Drinking from the Firehose

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Aka: “Scale Matters”
ARCHITECTURE
Drinking from the Firehose

Architecture
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Scale-Fail
Data Stores
Data Stores

• State of the World
Data Stores

- State of the World ↦ ElasticSearch
Data Stores

- State of the World ⇐ ElasticSearch
- Historical Data
Data Stores

- State of the World ← ElasticSearch
- Historical Data ← Cassandra
Data Stores

- State of the World ← ElasticSearch
- Historical Data ← Cassandra
- Configurations

Source: Wholly unscientific research by me.
Data Stores

- State of the World $\leftarrow$ **ElasticSearch**
- Historical Data $\leftarrow$ **Cassandra**
- Configurations $\leftarrow$ **Riak**
Data Stores

- State of the World \( \leftarrow \) ElasticSearch
- Historical Data \( \leftarrow \) Cassandra
- Configurations \( \leftarrow \) Riak
- Billing
Data Stores

- State of the World ← ElasticSearch
- Historical Data ← Cassandra
- Configurations ← Riak
- Billing ← Postgres
ONE-SIZE FITS ALL
STORE
SALE
No Scale – No Fail

• 60 - 90% of all SW projects fail
• 10 – 25% of all SW projects get abandoned
• Don’t worry, be happy
I'M SIGNIFICANT!

SCREAMED THE DUST SPECK.
Innocent and carefree, Stuart’s left hand didn’t know what the right was doing.
Split Brain

- Its ubiquitous (thanks aphyr)
Split Brain

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- Zookeeper doesn’t necessarily help
Split Brain

- Its ubiquitous (thanks aphyr)
- Zookeeper doesn’t necessarily help
- Moving the problem around doesn’t necessarily help
Consistency: all clients see current data regardless of updates or deletes

Availability: the system continues to operate as expected even with node failures

Partition Tolerance: the system continues to operate as expected despite network or message failures
Cheating

• Stale status messages are OK
Cheating

- Stale status messages are OK
- Charts can miss data
Cheating

• Stale status messages are OK
• Charts can miss data
• Billing is sharded
Cheating

- Stale HB is ok
- Charts can miss data
- Billing is sharded
- Availability zones (google.co.uk)
Scaling

Politics is the art of compromise.

Compromise what?

My integrity!
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