# Wunderlist

## Being a Data Janitor for 10m+ Users

Tips and Tools from the Trenches

Daniel Molnar, 6Wunderkinder GmbH

# Who we are?

6Wunderkinder makes Wunderlist in Berlin

- Productivity app on iPhone, iPad, Mac, Android, Windows, Kindle Fire and the Web
- 13+ million users, 5 years, headcount of 67
- From monolithic Rails to polyglot microservices (Scala, Clojure, Go) heavy on AWS

# Data Team

Tightly-knit team of all-rounders

**Torsten Becker**

Infrastructure

BI + ML

**Jenny Herald**

BI + UX

Finance

**Faludi Bence**

Infrastructure

BI + ML

**Molnár Dániel**

Infrastructure

BI + ML

# Data Stack Philosophy

I Was Made For Lovin' You

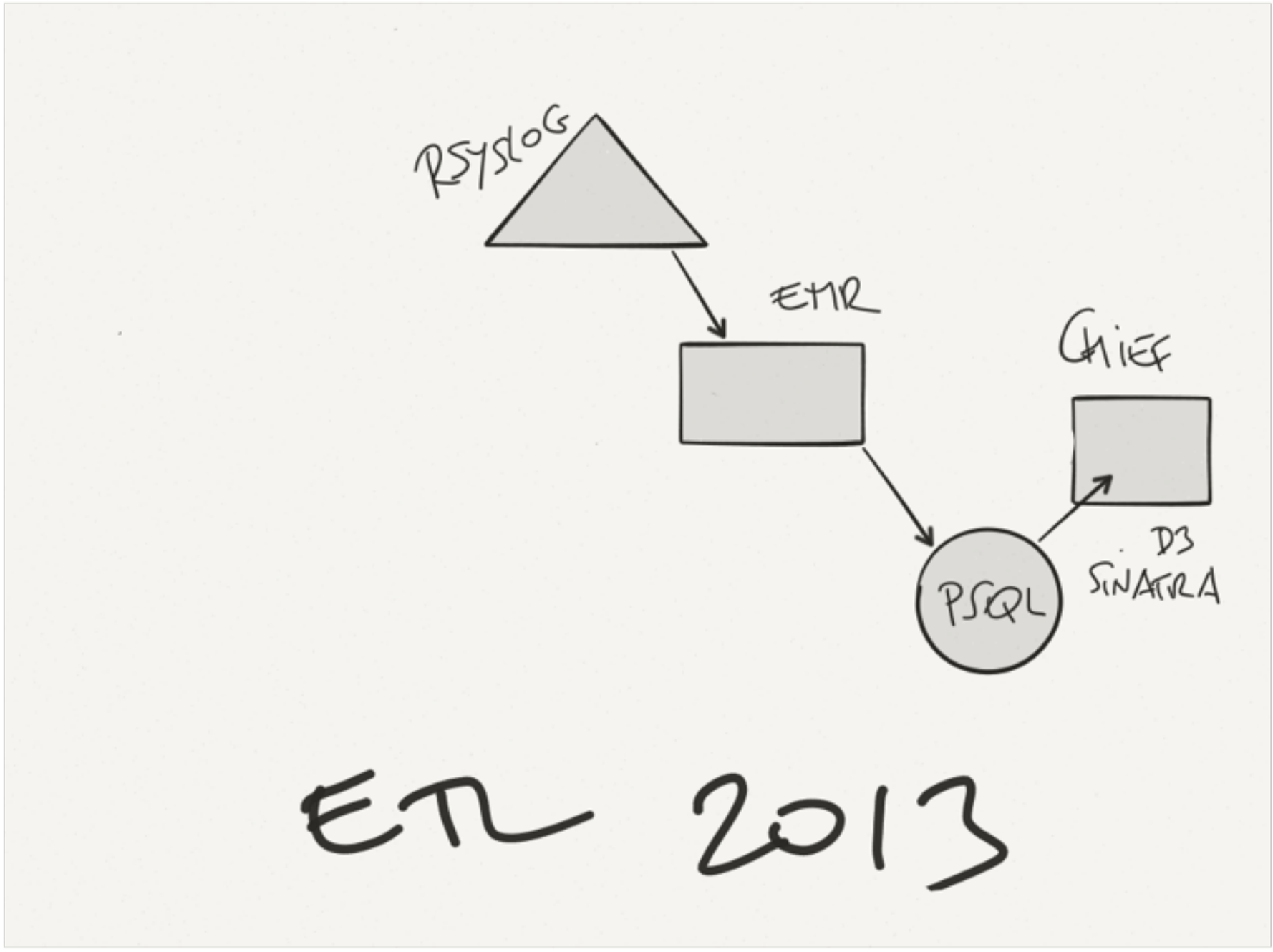
- Closet clean
- Borges' Labyrinths
- Backwards straight
- Data mythology
- Self service

# Unix + cronjob + make + SQL

Choose Boring Technology

# How It Started?

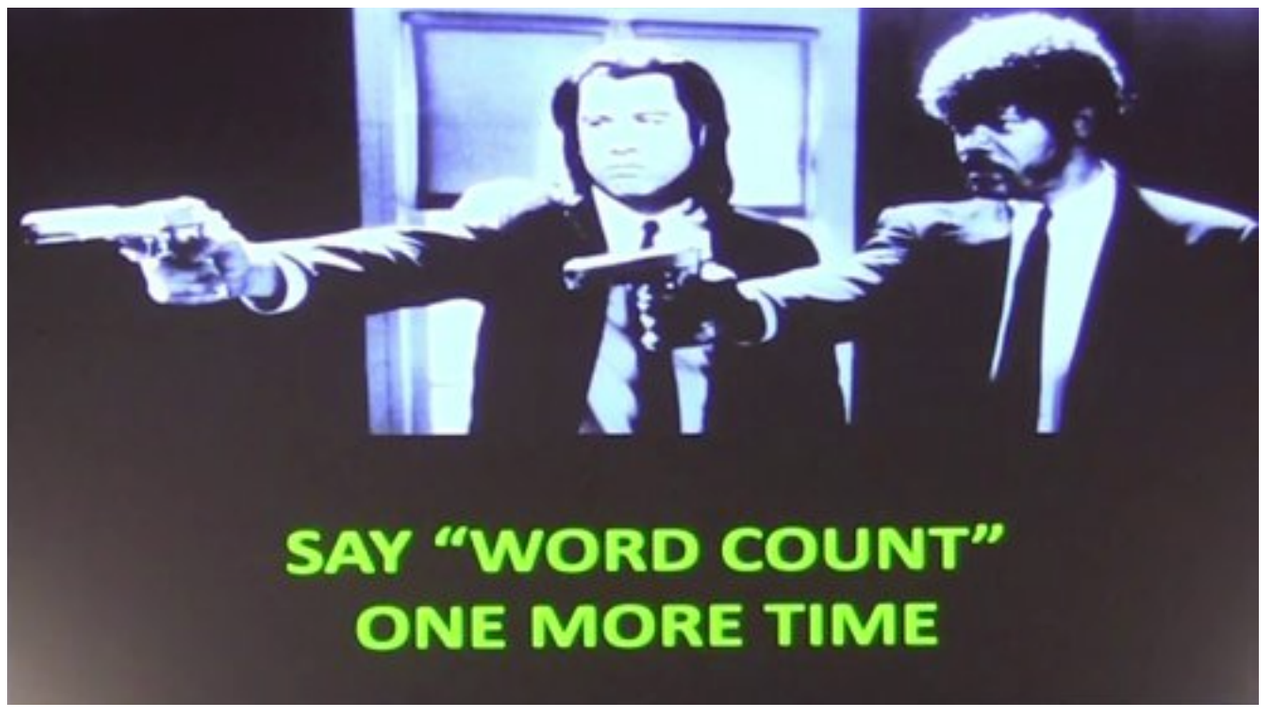
Mapreduce My Heart



# Logging

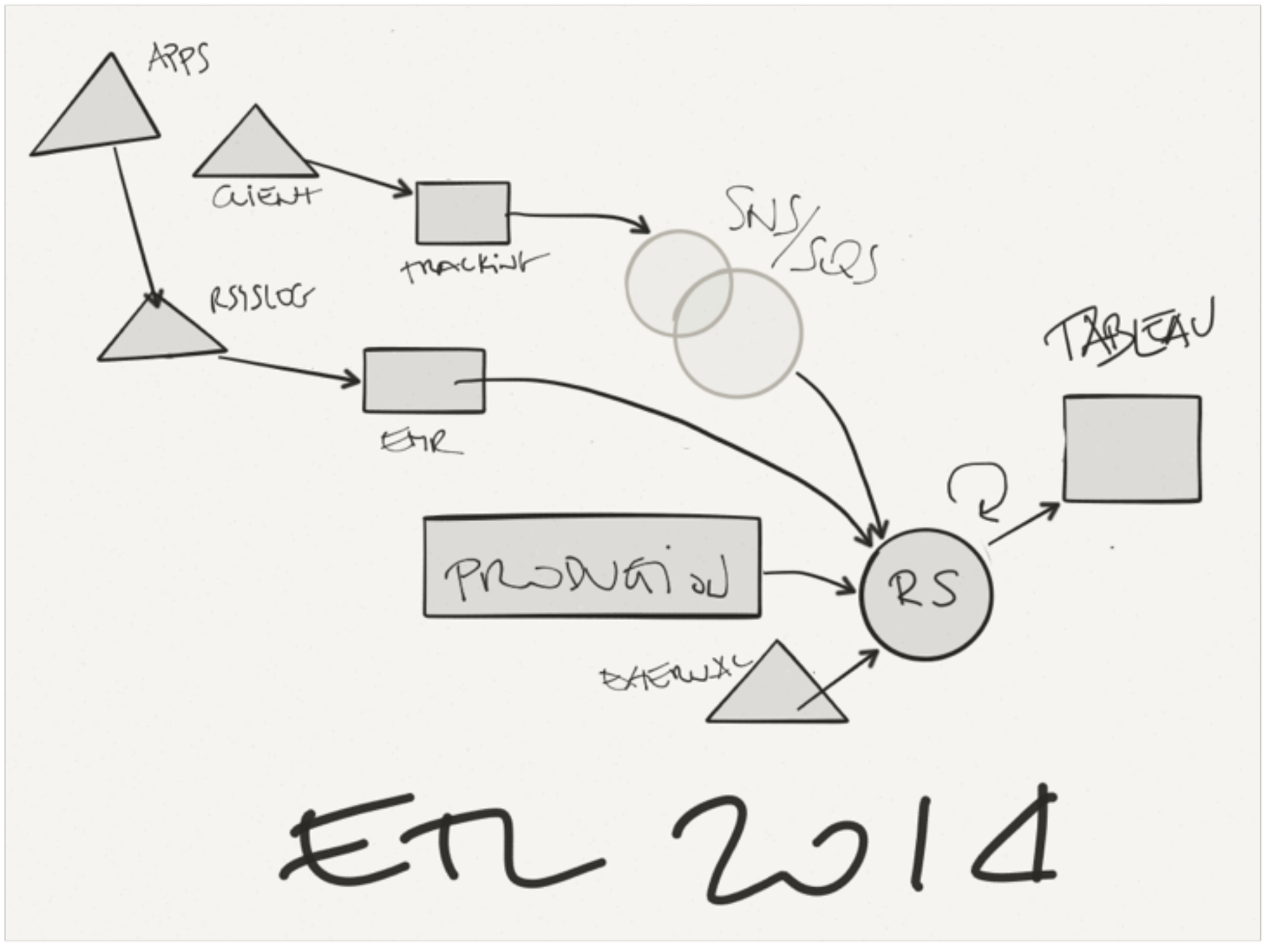
Say “Google Analytics” one more time

- No to: GA (no raw, no attribution, sampling, off by X%), Kinesis, Snowplow
- Tools: Railslog, Noxy, homebred tracker, Adjust
- Mr Beaver (EMR job in Scala)
- Tracker in node.js > SNS > SQS
- 63 TB logs + 9 TB dumps
- Logging distributed systems is MEH (Monitorama PDX 2014 James Mickens)



# Getting into Gear

Already Too Many Lines



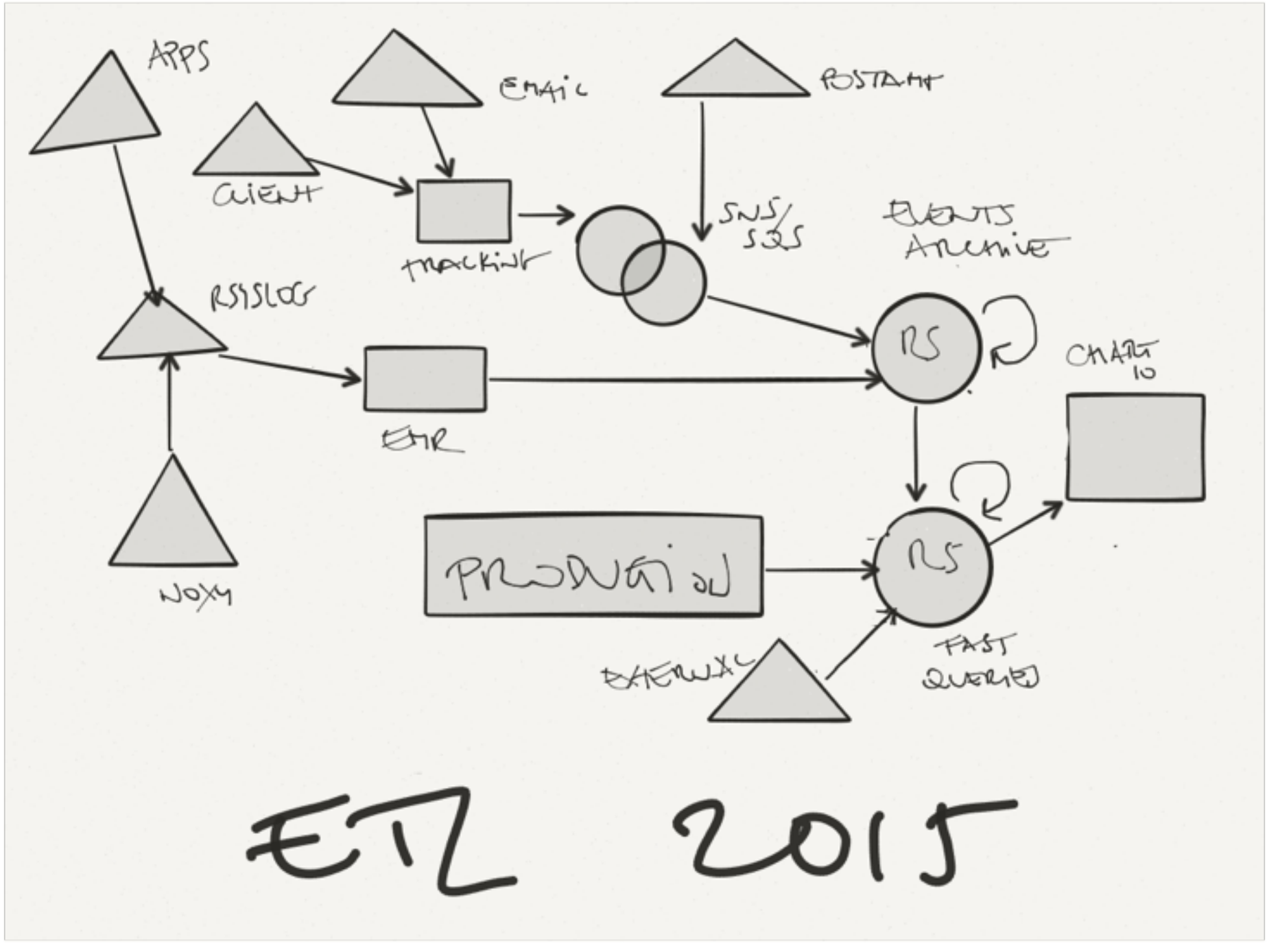
# ETL

Don’t Forget My Plumber

- No to: Amazon Data Flow, Oozie, Luigi
- Nightly cronjob + make + 240 ETL SQLs
- 41 sources (events, production DBs, App Annie, Mailchimp, payment providers, Maxmind)
- Inject variables and logic into SQL with ERB
- Timing with a bash wrapper

# State of the Union

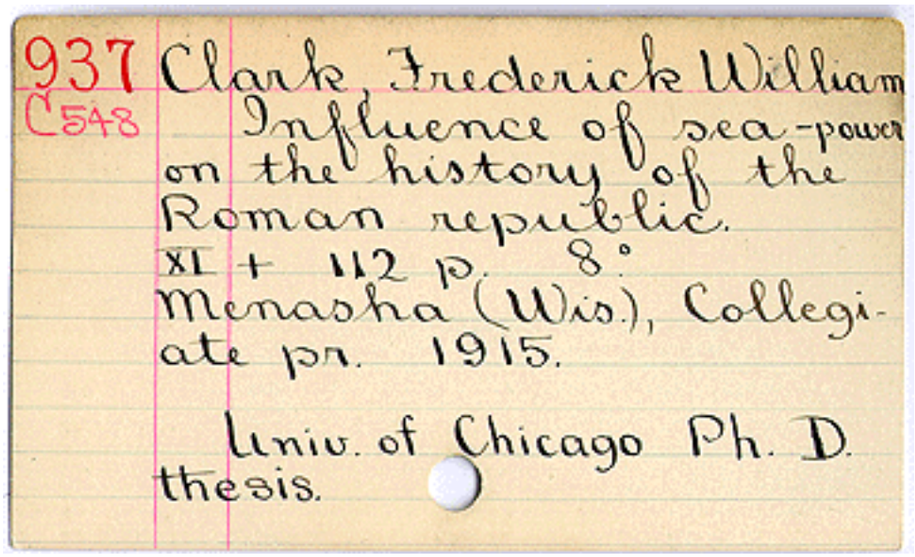
Mysterious Arrows All Around



# Datawarehouse

Drop That Table Like It's Hot

- No to: Hadoop, Hive, Impala
- Tools: (PSQL) Redshift
- Barebone DW, JSON, window functions
  + crack (superfast, cheap)
    - GUI, support, reboots
- Don't join, filter - no starschema
- 32 small SSDs to
  5 small HDs (cold) + 16 small SSDs (hot)
- 4 TB in 280 tables
- 'real' schema



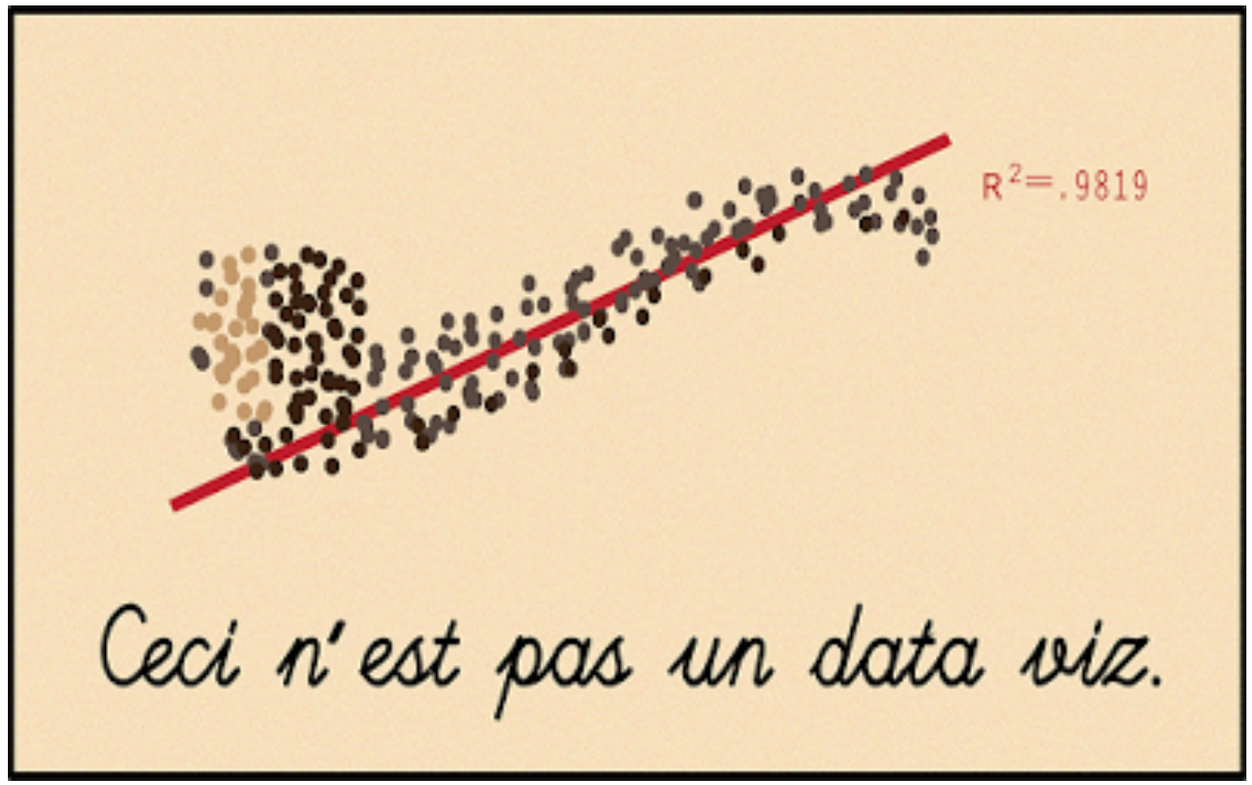
# Reporting and Datavis

"If you go micro, it's pretty hard to distinguish between bad data and crazy people."

- No to: Localytics, Looker
- Tools: (Sinatra + D3 > Tableau) > Chart.io
- Tableau

  + value for money

  - cashcow, Windows server, Mac app, Redshift connector)
- 240 chart.io SQLs



# Business Intelligence

Friends don't let friends calculate p-values (without fully understanding them)

- Tools: Wizard (OSX), iPython notebooks
- Default KPIs, DAU (active), MAU
- Monthly and weekly cohorts
- Segments based on platform, geography and activity
- Funnels for segments

# Experiments

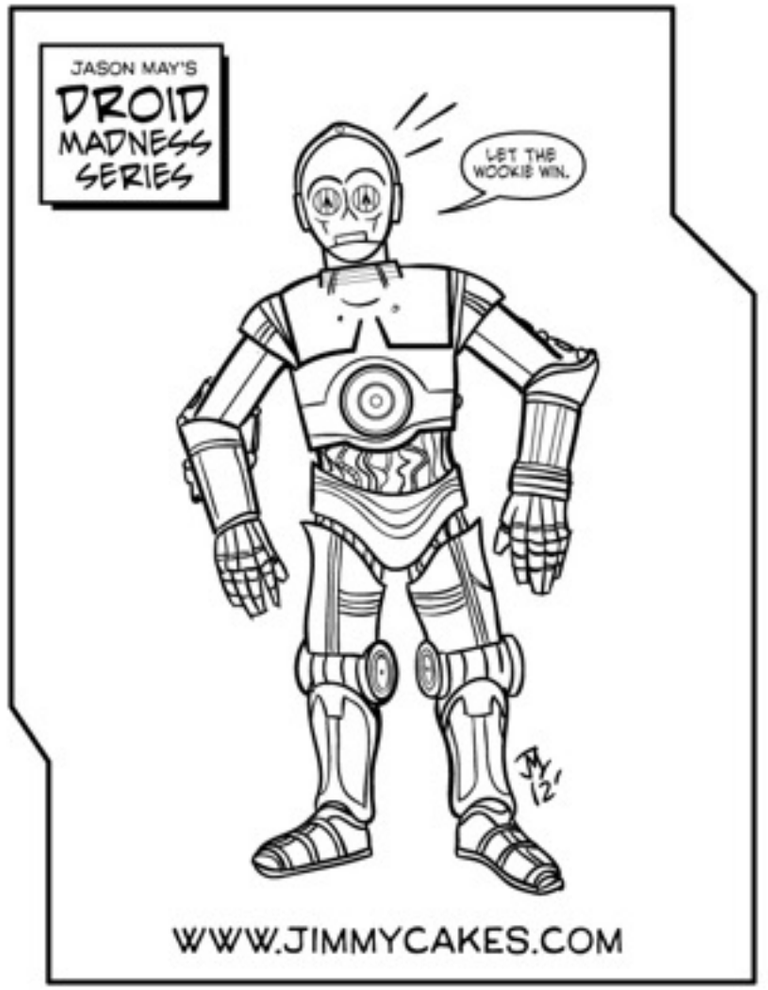
You are not Linkedin

- Tools: Optimizely, homebred system
- A/B tests on app features + any messaging
- A/A — illusory A/B
- Too small > Bayesian > less certainty
- Short-Term Bias, Regression to the Mean, Random Variation
- Chris Stucchio, Evan Miller

# Machine Learning

7 years on a PhD in ML to build "suggested pokes" at Facebook

- No PhDs
- The Mailchimp way
- We use LDA and NLP



- Data quality
- Surveymonkey.com
- Usertesting.com and Lookback
- Back of a napkin

# Whatnot?