



Distributed Systems

Jon Åslund

@jooon

Who am I?

Jon Åslund



Computer Science



Shakespeare Programming Language

Joined Spotify Autumn 2006

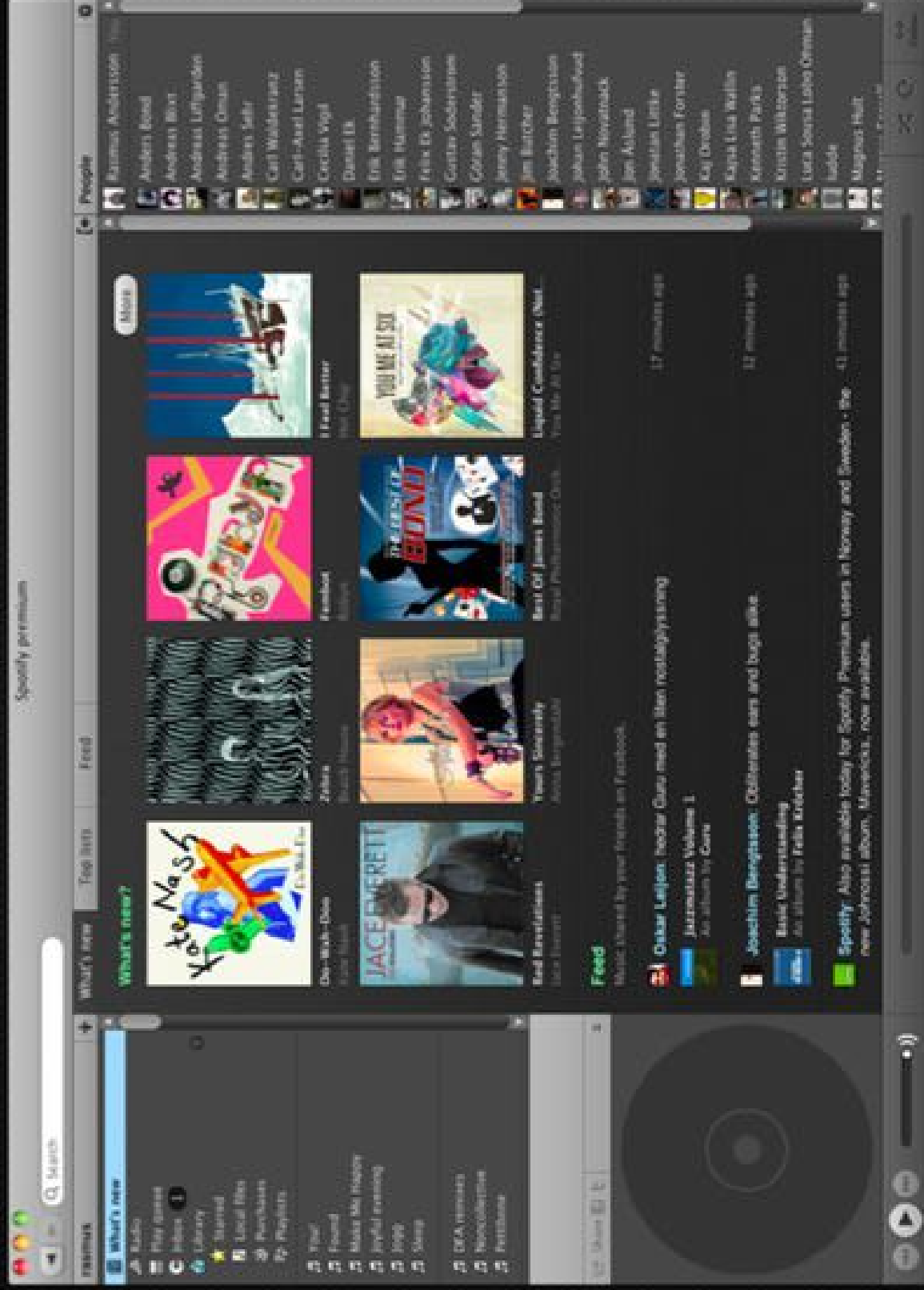
April 2006
the idea



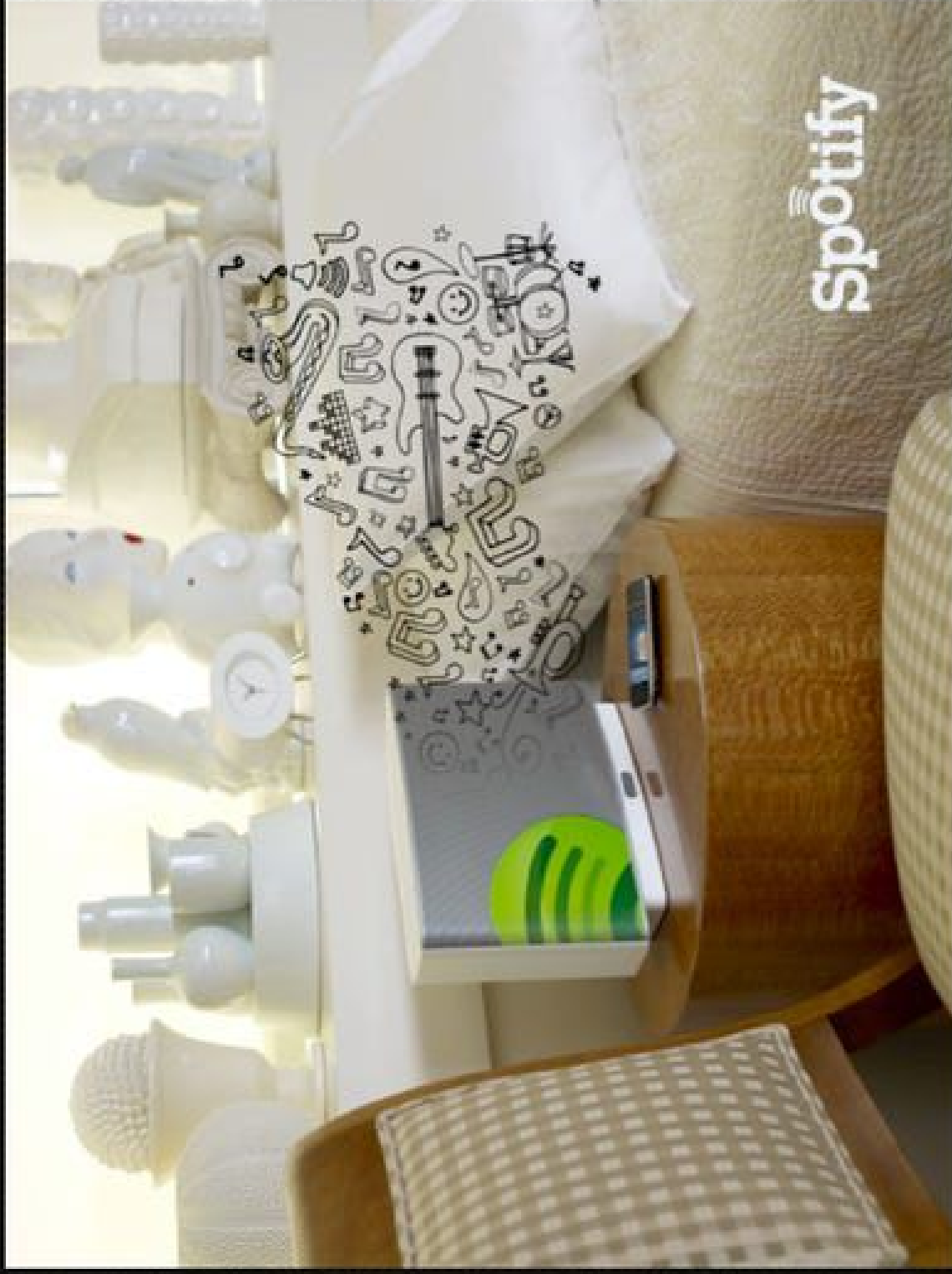


*“music itself is going to become
like running water or electricity”*

David Bowie, 2002









Spotify Box – Jordi Parra @zenona

February 2012

10+ million users
(active within previous 30 days)

15+ million tracks

500+ million playlists

1000+ servers
in 3 countries

Spotify is a distributed system

Fast
<200ms

Always working



How do you accomplish that?

Cheat
as much as possible

Fast vs Feels fast

Always working
vs
Pretend there is
nothing wrong

Build to fail

Redundancy

(talk about waffles)

Error recovery

Don't forget to test
your recovery code

Fire drill: Cut the atlantic cable

Netflix Chaos Monkey

“On January 15, 1990,
AT&T’s long-distance
telephone switching system
crashed.”

Isolation

Getting the right tool for the job



500

11/11/2025 - 11/11/2025

150

2.13 - X

15



BIBLIOGRAPHY

14

100

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- 0178151

113

Letter 8 file

SPELLISTA

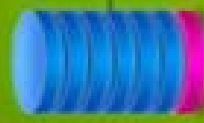
WE R

REF: U4M

Безопасность / Мы за

Off Site

Metadata



Site

Search



Browse



User



Production Storage



Playlist



AP



Master Storage



HTTP

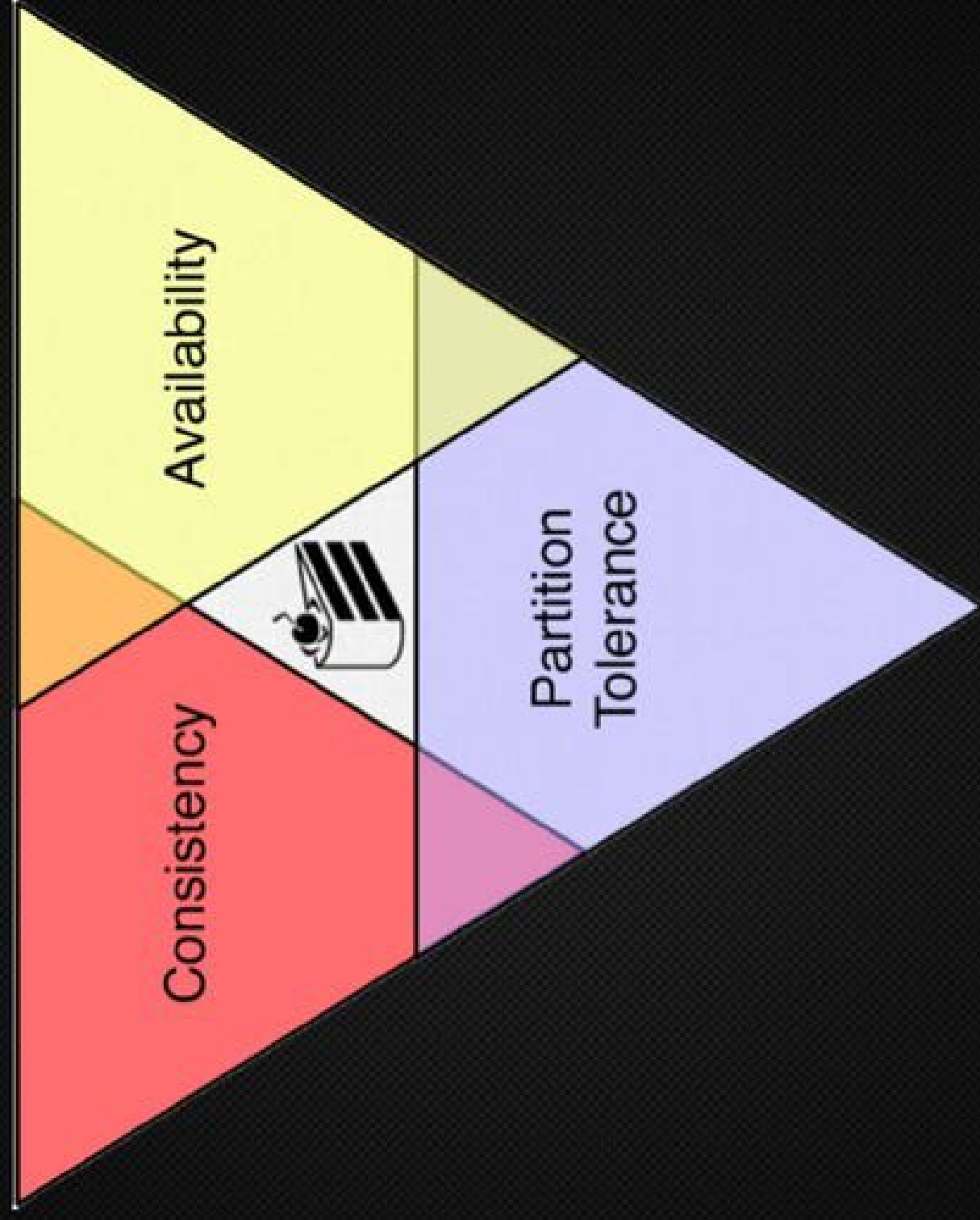
Spotify Protocol



TopPit Spotify Deck

Consistency Availability Partition tolerance

<http://ksat.me/a-plain-english-introduction-to-cap-theorem/>

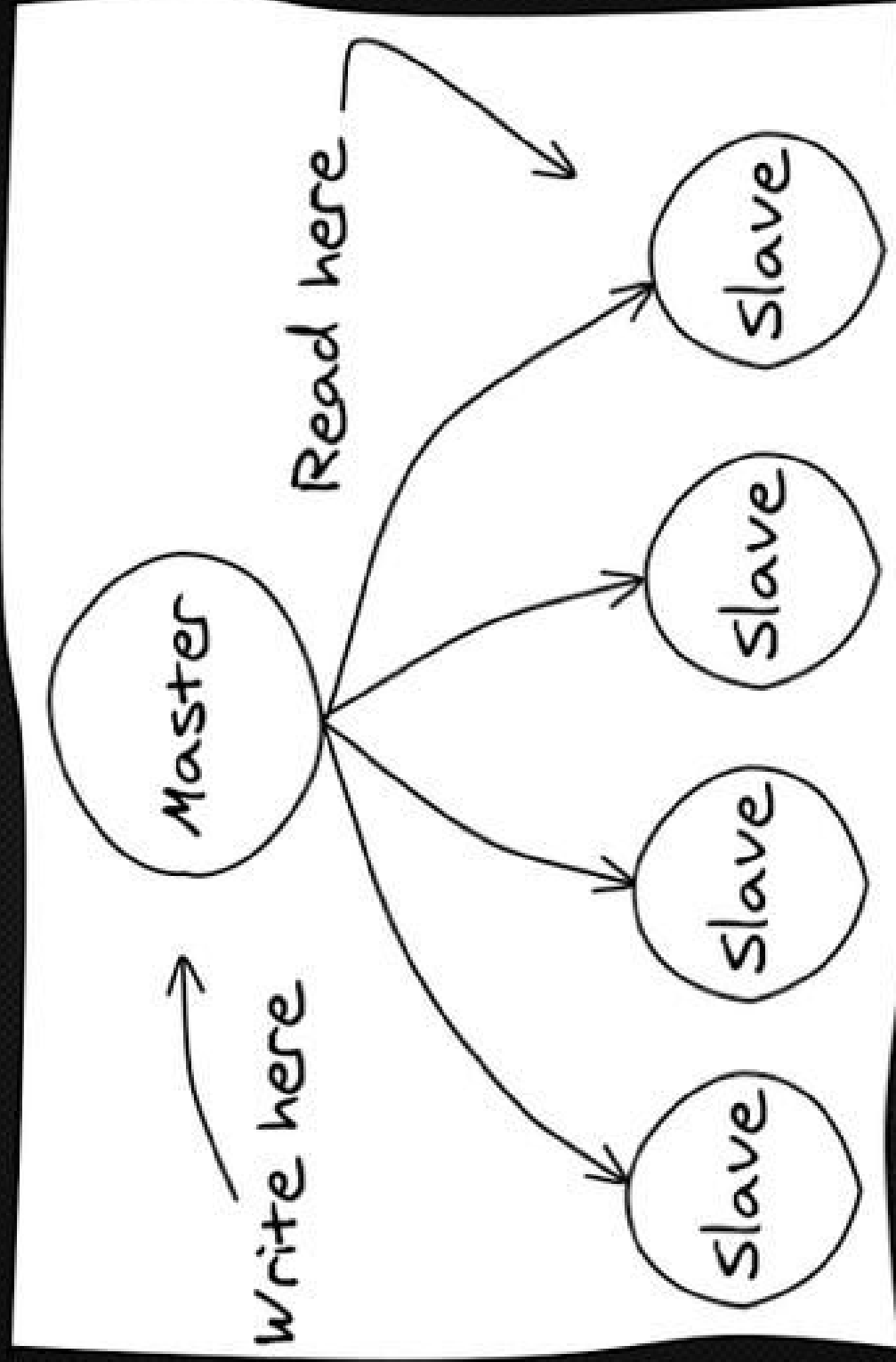


user

user

PostgreSQL

user



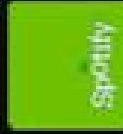
search

search

Lucene index in memory

search

replaced daily



search

read only

search

scales horizontally

search

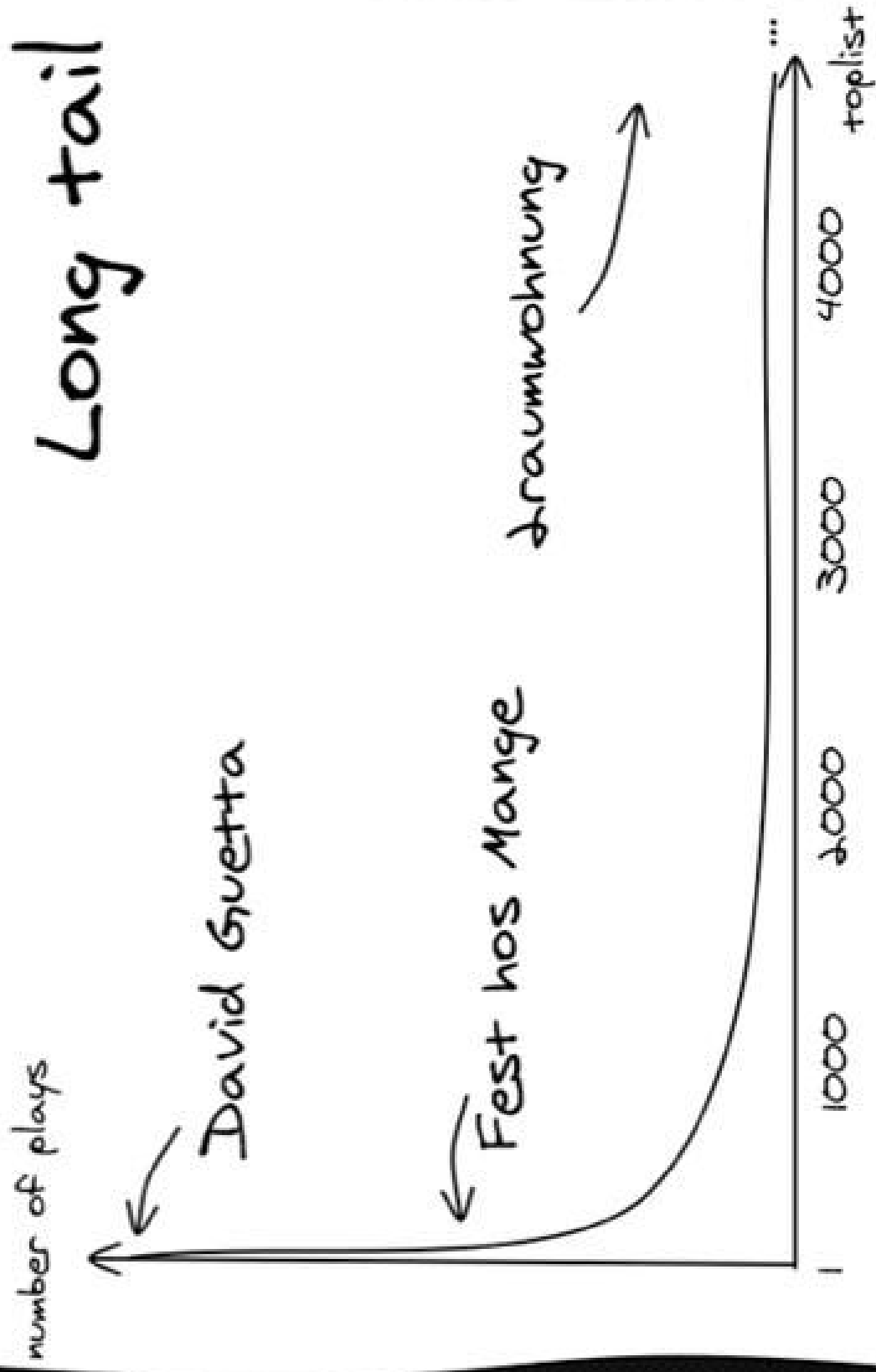
sort of

search

How do you replace an
index in memory when
you are using all of it?

storage

storage



storage

lru cache in nginx

storage

better use of memory
with sharding

Storage



storage

consistent hashing

playlist

playlist

cassandra



playlist

structured key-value
store

playlist

high throughput

playlist

choose redundancy and consistency level

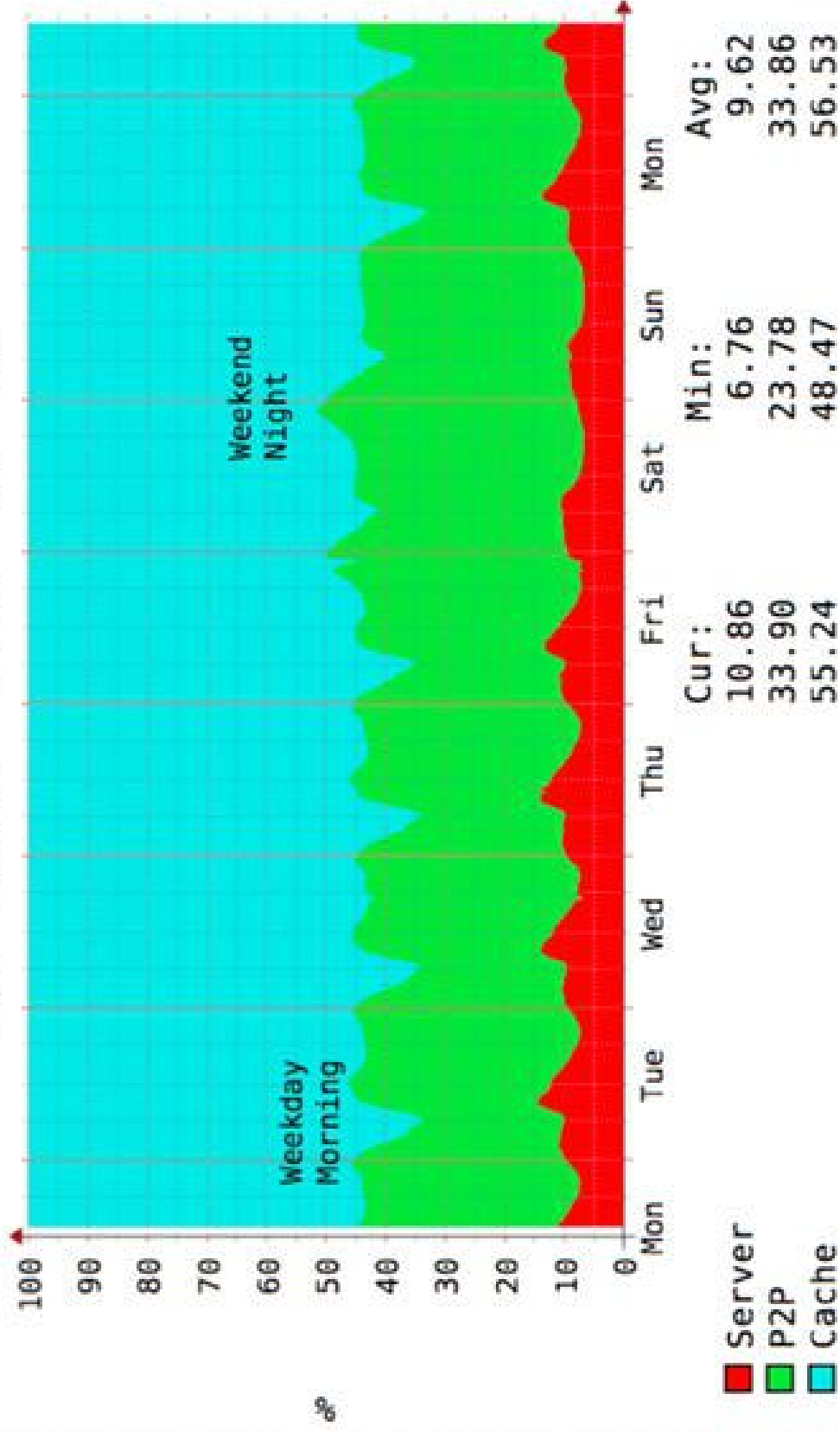
playlist

datacentre aware



p2p

Data source - ratio - by week



thank you

Master Thesis?

Yes, please!

or come and work for us

Oh, and
we have
cake as
well! :D

spotify.com/jobs

