

The SRE I aspire to be

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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

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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)

(support,
reactive,
preserve)

(engineering,
proactive,
change)

Innovation



(engineering,
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(engineering,
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Innovation

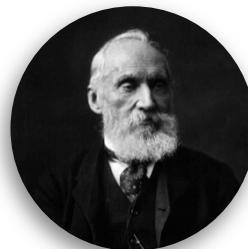


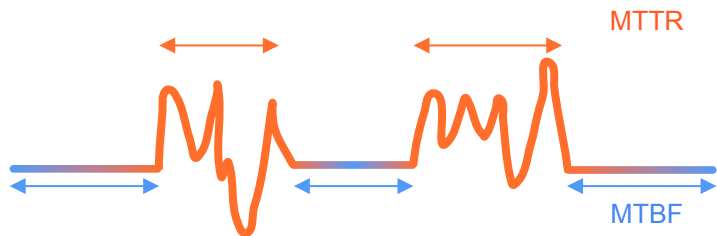
The Error Budget

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.** ”

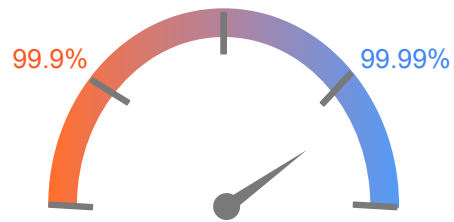
William Thomson (Lord Kelvin)
President of the Royal Society
Lecture on "Electrical Units of Measurement"
Published in "Popular Lectures", Vol. 1, 1883
(abridged to fit slide)





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?

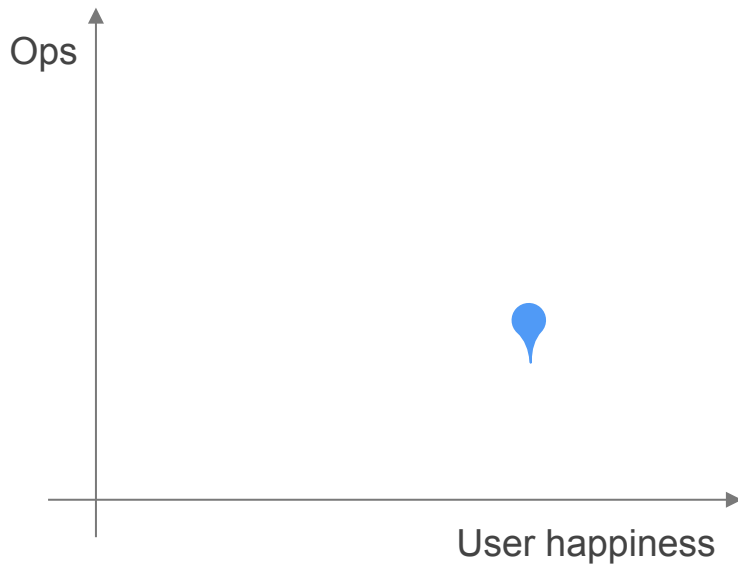
- Scope
- Difficulty
- Cost++
- Misconceptions

Why is this hard? **And why is it good?**

- Scope
- Difficulty
- Cost++
- Misconceptions
- Leverage
- Precision
- Cost--

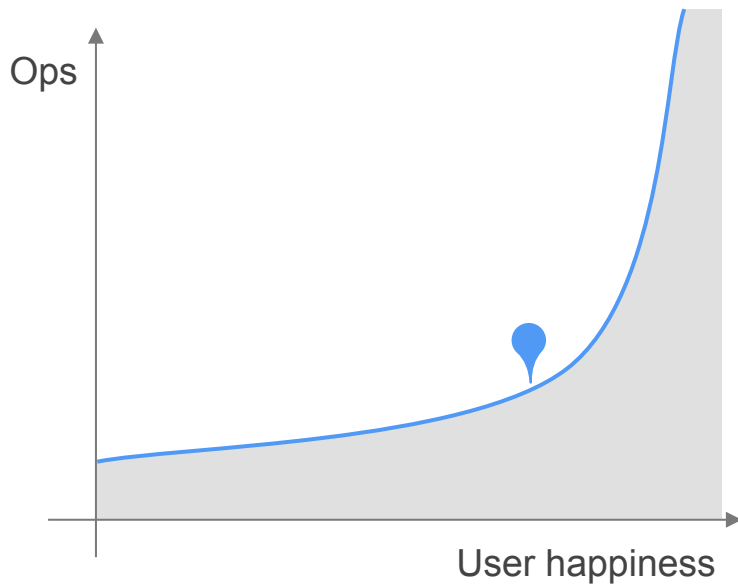
On ops, user harm, and tradeoffs

 Your product is here.



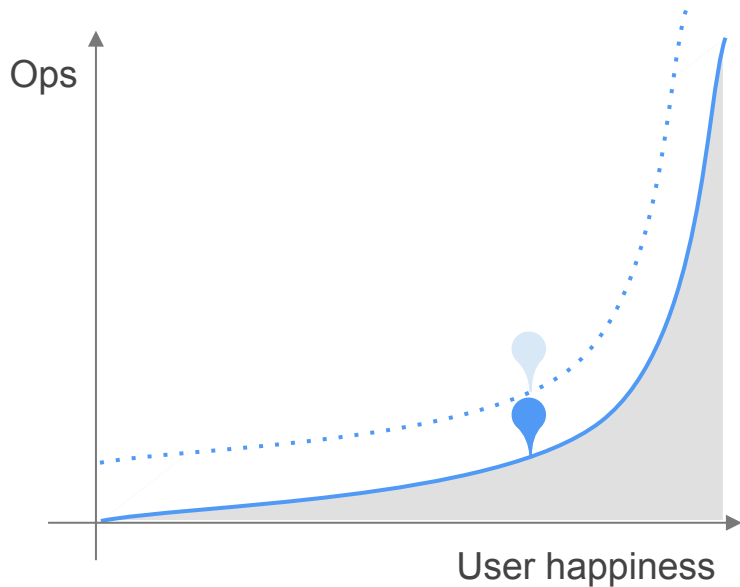
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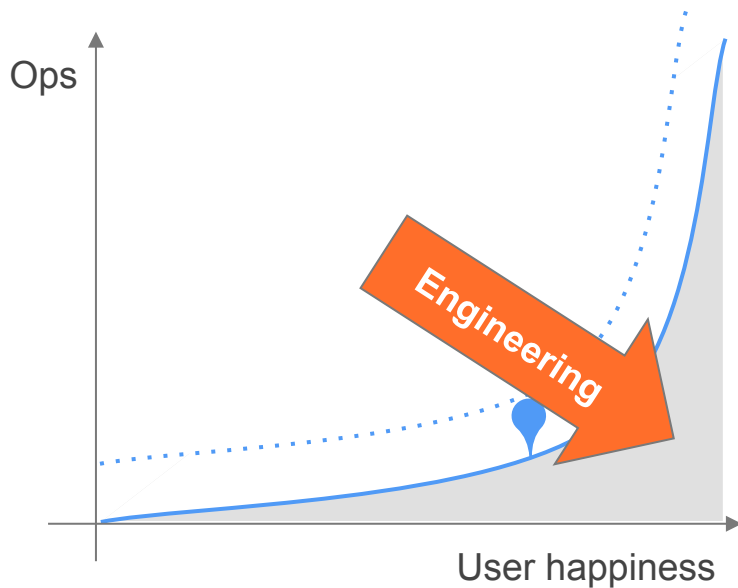
On ops, user harm, and tradeoffs

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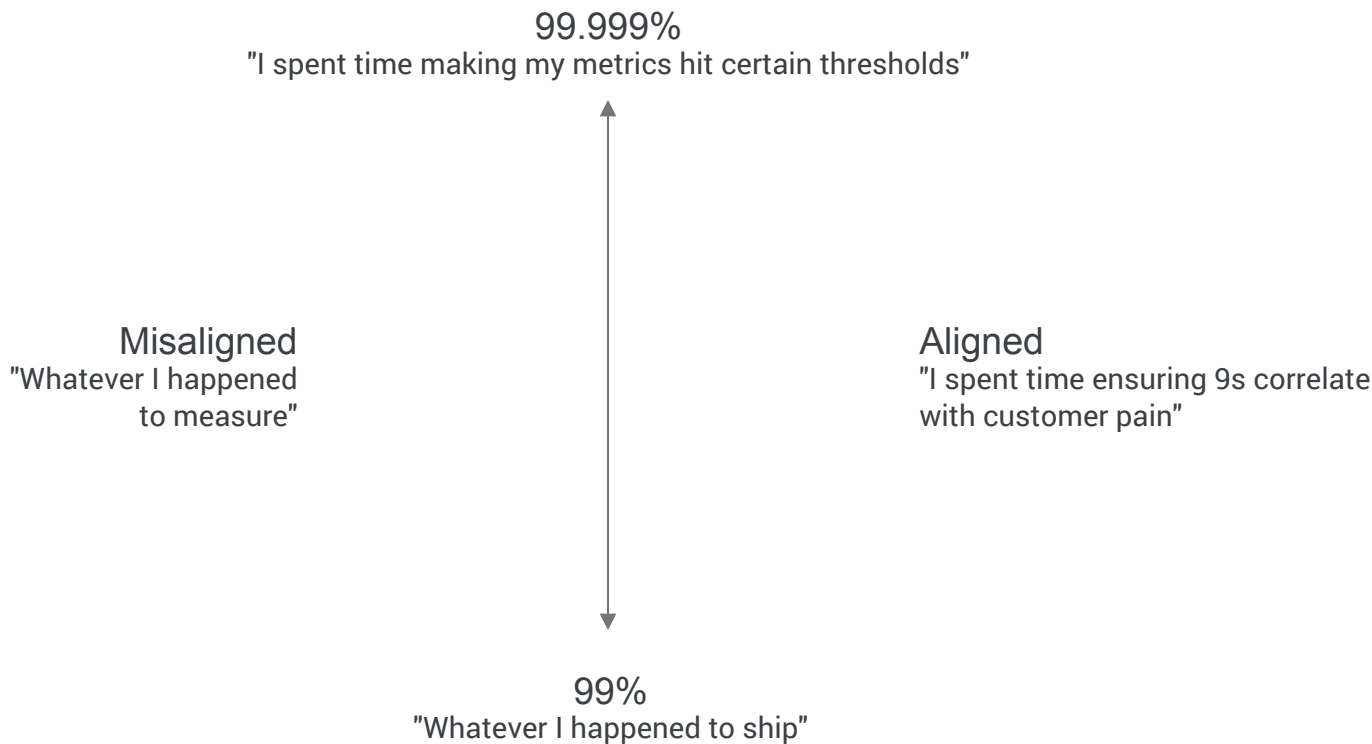


On ops, user harm, and tradeoffs

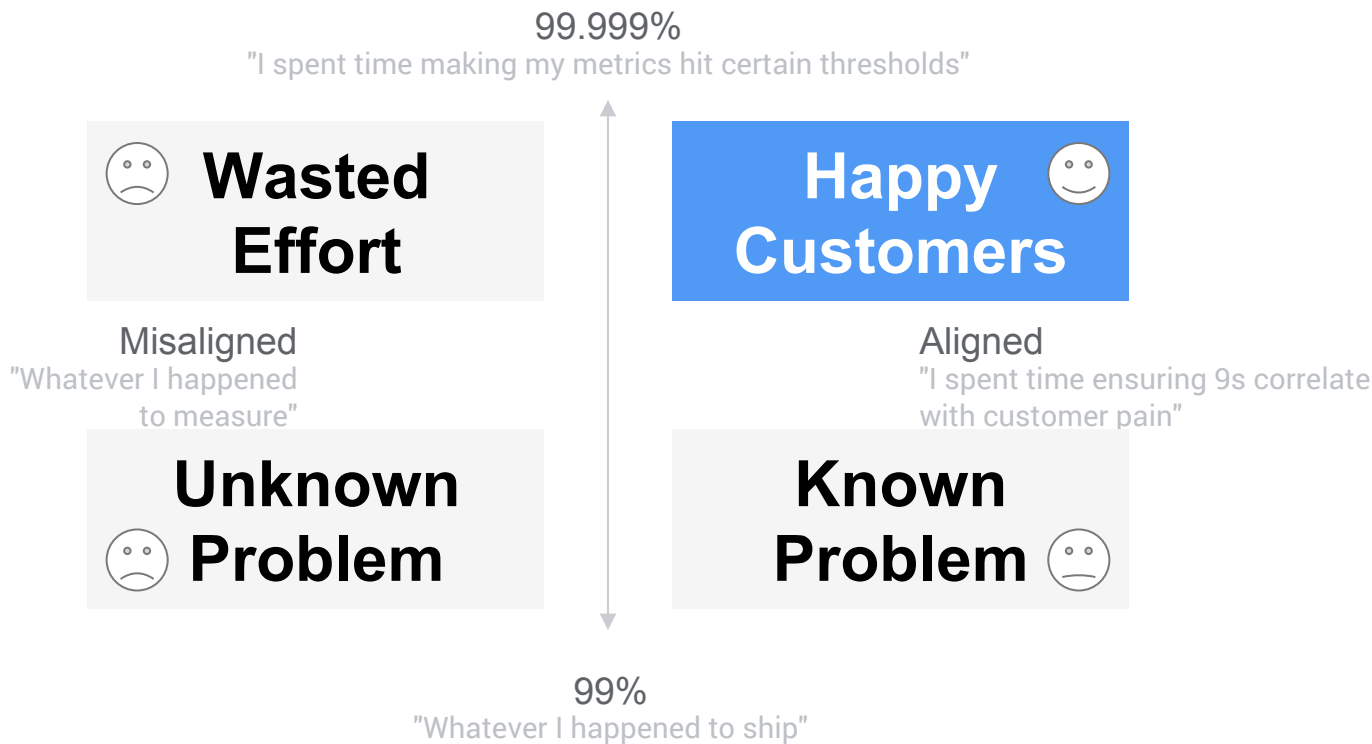
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You need "better quality" 9s!



First move right, then move up



SRE team: a recipe

Obvious

Monitoring

Alerting

Capacity planning

CI/CD & Rollouts

Load Balancing

SRE team: a recipe

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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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Load Balancing

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

Thank you!

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Art credits
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