The SRE I aspire to be

Yaniv Aknin // @aknin

Google Cloud

#VelocityConf San Jose 2019
Who is this guy

- **Google SRE since 2013**
  Most recently *GCP's Quantitative Reliability Lead*

- **Jack of all trades**
  Equal parts SRE, dev, and /pro(duct|ject) manager/

- **Opinions my own**
  But I owe a lot here to others
Who is this guy

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*NB: what does "SRE" really mean?*
Wikipedia says Engineering is "using scientific principles to design and build $THINGS"
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Imagine $THINGS="Reliability"... how do we apply science to that?
Innovation
(engineering, proactive, change)

Reliability
(support, reactive, preserve)
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Reliability

Innovation

(support, reactive, preserve)

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Innovation
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Reliability
Innovation

(engineering, proactive, change)
Measurably optimise reliability vs cost
When you can measure what you are speaking about, and express it in numbers, you know something about it; but **when you cannot measure it, your knowledge is of a meagre and unsatisfactory kind.**

*William Thomson (Lord Kelvin)*
*President of the Royal Society*
*Lecture on "Electrical Units of Measurement”*
*Published in "Popular Lectures", Vol. 1, 1883 (abridged to fit slide)
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MTBF/MTTR

Challenge: fungible definition of "failure"

"9s" (e.g. "99.95% uptime")

Challenge: aggregating individual events into business credible 9s
Why is this hard?

- Scope
- Difficulty
- Cost++
- Misconceptions
Why is this hard? And why is it good?

- Scope
- Difficulty
- Cost++
- Misconceptions

- Leverage
- Precision
- Cost--
On ops, user harm, and tradeoffs

Your product is here.
On ops, user harm, and tradeoffs

Your product is here.
On ops, user harm, and tradeoffs

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Your product is here.
You need "better quality" 9s!

99.999%
"I spent time making my metrics hit certain thresholds"

Misaligned
"Whatever I happened to measure"

Aligned
"I spent time ensuring 9s correlate with customer pain"

99%
"Whatever I happened to ship"
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First move right, then move up

99.999%
"I spent time making my metrics hit certain thresholds"

Wasted Effort

Happy Customers

Misaligned
"Whatever I happened to measure"

Aligned
"I spent time ensuring 9s correlate with customer pain"

Unknown Problem

Known Problem

99%
"Whatever I happened to ship"
SRE team: a recipe

Obvious

Monitoring
Alerting
Capacity planning
CI/CD & Rollouts
Load Balancing
SRE team: a recipe

Obvious
- Monitoring
- Alerting
- Capacity planning
- CI/CD & Rollouts
- Load Balancing

Less Obvious
- System Architecture
- Distributed Algorithms
- Networking
- Operating Systems
SRE team: a recipe

Obvious
- Monitoring
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Less Obvious
- System Architecture
- Distributed Algorithms
- Networking
- Operating Systems

Least Obvious
- Product Management
- Data Science
- Business Acumen
- (nose for) UX
- Research
Litmus test of SRE

- Have a measurement of reliability
- When unreliable, resource allocation changes
- When reliable, you don't do ops
Litmus test of SRE

- Have a measurement of reliability
- When unreliable, resource allocation changes
- When reliable, you don't do ops

* Please remember this is my litmus test... tell me yours?
Thank you!

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