



CONGRATULATIONS,
YOU FAILED!

Michiel Rook
@michieltcs

DISCLAIMER!

**EVERYTHING FAILS
ALL OF THE TIME**

**EVERYONE FAILS
ALL OF THE TIME**

WHAT IS FAILURE?

failure

Pronunciation /'fālyər/ /'feɪljər/

NOUN

1. *Lack of success.*
2. *The omission of expected or required action.*
3. *The action or state of not functioning.*

OXFORD ENGLISH DICTIONARY

MISTAKES?

ERRORS?

"(a term) to encompass all those occasions in which a planned sequence of mental or physical activities fails to achieve its intended outcome, and when these failures cannot be attributed to the intervention of some chance"

JAMES REASON

OR

CATASTROPHE FIASCO DEFEAT DISASTER DEBACLE FLOP
BLUNDER LEMON WASHOUT BOTCH CALAMITY COLLAPS
E LET-DOWN CLINKER DUD FIZZLE FOUL-
UP HASH LETDOWN WRECK BOMB BREAKDOWN BUMME
R BUNGLE BUST CLUNKER FAIL MISADVENTURE MISS MIS
STEP TRAGEDY CRASH FRUSTRATION LOSS MESS MISHAP
NONSUCCESS SHIPWRECK TROUBLE TURKEY CROPPER F
ROST IMPLOSION MISFORTUNE NONACHIEVEMENT NONP
ERFORMANCE ROUT SNAFU STALEMATE ZERO BALLS-
UP SCREW-UP DAMP SQUIB DEAD DUCK DEAD
LOSS FALSE STEP FAUX PAS LEAD BALLOON SINKING
SHIP TOTAL LOSS VAIN ATTEMPT FLASH IN THE PAN BIG
ZERO

**FAILURE IS
CONSIDERED A
NEGATIVE THING**

**FAILURE IS
ASSOCIATED WITH
PAIN**

"... a frustrating and painful experience. The natural human response, therefore, is to put off doing it for as long as possible."

MARTIN FOWLER

FAILURE IS NOT THE
OPPOSITE OF
SUCCESS

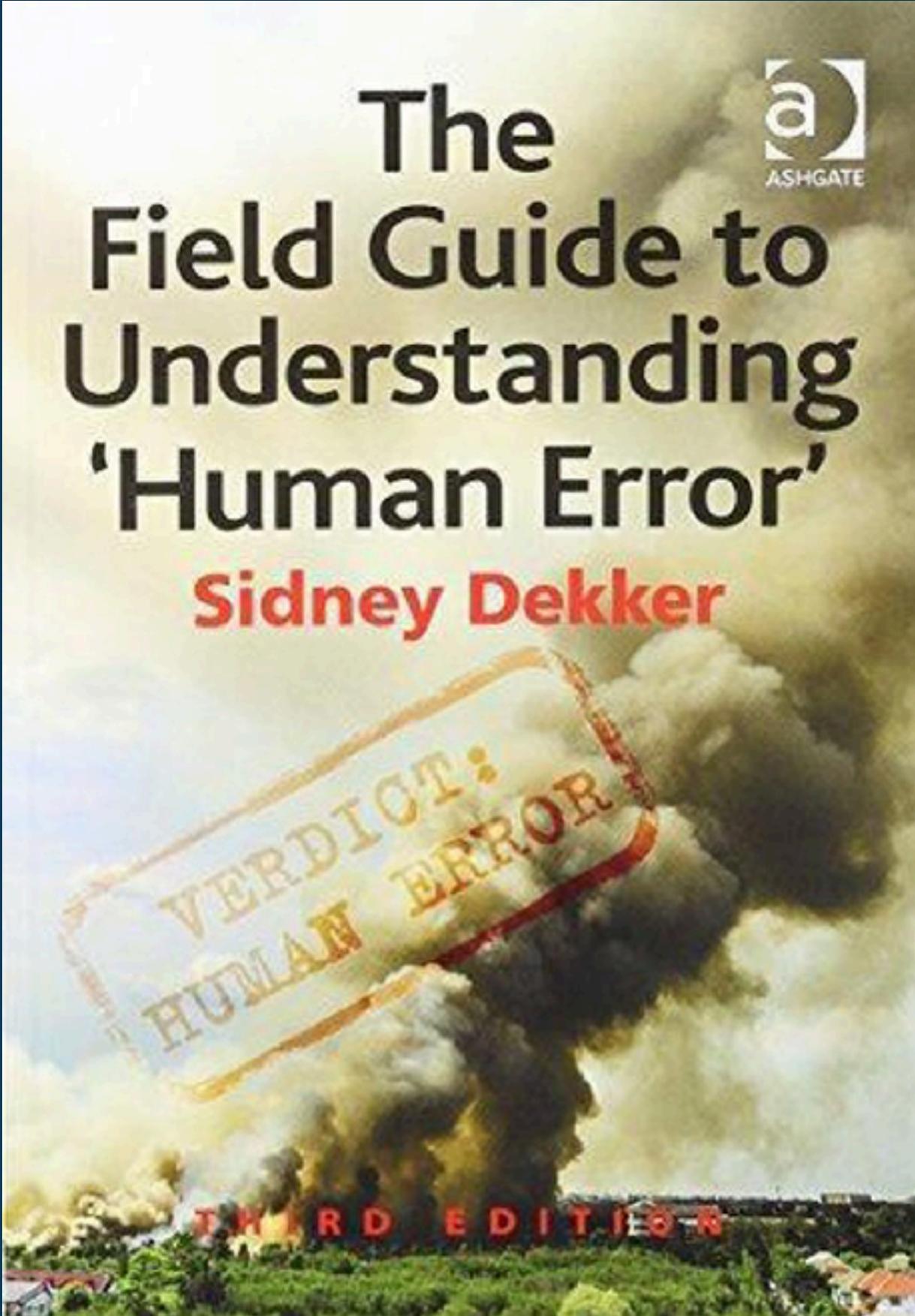
"Success is one of the
possible outcomes."

ELON MUSK

THE DIFFERENCE BETWEEN FAILURE AND SUCCESS

IS NOT ALWAYS
APPARENT

IS USUALLY NOT
APPARENT



“There is almost no human action or decision that cannot be made to look flawed and less sensible in the misleading light of hindsight.”

SIDNEY DEKKER

**FAILURE IS AN
OPPORTUNITY**

**FAILURE IS
GROWTH**

FAILURE IS ABOUT
DISCOVERING

**FAILING IS
LEARNING!**

"If the path before you is
clear, you're probably on
someone else's."

JOSEPH CAMPBELL

	Known Knowns <i>Things we are aware of and understand.</i>	Known Unknowns <i>Things we are aware of but don't understand.</i>
Unknowns	Unknown Knowns <i>Things we understand but are not aware of.</i>	Unknown Unknowns <i>Things we are neither aware of nor understand.</i>
Knowns		Unknowns

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Unknowns	Unknown Knowns <i>Things we understand but are not aware of.</i>	Unknown Unknowns <i>Things we are neither aware of nor understand.</i>
Knows		Unknowns

THERE ARE NO MISTAKES

JUST HAPPY LITTLE ACCIDENTS

quickmeme.com

@michieltcs

**FAILURE BRINGS THE
BEST LESSONS**

"Failure is always an option."

ADAM SAVAGE

EXPECT FAILURE

EMBRACE FAILURE

INDUCE FAILURE

FAIL FAST

"Learn to fail with pride –
and do so fast and cleanly.
Maximise trial and error – by
mastering the error part."

NASSIM NICHOLAS TALEB

FAILURE & IT

"Everything fails all of the
time in the cloud"

WERNER VOGELS

FAILURE & SOFTWARE DEVELOPMENT

**SOFTWARE
DEVELOPMENT IS
ABOUT CREATING**

**SOFTWARE
DEVELOPMENT IS
ABOUT FAILURE**

**SOFTWARE
DEVELOPMENT IS
ABOUT LEARNING**

WE ARE BUILDING

COMPLEX (DISTRIBUTED) SYSTEMS

NON-LINEAR

NOT NEWTONIAN/
CARTESIAN

CHANGES
GENERALLY NOT
REVERSIBLE

"Software development is a process of discovery and exploration; therefore, to succeed at it, software engineers need to become experts at learning."

DAVE FARLEY

**MAKE IT SAFE
TO FAIL**

**MAKE IT SAFE
TO LEARN**

SHARE STORIES

SHARE SUCCESSES

SHARE
(NEAR) MISSES

HUMILITY

"In order to create, one has
to be willing to miss the
mark, and to be willing to be
seen as human."

SUSAN ASTON

"BE MORE CAREFUL"

"If you've got to blame
something, blame
impermanence."

DAVE ZWIEBACK

TO WORK IS TO
CHANGE

TO WORK IS TO
MAKE MISTAKES

PSYCHOLOGICAL SAFETY

LEARNING ORGANIZATION

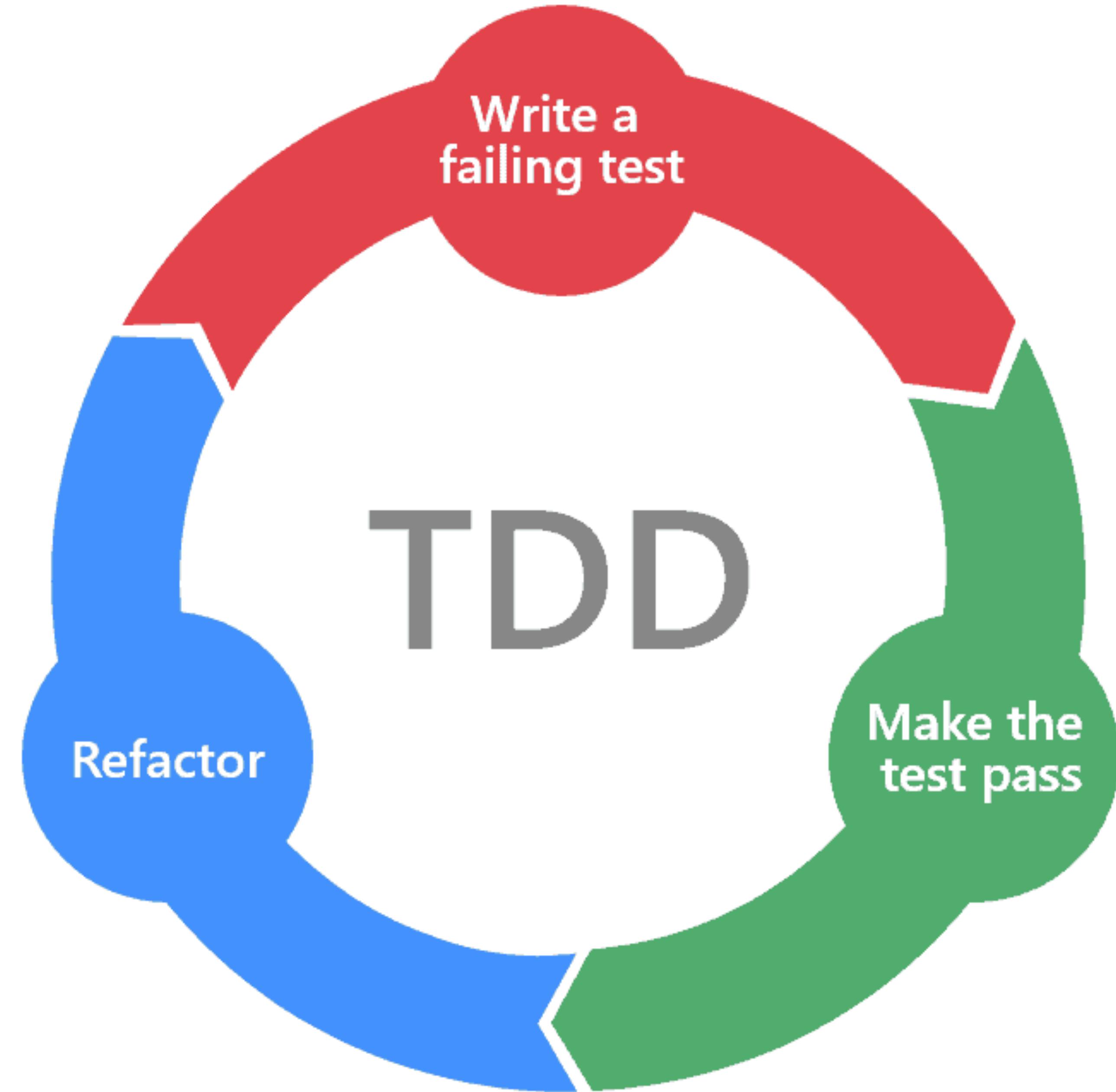
"You are either building a learning organization, or you will be losing to someone who is."

ANDREW CLAY SHAFER

SOME TECHNIQUES

TEST DRIVEN DEVELOPMENT

FAIL-FIRST DEVELOPMENT



ADAPTATION AND RESILIENCE

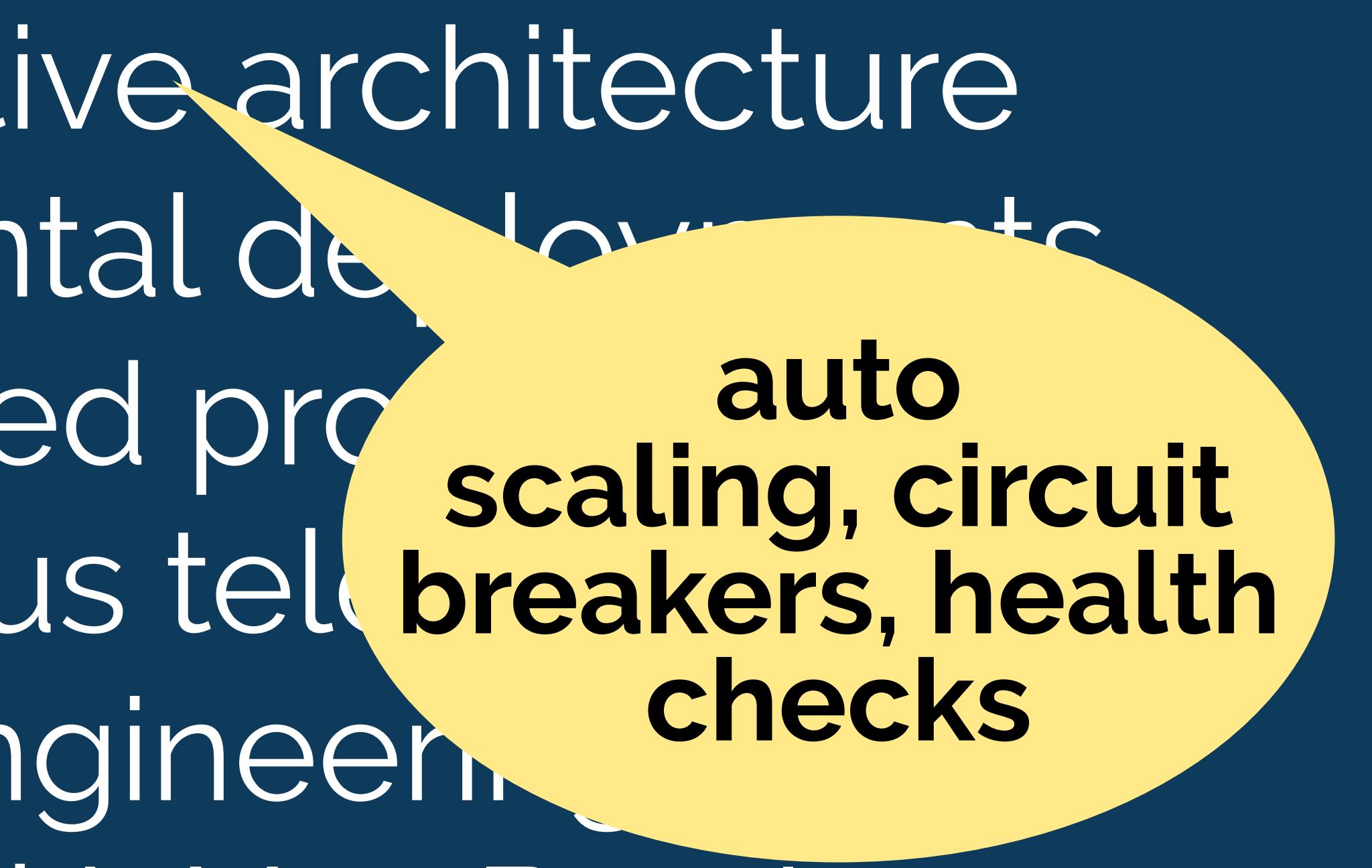
"We don't rise to the level of our expectations, we fall to the level of our training."

ARCHILOCHUS, GREEK SOLDIER, POET, C.
650 BC

- ▶ An adaptive architecture
- ▶ Incremental deployments
- ▶ Automated provisioning
- ▶ Ubiquitous telemetry
- ▶ Chaos Engineering
- ▶ You Build It You Run It
- ▶ Post-incident reviews

[HTTPS://WWW.STEVESMITH.TECH/BLOG/
BUILD-OPERABILITY-IN/](https://www.stevesmith.tech/blog/build-operability-in/)

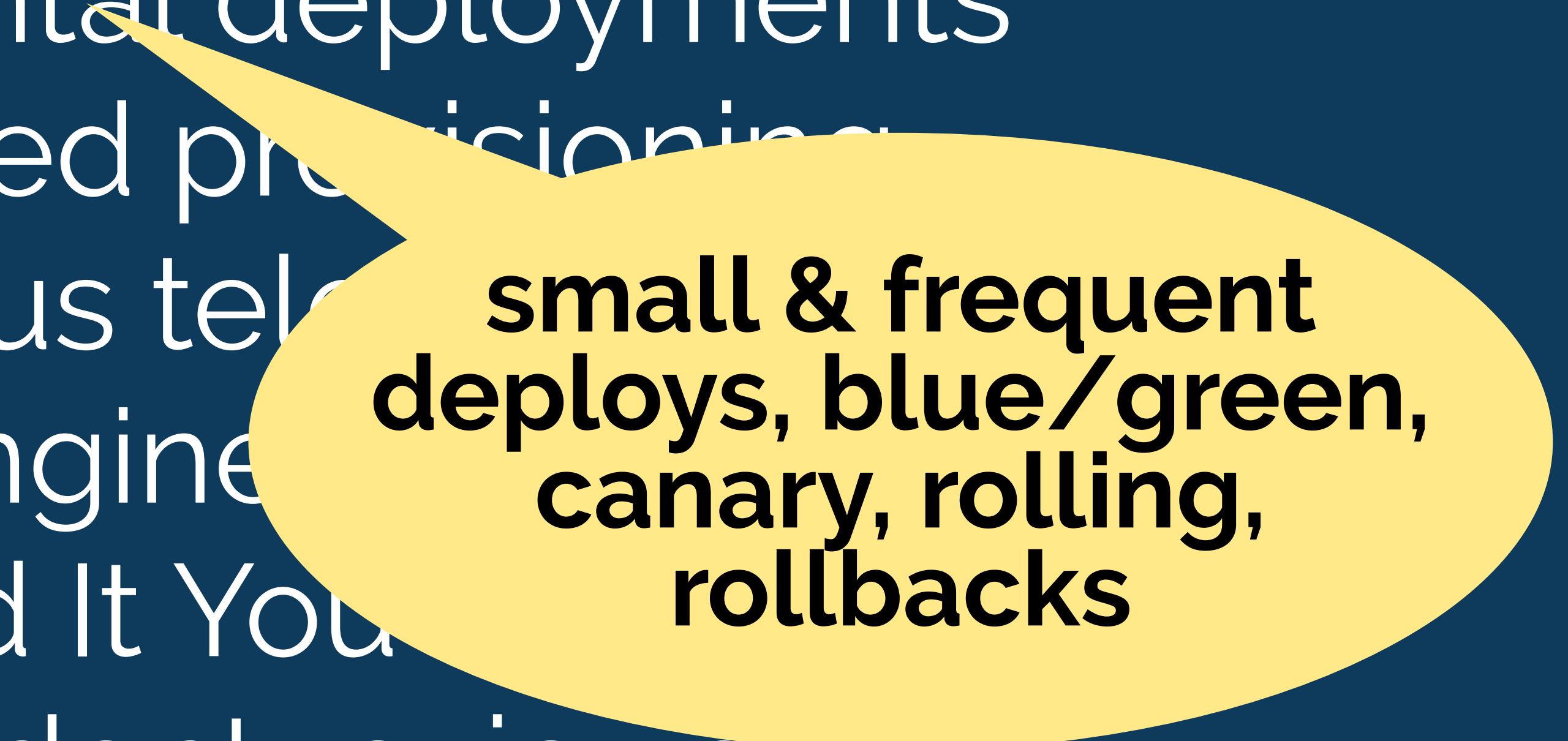
- ▶ An adaptive architecture
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auto
scaling, circuit
breakers, health
checks

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small & frequent deploys, blue/green, canary, rolling, rollbacks

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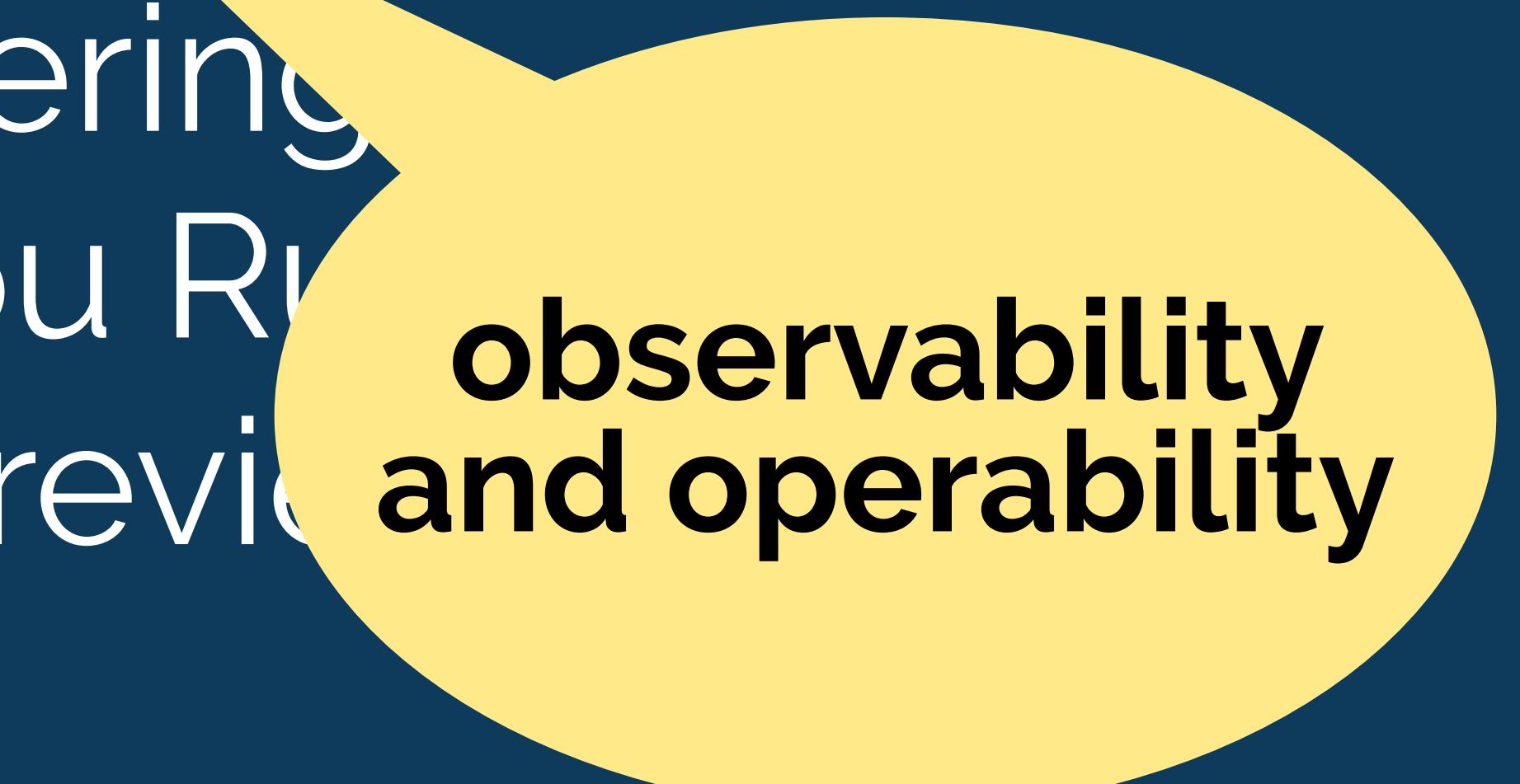
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**terraform,
ansible, packer,
etc.**

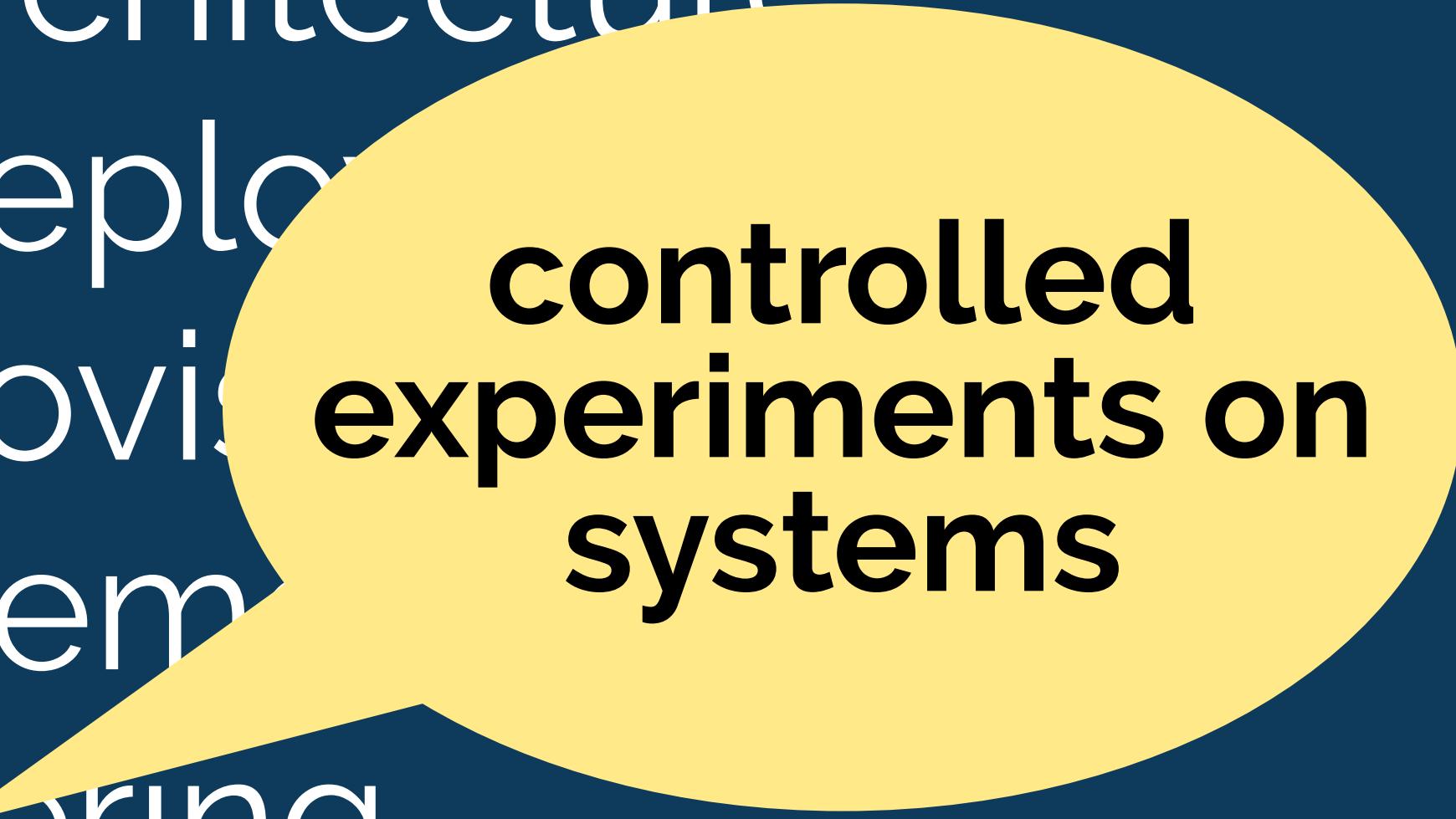
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- ▶ Post-incident review



**observability
and operability**

[HTTPS://WWW.STEVESMITH.TECH/BLOG/
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- ▶ An adaptive architecture
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 - ▶ Post-incident reviews
- 
- controlled
experiments on
systems**

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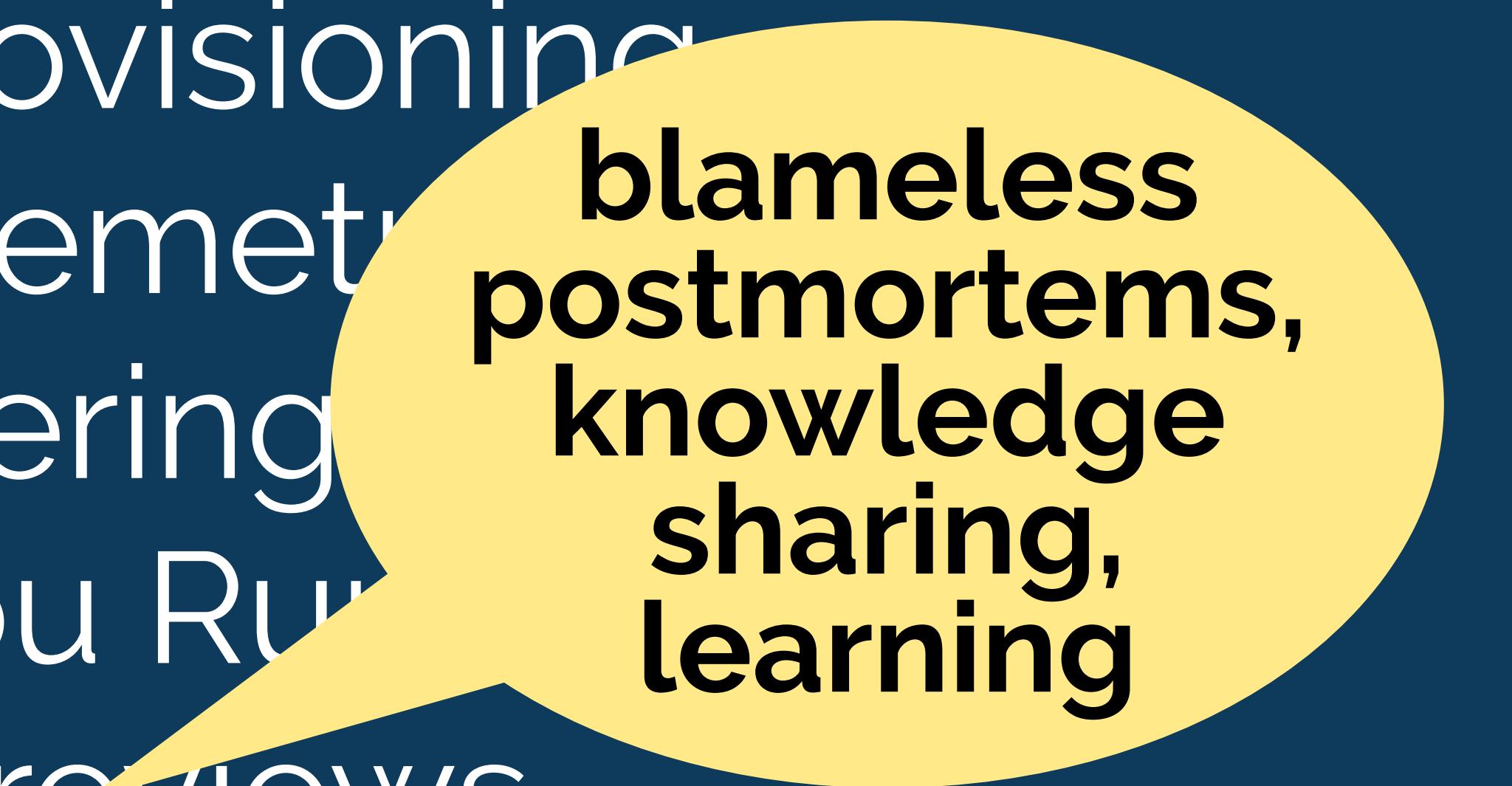
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- ▶ Post-incident reviews



**you OWN it
you run it**

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**blameless
postmortems,
knowledge
sharing,
learning**

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John Allspaw

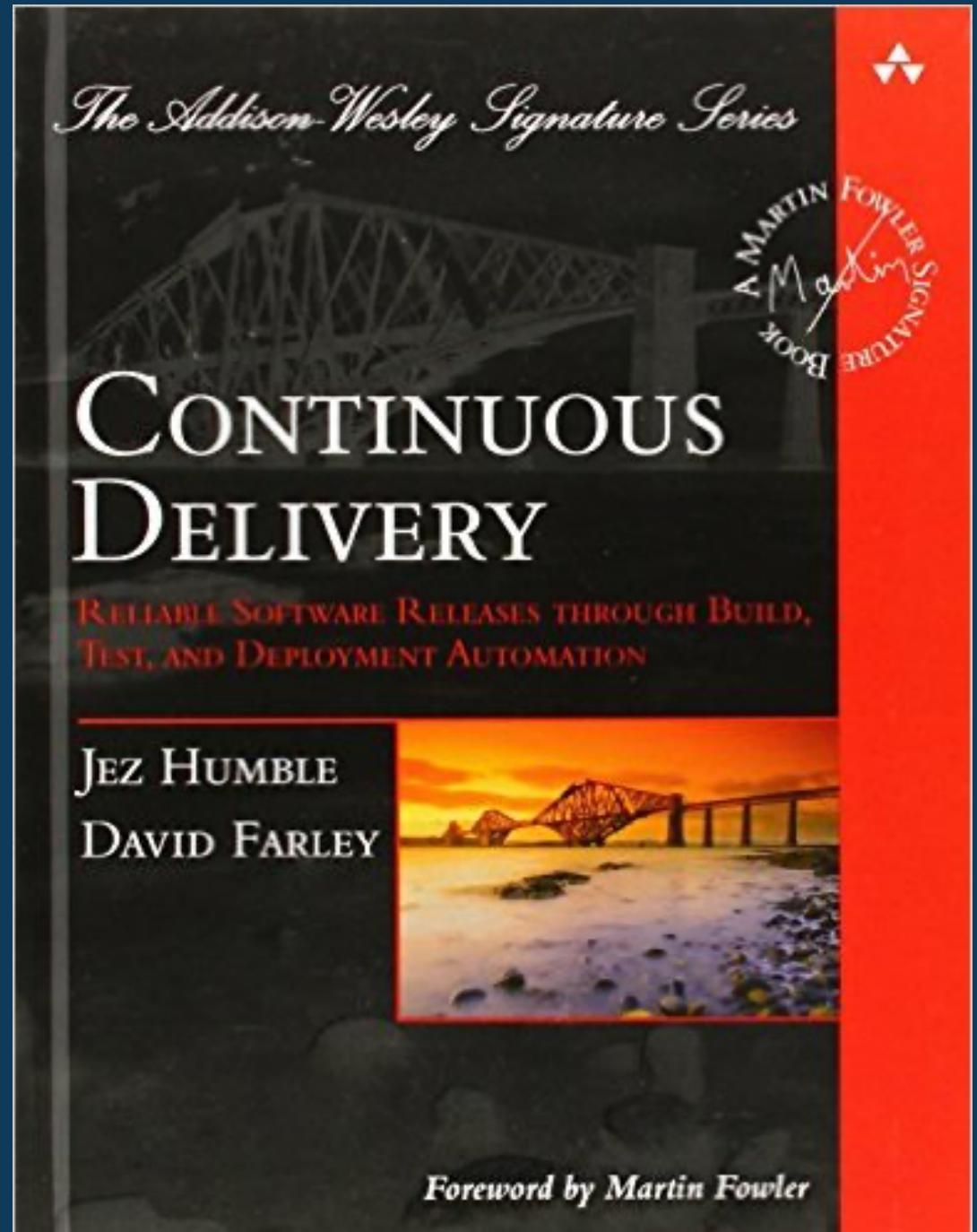
@allspaw

Keynote
People are the adaptable
element of complex systems

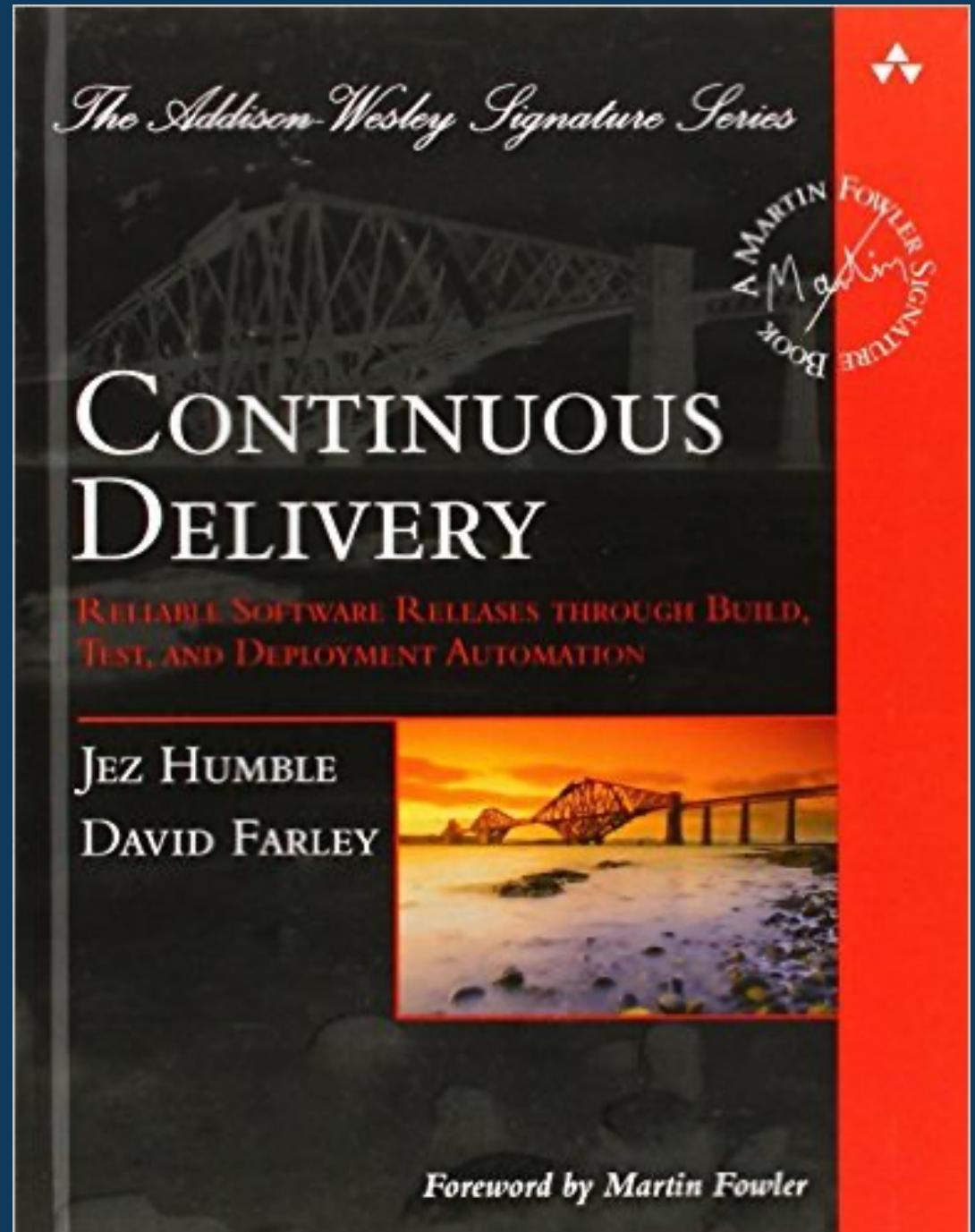
leanagile.scot

[HTTPS://VIMEO.COM/370008157](https://vimeo.com/370008157)

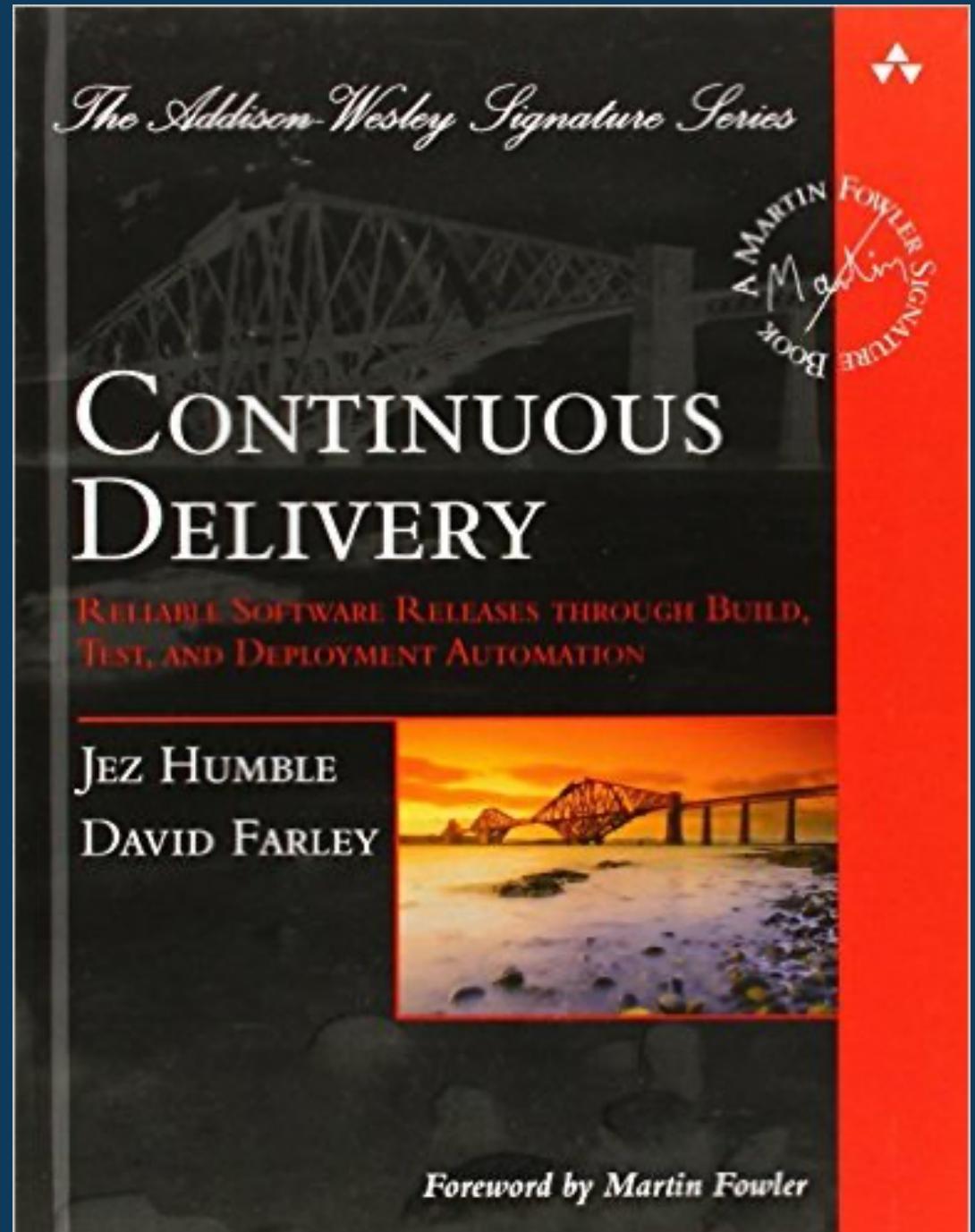
CONTINUOUS DELIVERY



DELIVERING VALUE TO USERS



SAFELY & QUICKLY



IN A SUSTAINABLE WAY

BUILD FAILURES

FAST FEEDBACK

MANY SMALL STEPS

BIG STEPS

FAIL BIG

SMALL STEPS

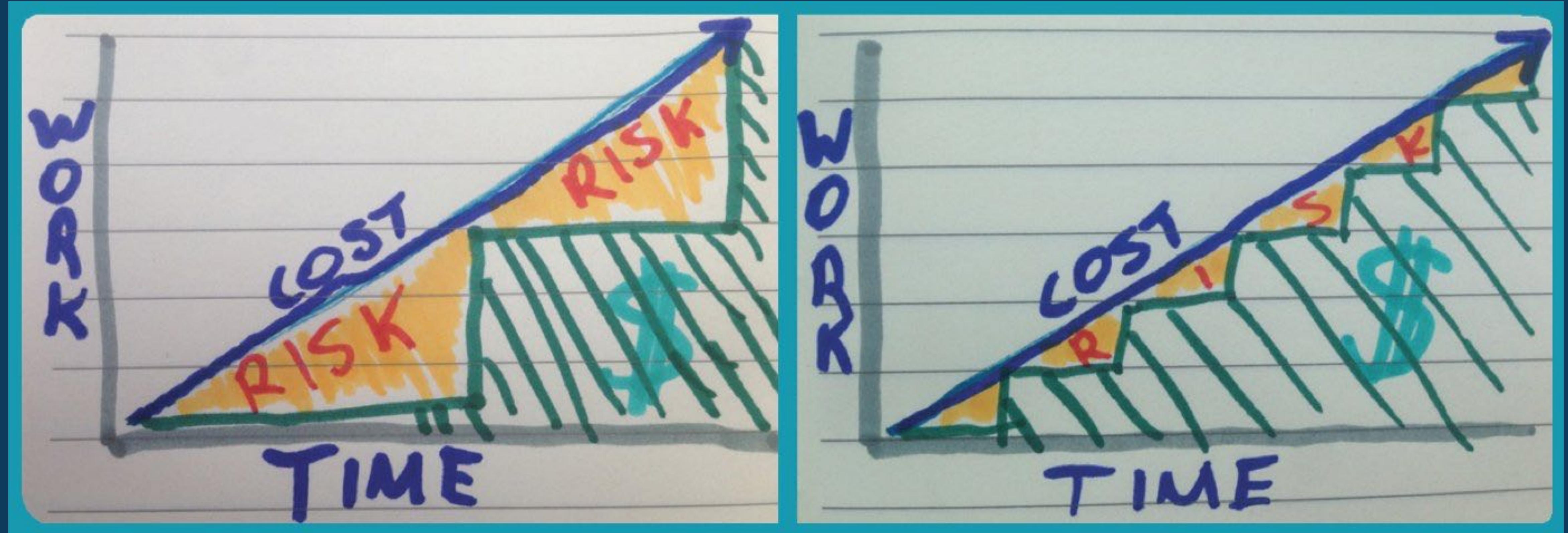
FAIL SMALL

IF IT HURTS
DO IT MORE OFTEN

MANY
SMALL
STEPS

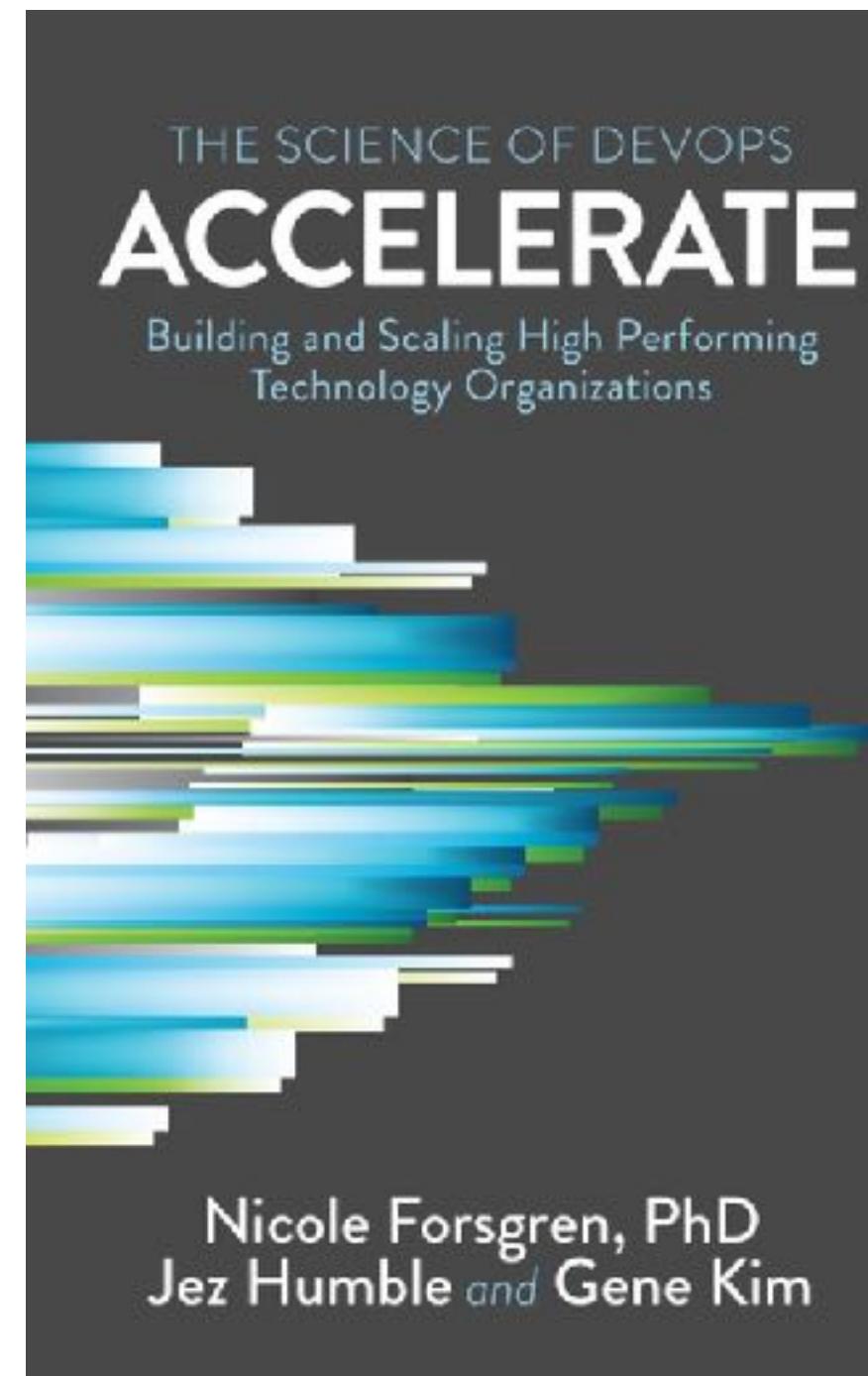
MANY
SMALL
EXPERIMENTS

RISK REDUCTION



\$ = REALIZED VALUE

CREDITS TO @FGOULDING



ELITE PERFORMERS

Comparing the elite group against the low performers, we find that elite performers have...

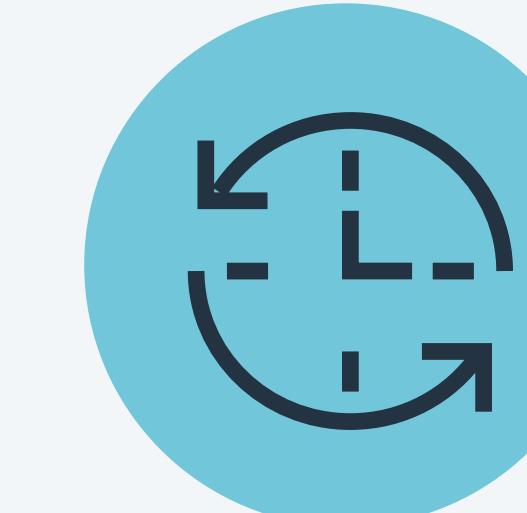


208
TIMES MORE

frequent code deployments

106
TIMES FASTER

lead time from
commit to deploy



2,604
TIMES FASTER

time to recover from incidents

7
TIMES LOWER

change failure rate

(changes are $\frac{1}{7}$ as likely to fail)

■ Throughput ■ Stability



Source: 2019 State Of DevOps report

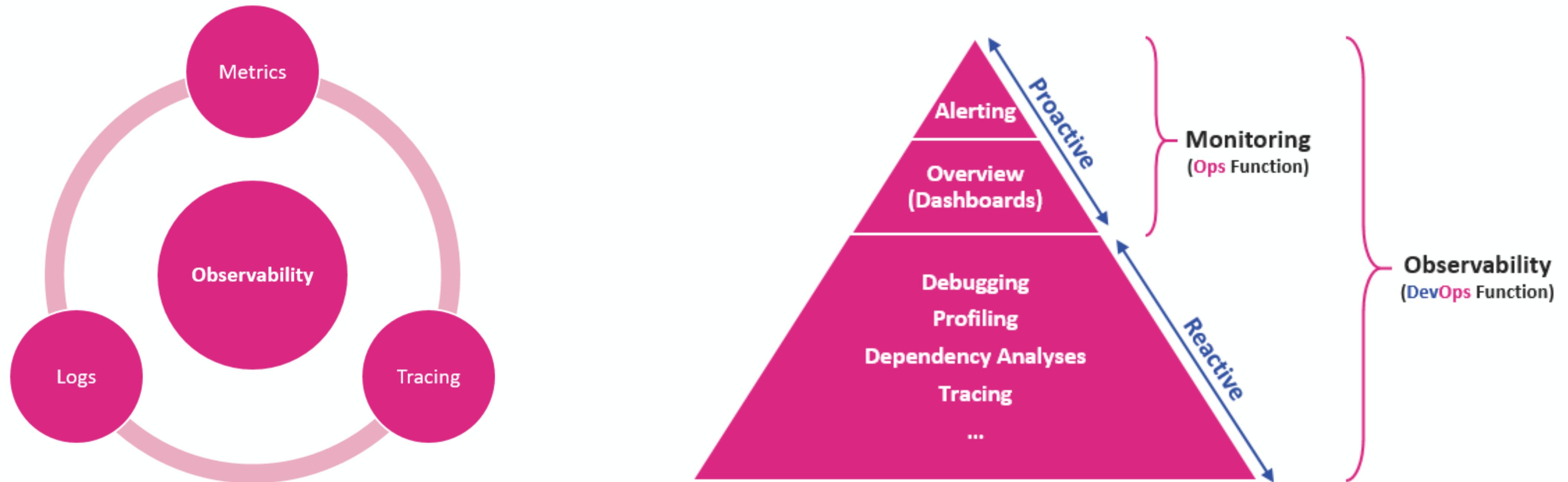
OBSERVABILITY AND OPERABILITY



@michieltcs

"a measure of how well internal states of a system can be inferred from knowledge of its external outputs."

[HTTPS://EN.WIKIPEDIA.ORG/WIKI/
OBSERVABILITY](https://en.wikipedia.org/wiki/Observability)



source: laredoute.io

"the properties of a system
which make it work well in
production "

[HTTPS://CONFLUXDIGITAL.NET/WHAT-IS-
OPERABILITY](https://confluxdigital.net/what-is-operability)

**the operator
experience**

"the properties of a
which make it work well in
production "

[HTTPS://CONFLUXDIGITAL.NET/WHAT-IS-
OPERABILITY](https://confluxdigital.net/what-is-operability)

"You cannot inspect quality into a product."

HAROLD S. DODGE

A screenshot of a Twitter post from Steve Smith (@SteveSmith_Tech). The post contains the quote "You cannot inspect #operability into a product". It includes the Twitter logo, the author's profile picture, the author's name and handle, the tweet text, the timestamp (11:38 PM · Jan 29, 2020), and engagement metrics (1 like). There is also a link to see more of the author's posts.

Steve Smith
@SteveSmith_Tech

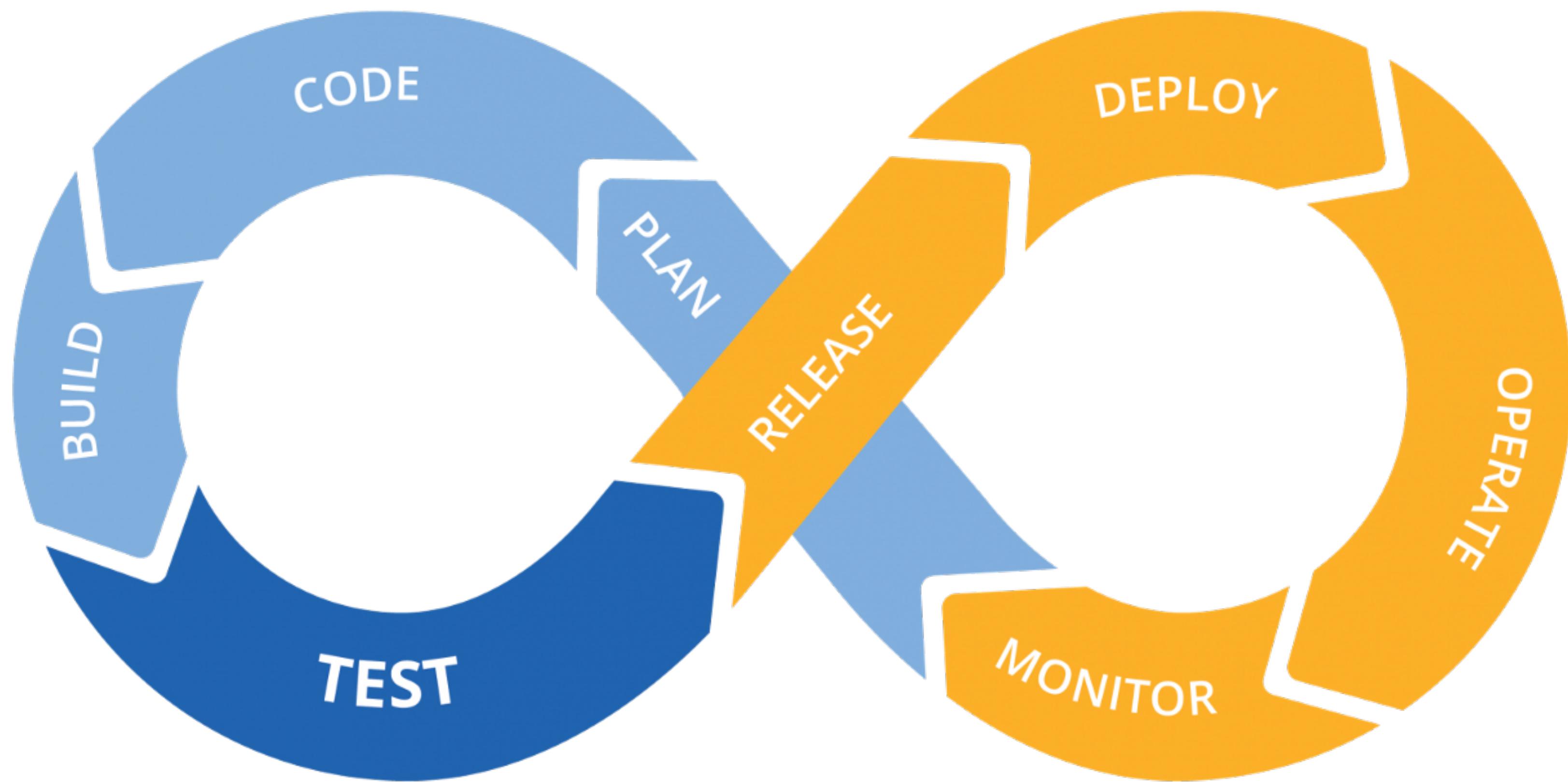
You cannot inspect #operability into a product

11:38 PM · Jan 29, 2020

1 like

See Steve Smith's other ...

FEEDBACK LOOPS

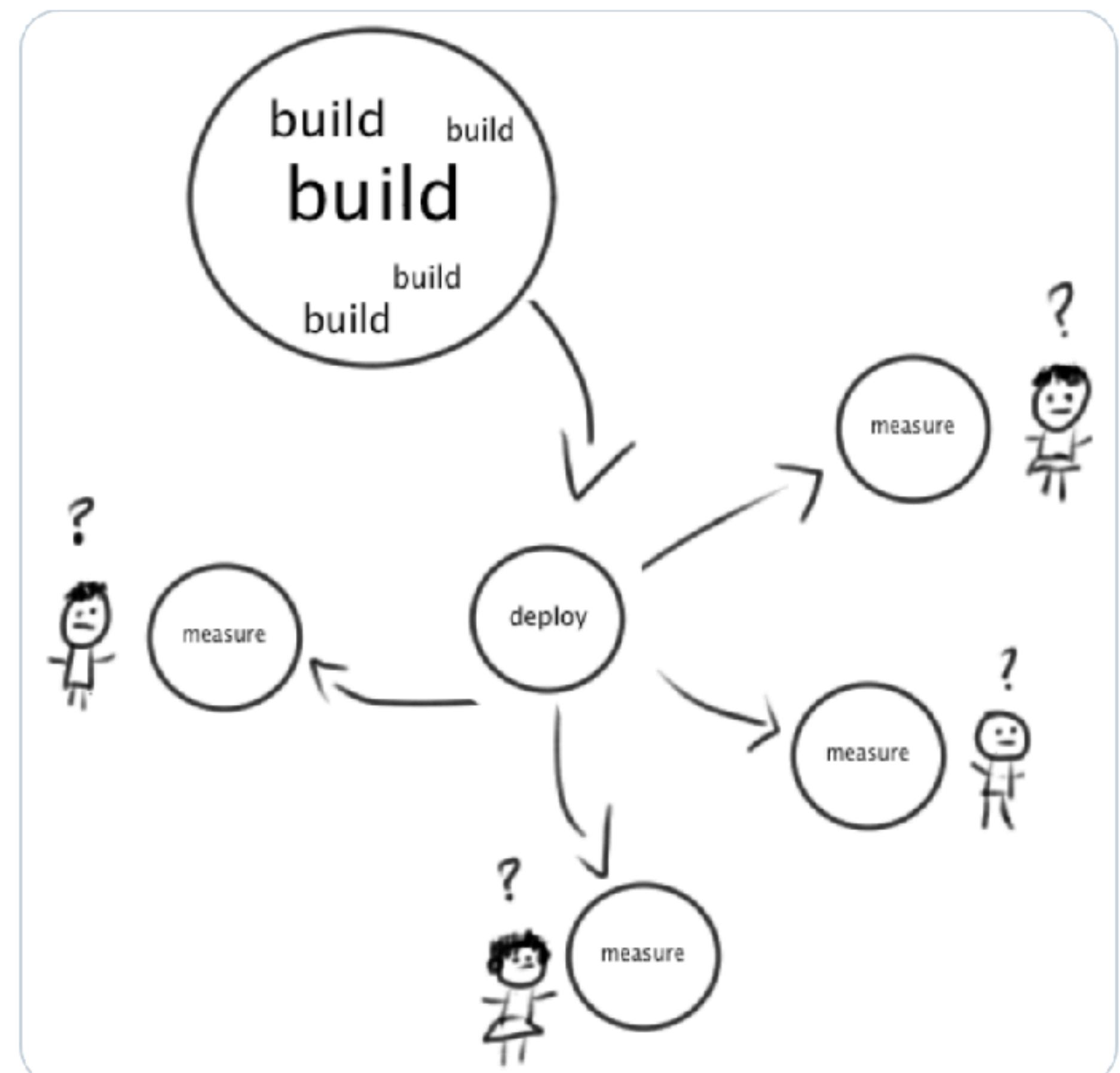




David J Bland
@davidjbl



Working on broken learning loops sketches



6:54 PM · Jul 29, 2012

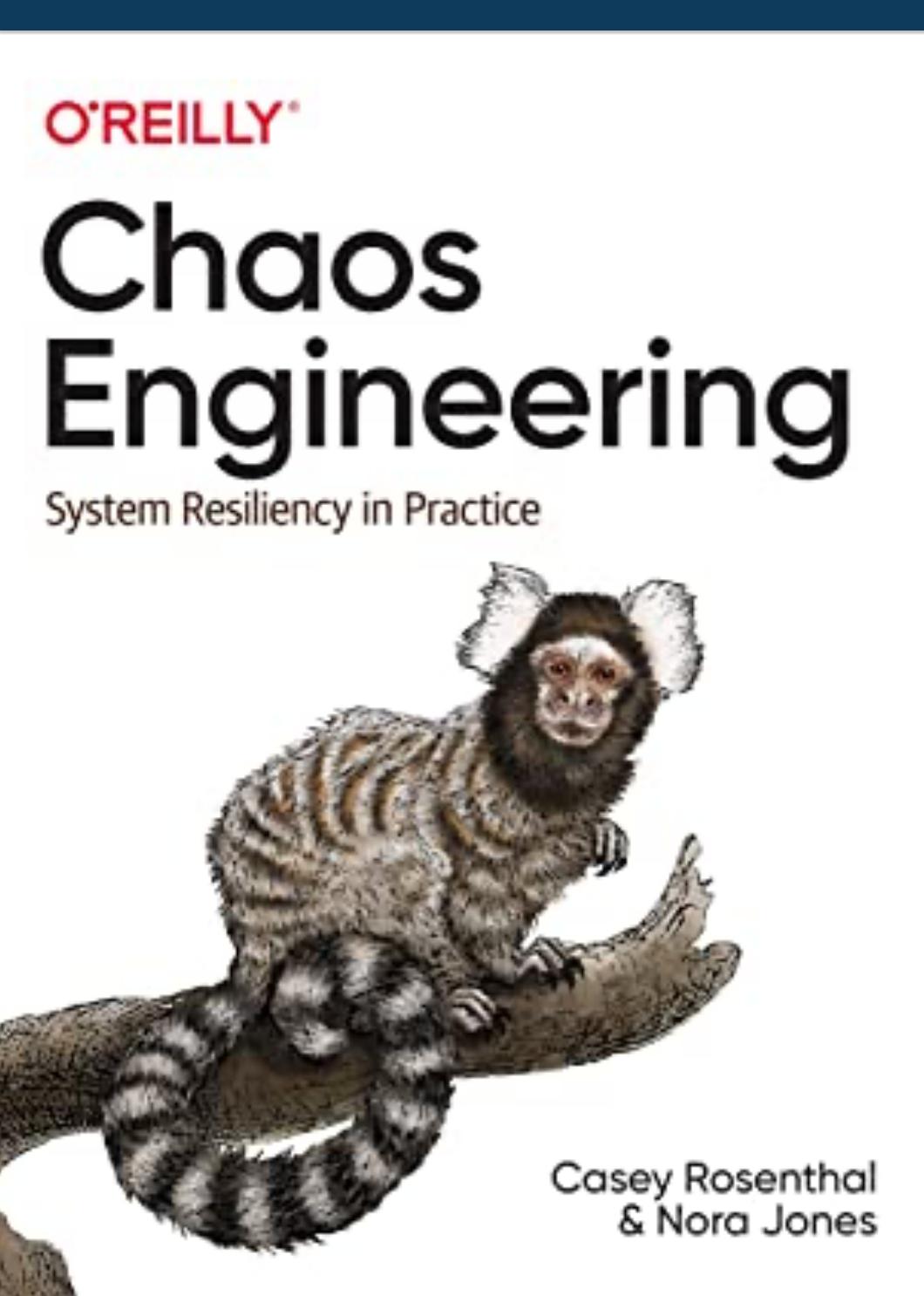


3

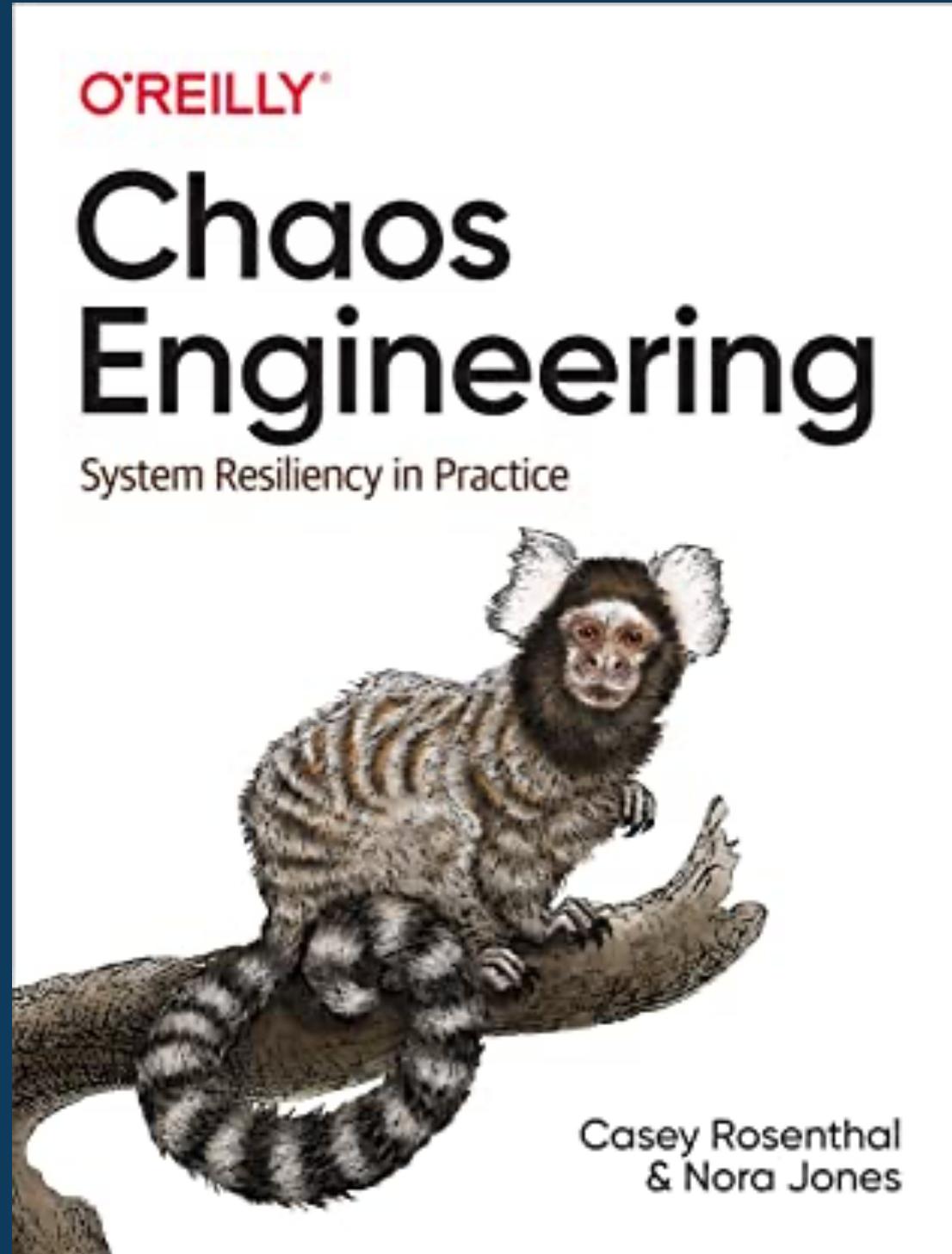


See David J Bland's other Tweets

CHAOS ENGINEERING



"the facilitation of experiments to uncover systemic weaknesses"



"the discipline of experimenting on a distributed system in order to build confidence in the system's capability to withstand turbulent conditions in production*"



NOT (JUST) ABOUT
BREAKING THINGS

NOT (JUST) ABOUT
BREAKING PROD

START SMALL





Chaos GameDays

Chaos Engineering promote Chaos Days!



A **Chaos GameDay** is an event hosted to conduct **chaos experiments** against components of your system to validate or invalidate a hypothesis about a system's resilience.

[HTTPS://WWW.YOUTUBE.COM/WATCH?
V=NOOGKNBWoGK](https://www.youtube.com/watch?v=NOOGKNBWoGK)

so...

**EVERYTHING FAILS
ALL OF THE TIME**

**EVERYONE FAILS
ALL OF THE TIME**

SO WE'D BETTER
GET GOOD AT IT

**IT'S TIME TO START
EMBRACING FAILURE!**

"Never give in. Never give in.
Never, never, never, never."

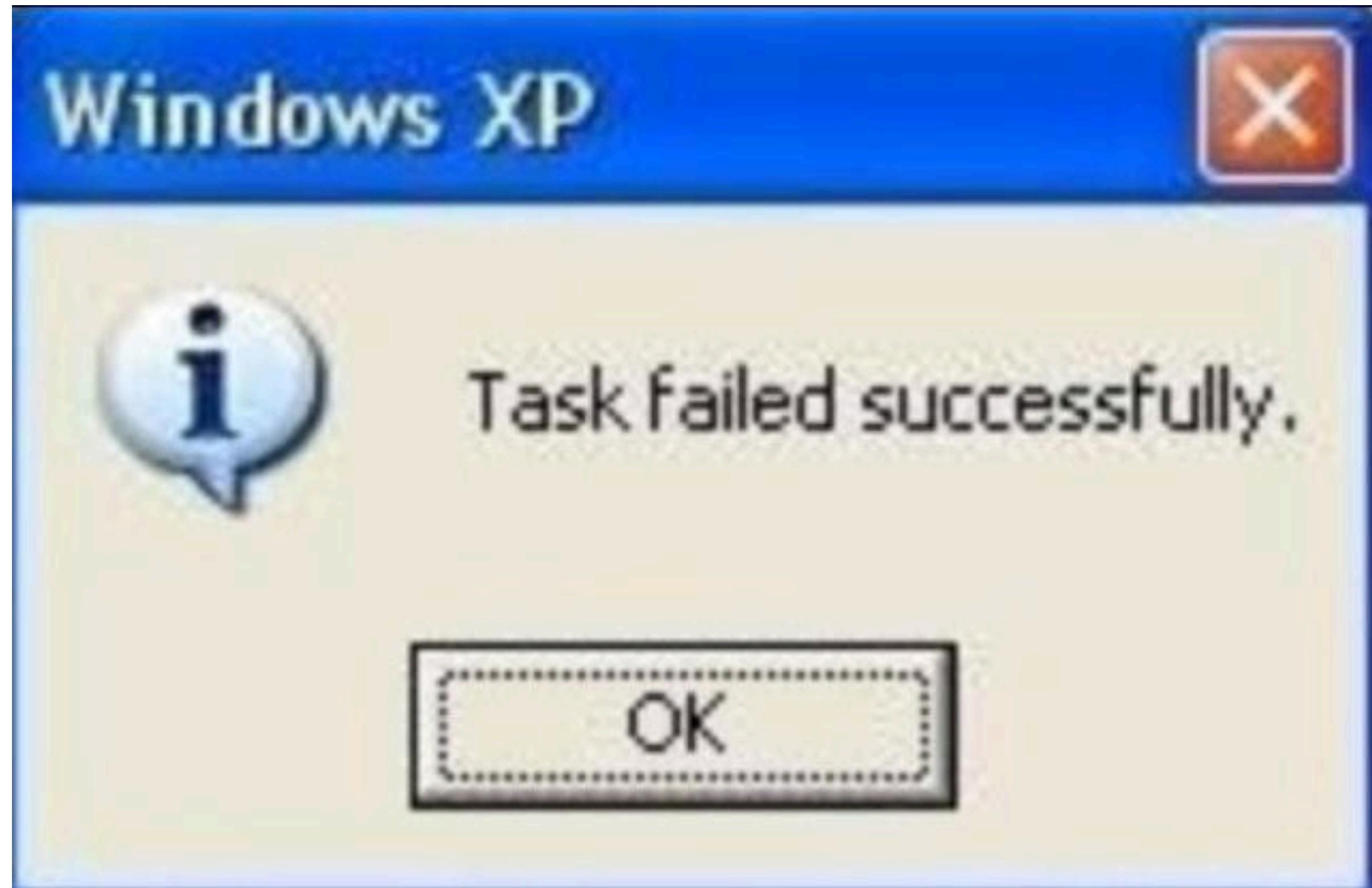
WINSTON CHURCHILL

BORDEP ROADS ORGANISATION
HIMANK

FAILING IS NOT A
CRIME BUT
LACK OF EFFORT IS

1BTF

54 RCC



**THANK YOU FOR
LISTENING!**

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www.michielrook.nl