant red and blue lights, creating a hazy, energetic atmosphere. In the foreground, a man with a beard and a black cap looks directly at the camera. To his right, a man with long hair and a colorful patterned shirt also looks forward. In the background, another man with glasses and a black cap is smiling and looking to the right. The overall mood is social and lively.

SLO Infrastructure

Availability

- Error Rate Threshold
- Latency Threshold 99th percentile

SLO Parameters

SLO_ERROR_RATE_THRESHOLD=0.0001

SLO_LATENCY_P99_THRESHOLD_SECONDS=0.500

SLO_AVAILABILITY_TARGET=0.99999

SLO Metrics

- TotalTransactions
- FailedTransactions
- SlowTransactions

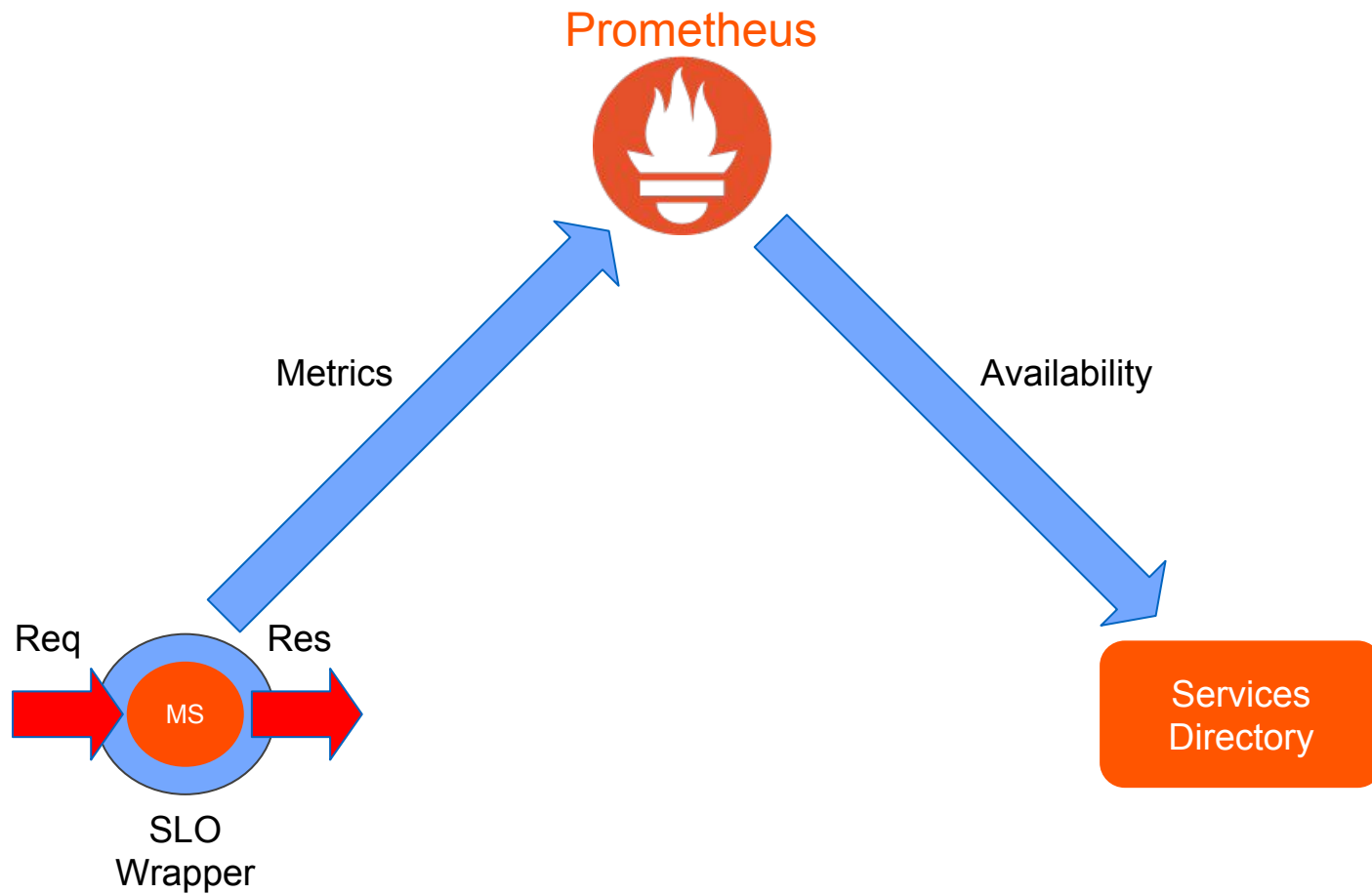
Availability

$(\text{FailedTransactions} / \text{TotalTransactions}) < \text{error rate threshold}$

&&

$(\text{SlowTransactions} / \text{TotalTransactions}) < 0.01$

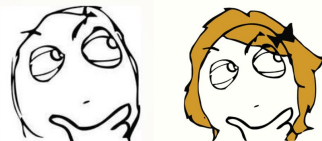
99th percentile



SoundCloud - Services

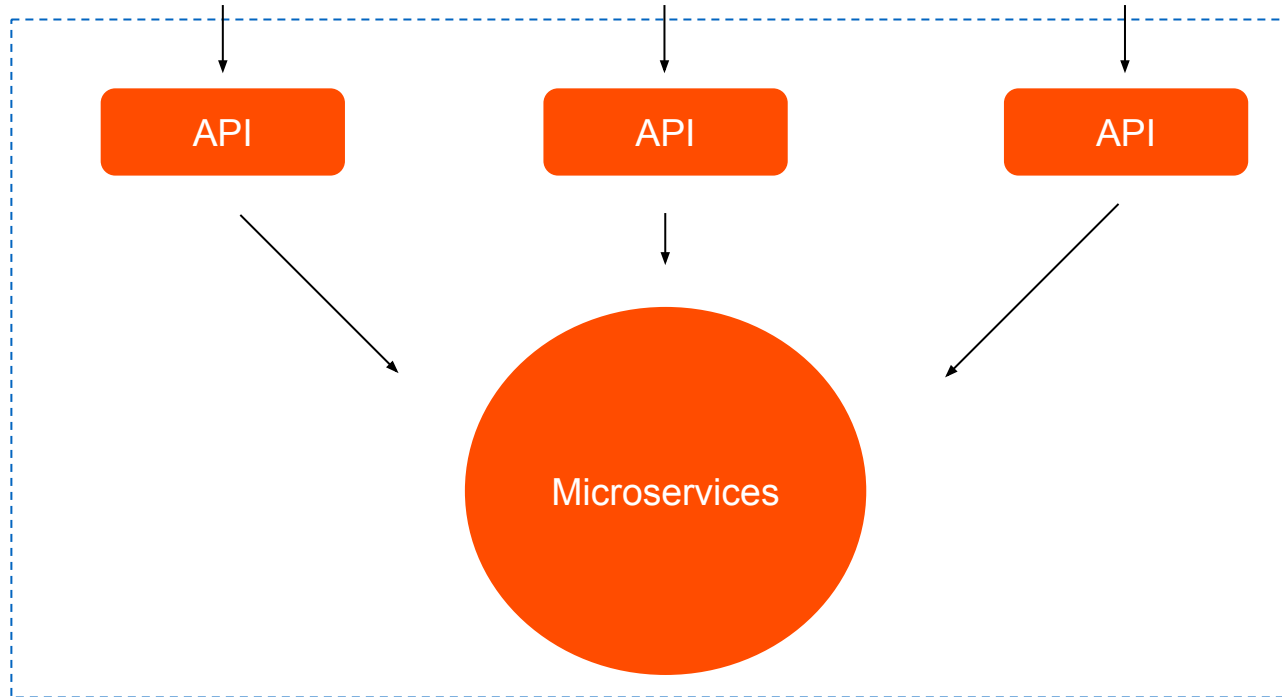
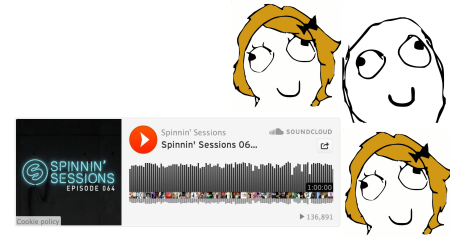
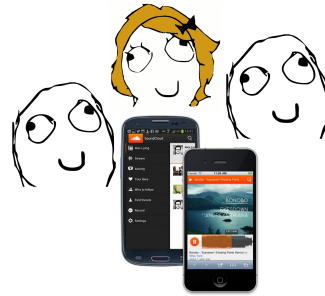
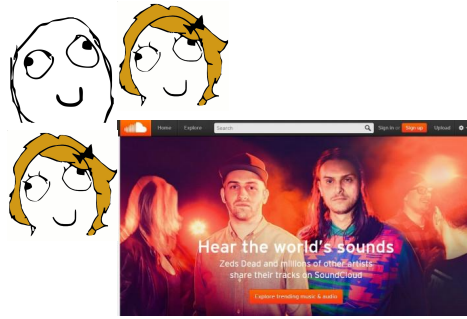
Last updated at 2016-6-27 21:25.

Name	Description	Owner	Availability
widget	⚠	web	99.937%
developers	⚠	web	100%
sc-rollout		core-services	100%
v2	⚠	web	99.920%
notifications	⚠	user-retention	87.913%
search-suggest	⚠	search	99.152%
payments-reports	⚠	payments	99.208%
discovery-ranking	⚠	discovery	99.940%





Usage Analyses



Edge

API

API

API

Value
Added

MS

MS

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Data

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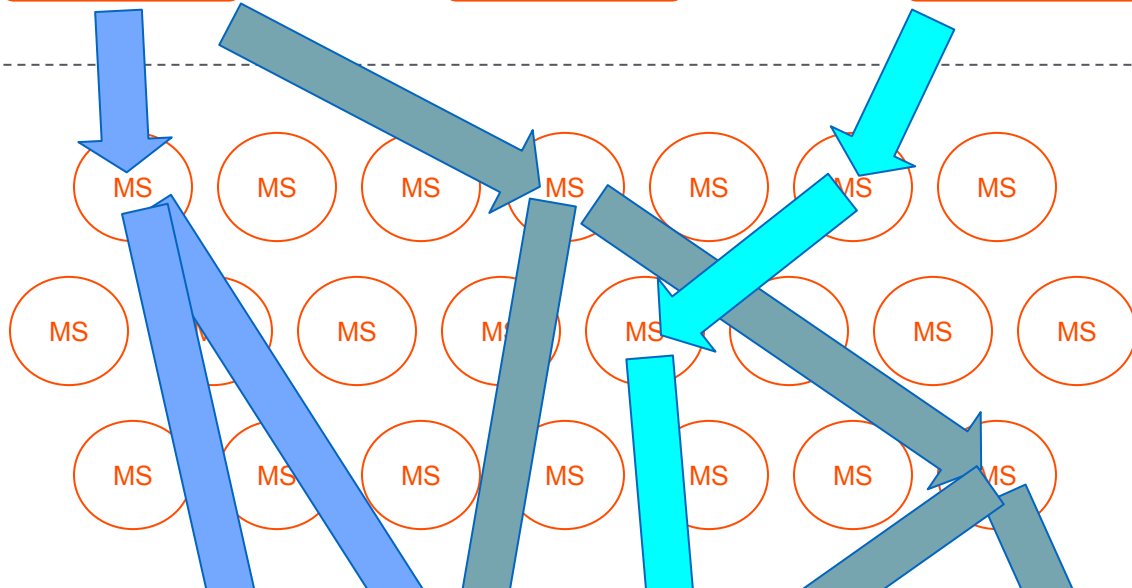
MS

MS

Edge



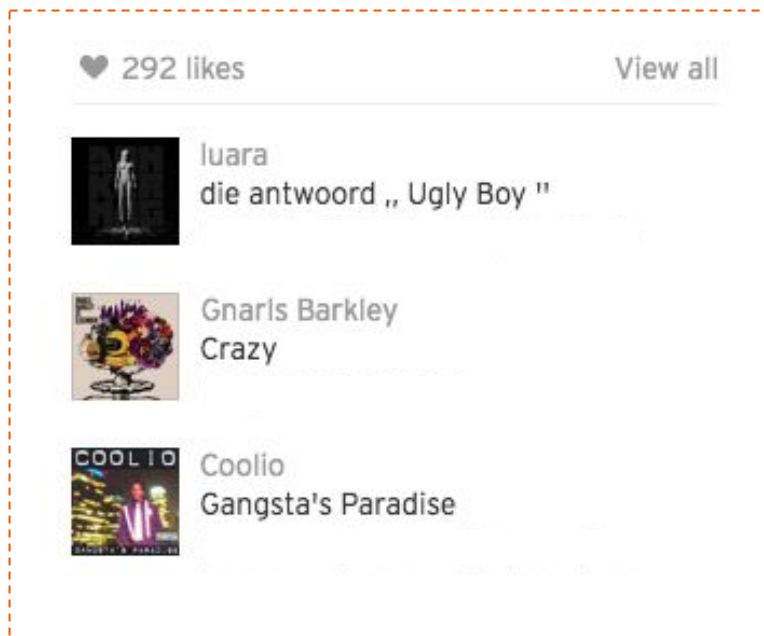
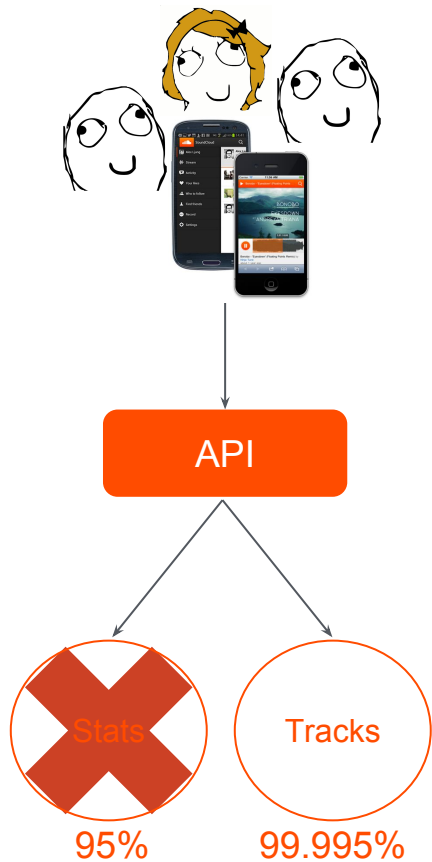
Value Added



Data



Graceful Degradation



A vibrant concert scene with a crowd of people in the foreground, their silhouettes raised in various gestures. The background is filled with bright stage lights and a thick haze of smoke or fog, creating a dynamic and energetic atmosphere. The word "Learnings" is overlaid in the center in a bold, orange, italicized font.

Learnings

- Without a formal process identifying risky services is hard
- Don't over-engineer your services
- Let the **data** guide your engineering decisions



THANK YOU

bora@soundcloud.com