SRE:
It’s People All the Way Down

Courtney Eckhardt and Lex Neva

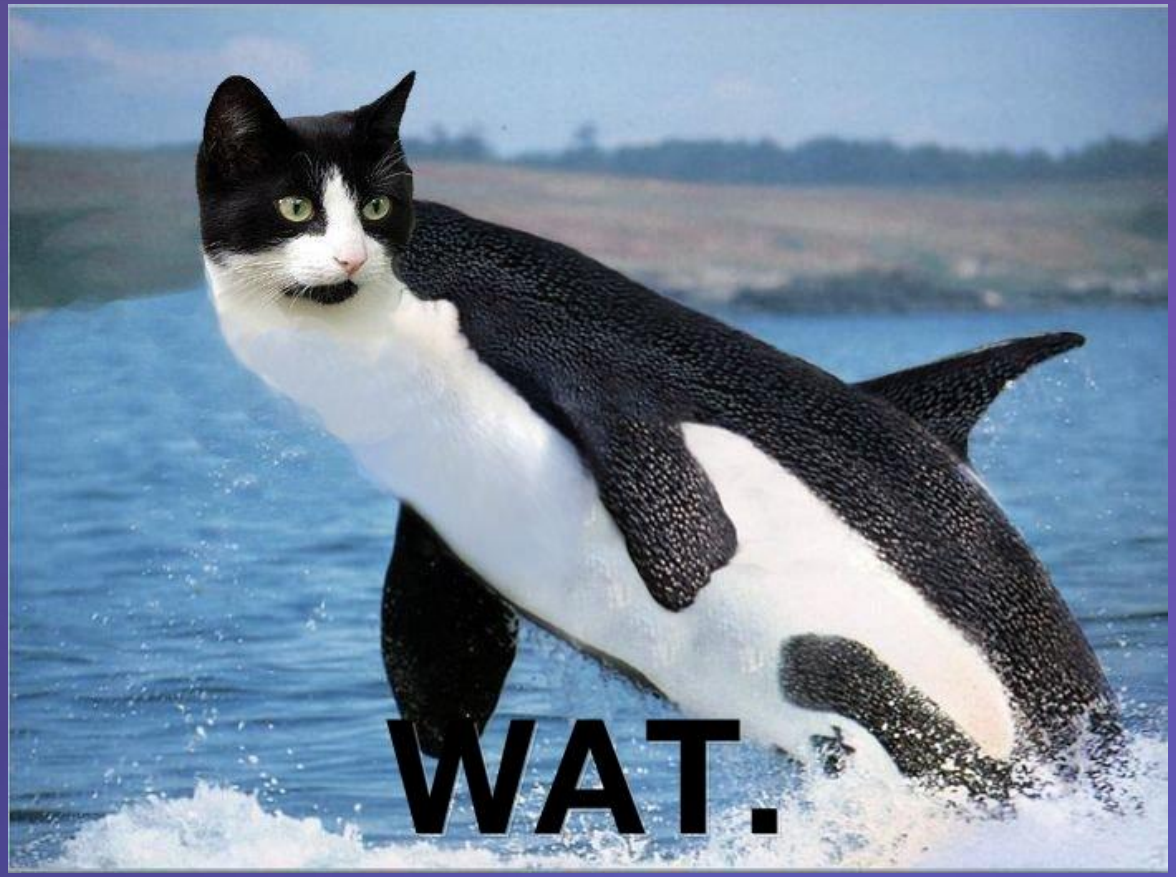
Heroku, a Salesforce.com company



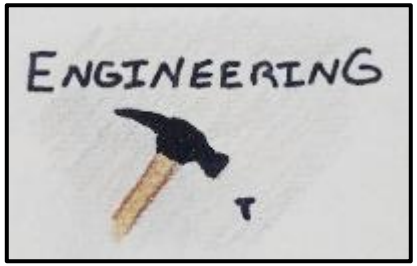
```
$ heroku create sushi
Creating sushi... done
http://sushi.herokuapp.com/ | git@heroku.com:sushi.git

$ git push heroku master
----> Heroku receiving push
----> Rails app detected
----> Compiled slug size is 8.0MB
http://sushi.herokuapp.com deployed to heroku
```

Total Ownership Model







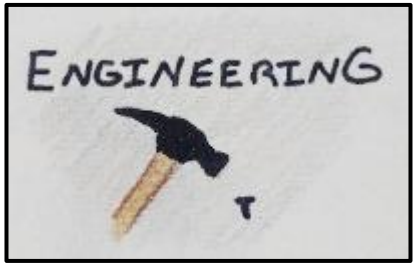




Vision
Power
Control

Backpressure
Pages

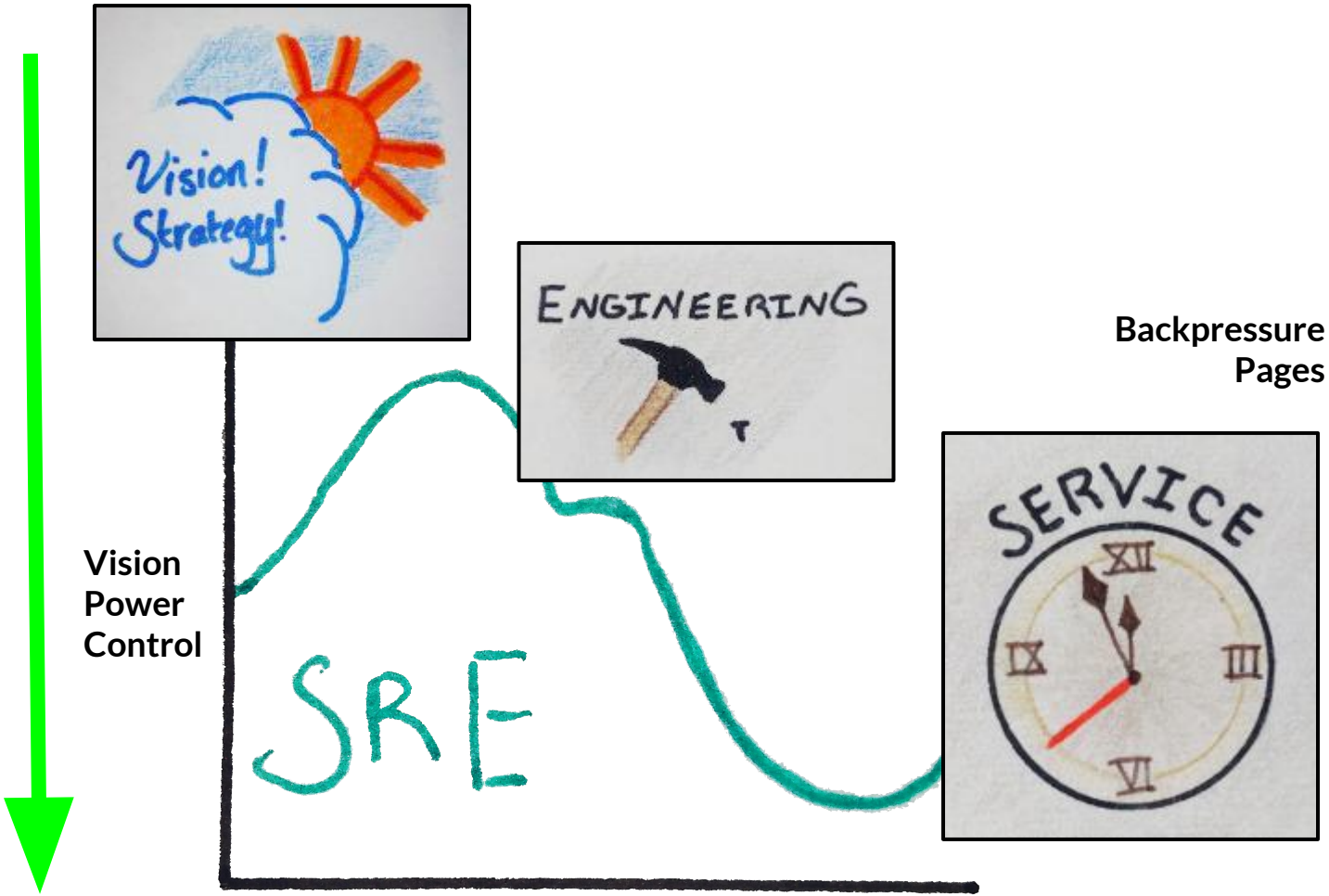






Vision
Power
Control

Backpressure
Pages


Vision!
Strategy!
ENGINEERING
SERVICE
SRE
Vision
Power
Control
Backpressure
Pages

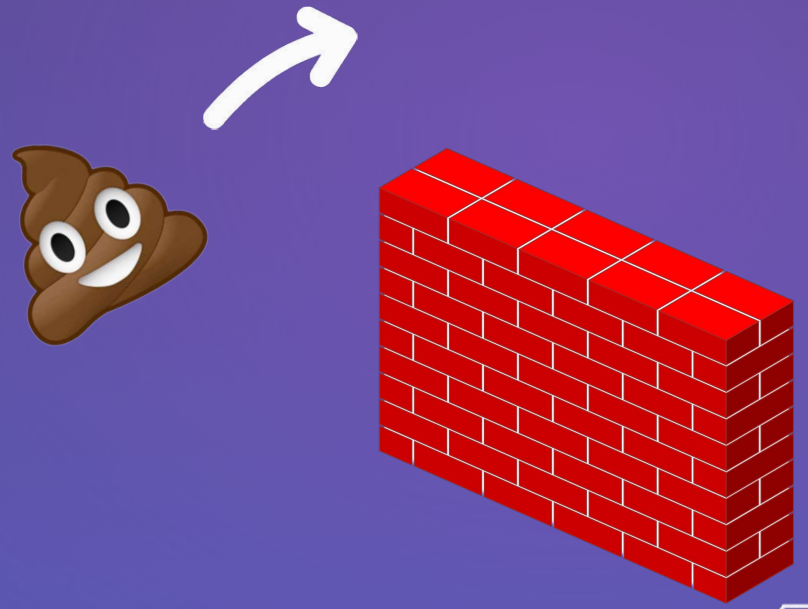
Incentives

- Dev's incentives align with reliability
  - decreasing operational burden
  - increasing reliability
  - reduce false-positive pages



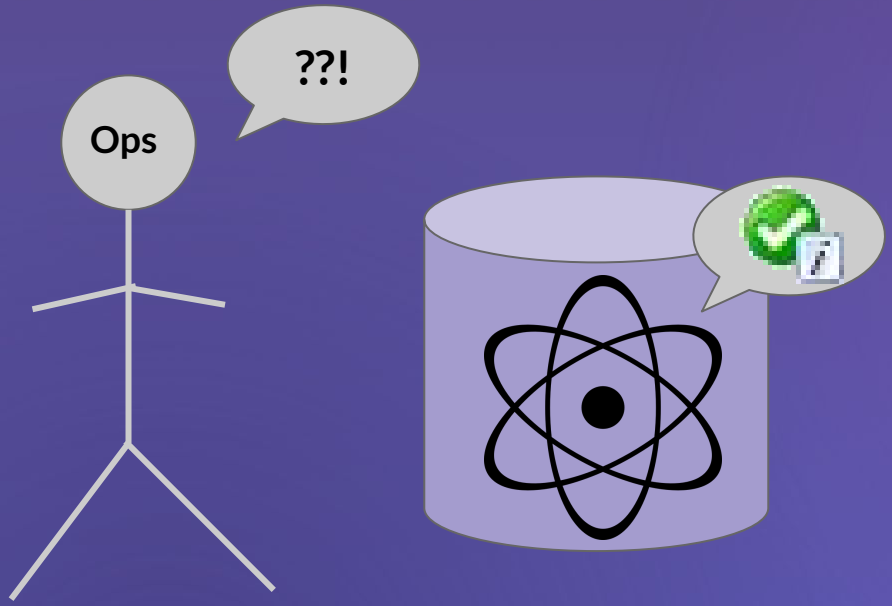
The Old Model

- Dev writes it, Ops runs it
- Dev: move fast
- Ops: protect their on-call
- Ops says “No” a lot



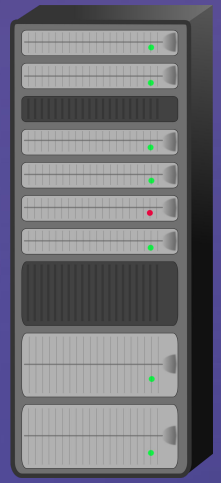
Smiling Poo By Blahblah12323 (Own work) [CC BY-SA 4.0 (http://creativecommons.org/licenses/by-sa/4.0)], via Wikimedia Commons

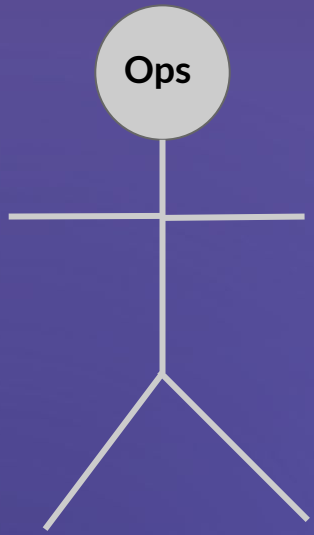
Ops Knowledge Gap

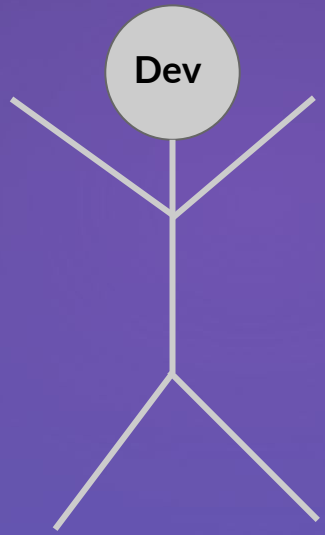




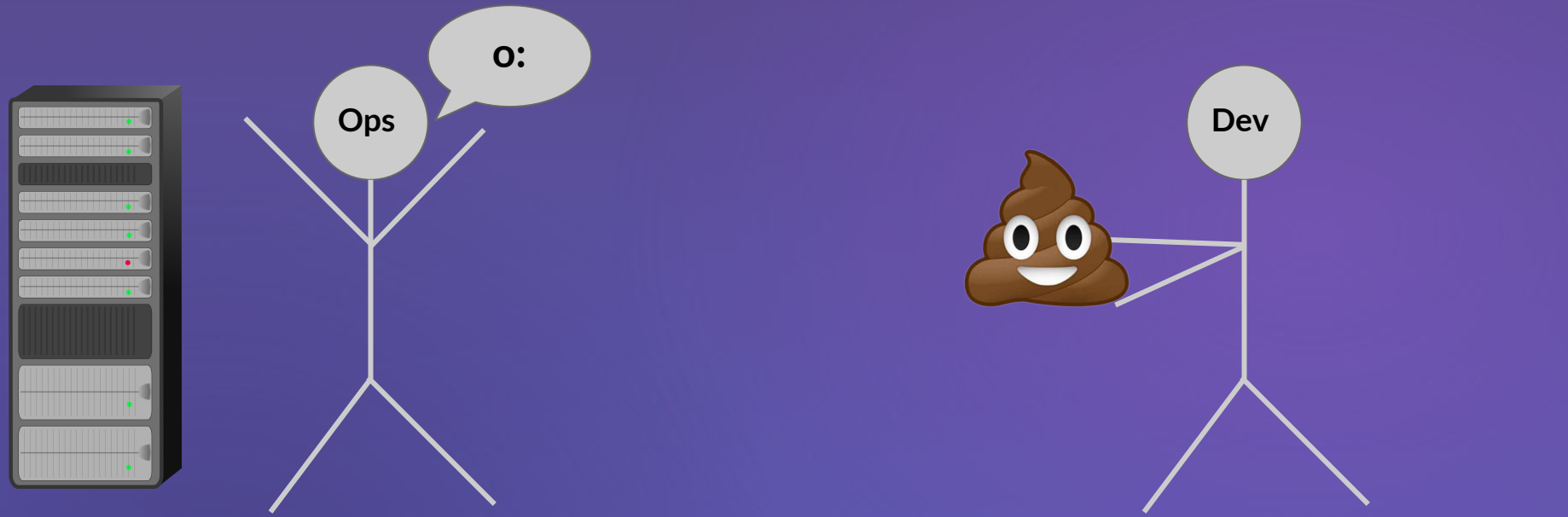
Saying “No” Isn’t Scalable!



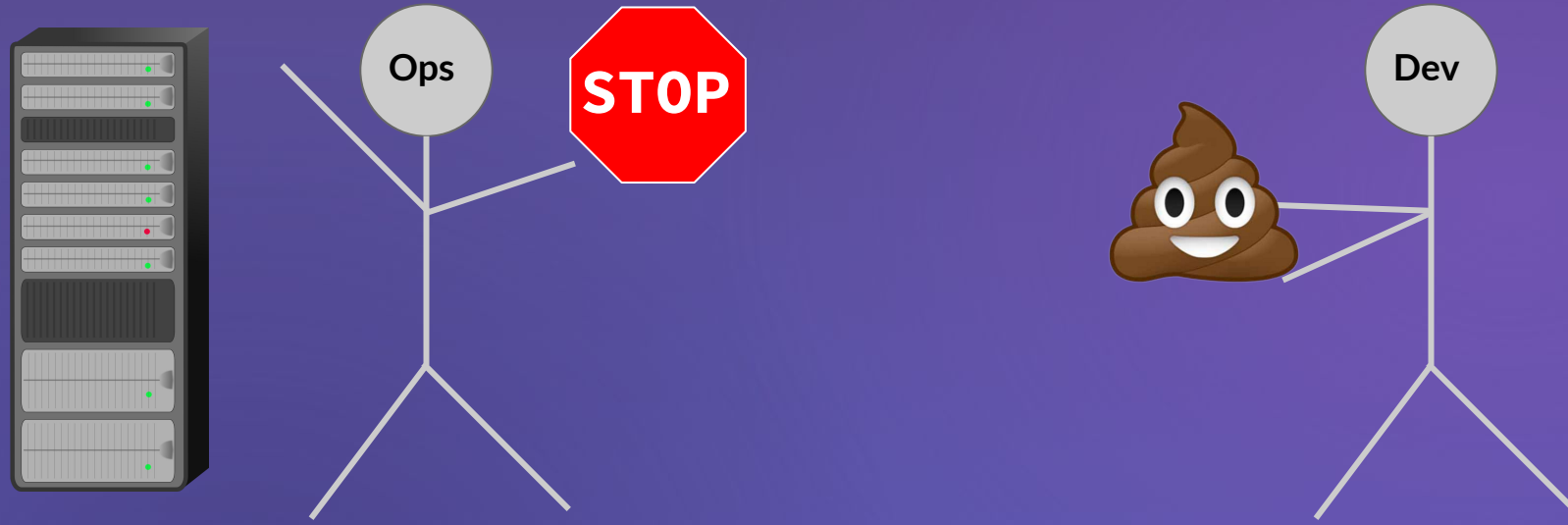




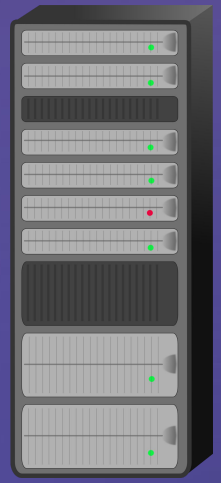
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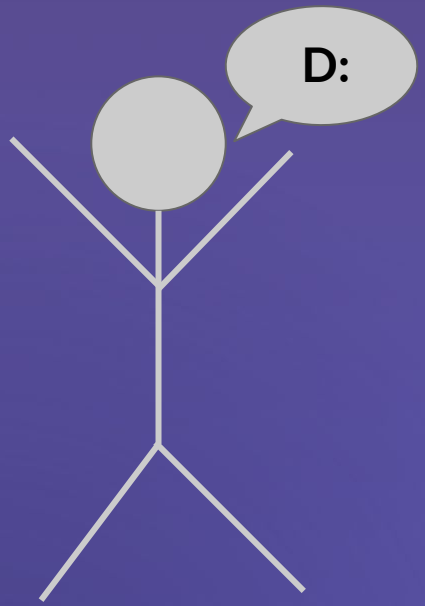


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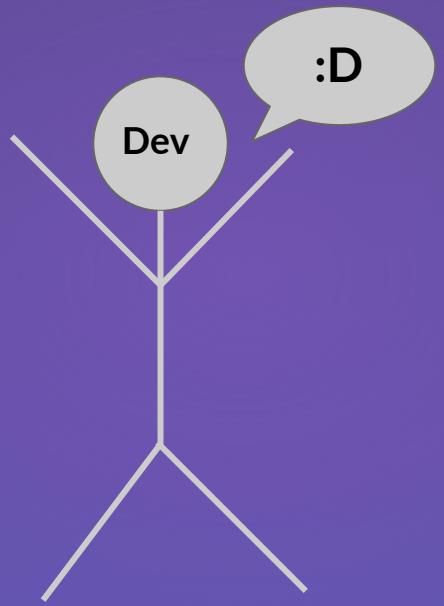


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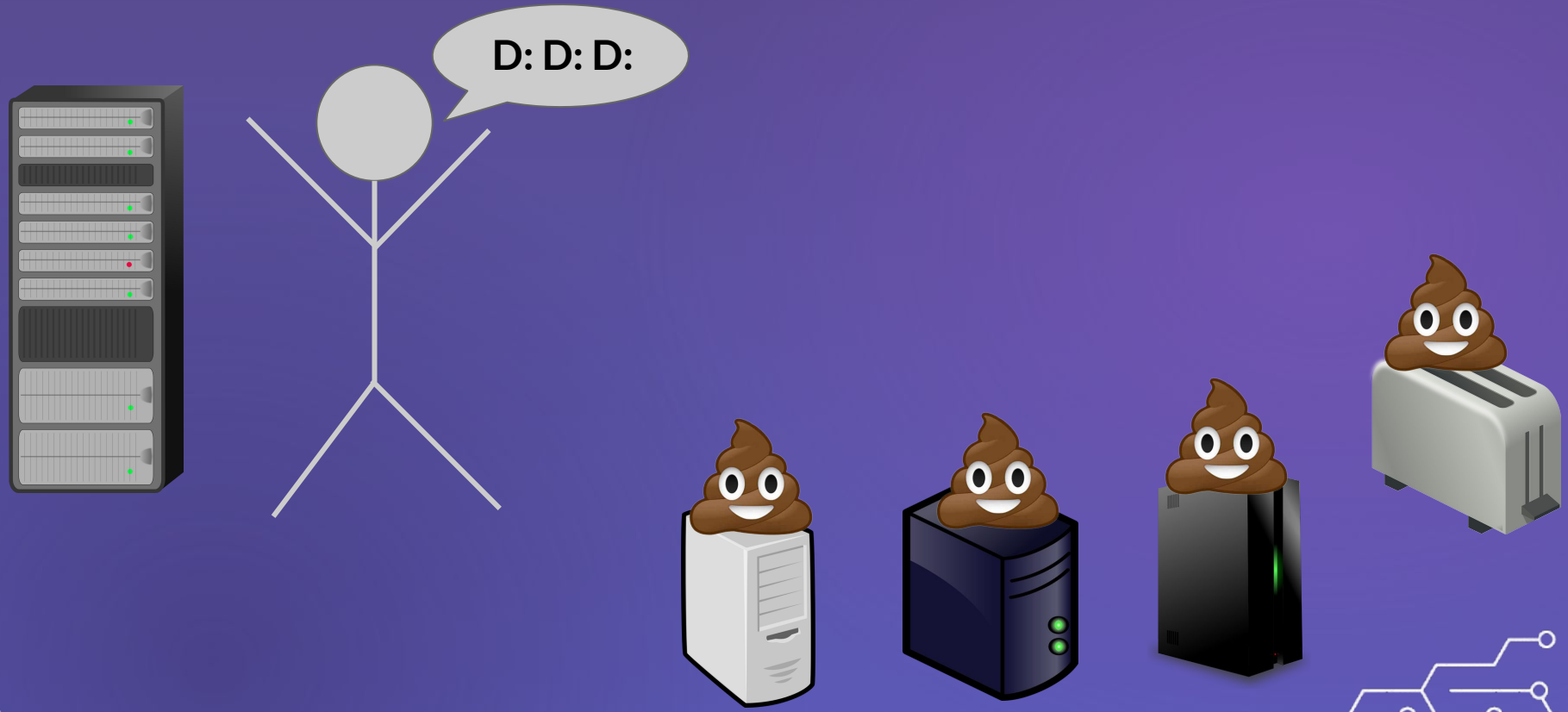








Saying “No” Isn’t Scalable!





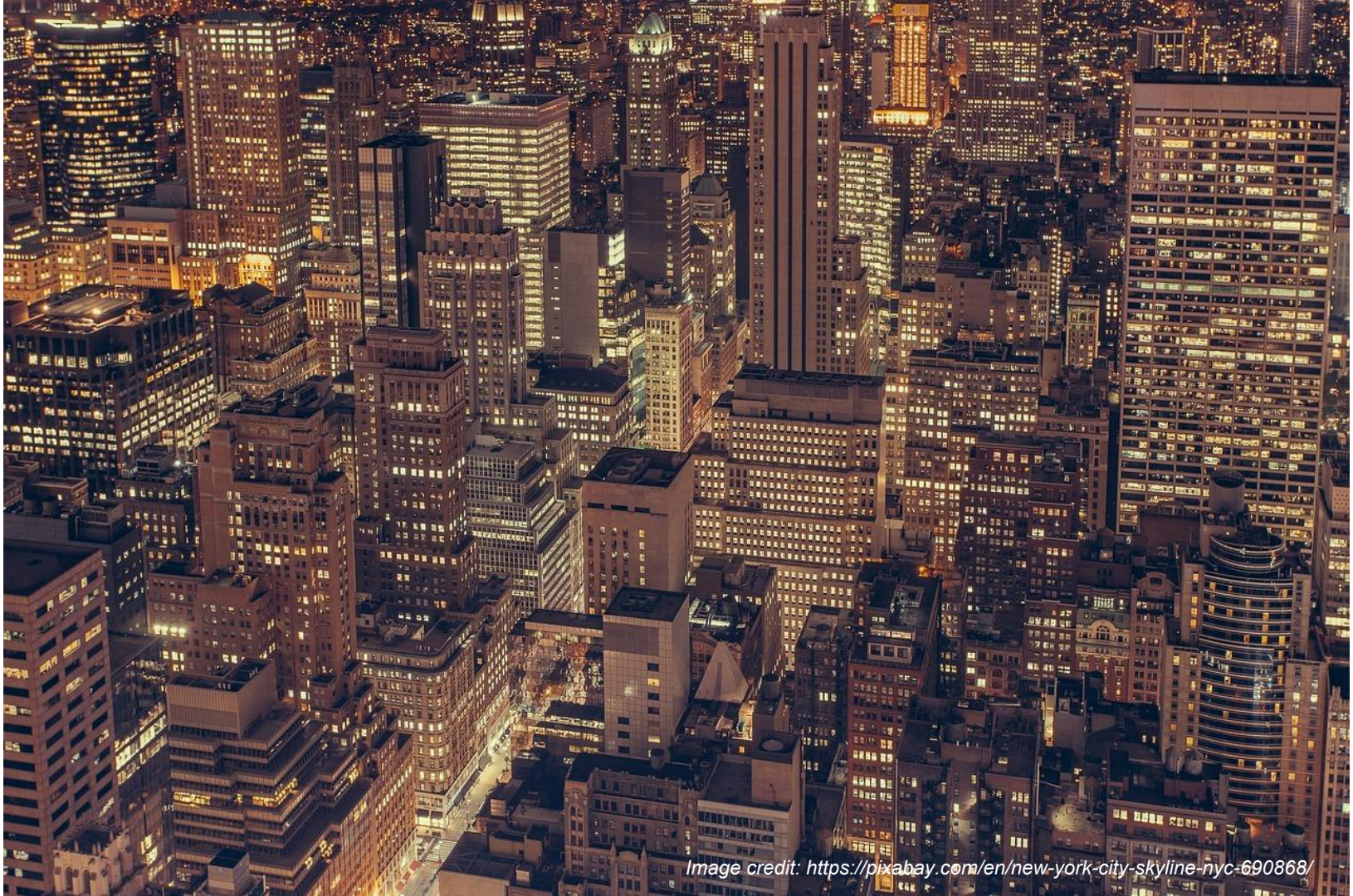


Image credit: https://pixabay.com/en/new-york-city-skyline-nyc-690868/

Holistic View of Reliability



Image credit: **dougwoods@Flickr** https://www.flickr.com/photos/deerwooduk/579761138

In Scope for SRE



Word Cloud generated with Andreas Mueller's Wordcloud: github.com/amueller/word_cloud



Image credit: https://www.flickr.com/photos/jonas_lowgren/4997514953

Burnout



Image credit: https://www.nps.gov/features/yell/slidefile/history/1946_1999/structures/Images/15066.jpg

How to Make On-Call not Deadly

- primary/secondary pager rotation
- work-life balance
  - even during on-call
- 4-hour incident-response shifts

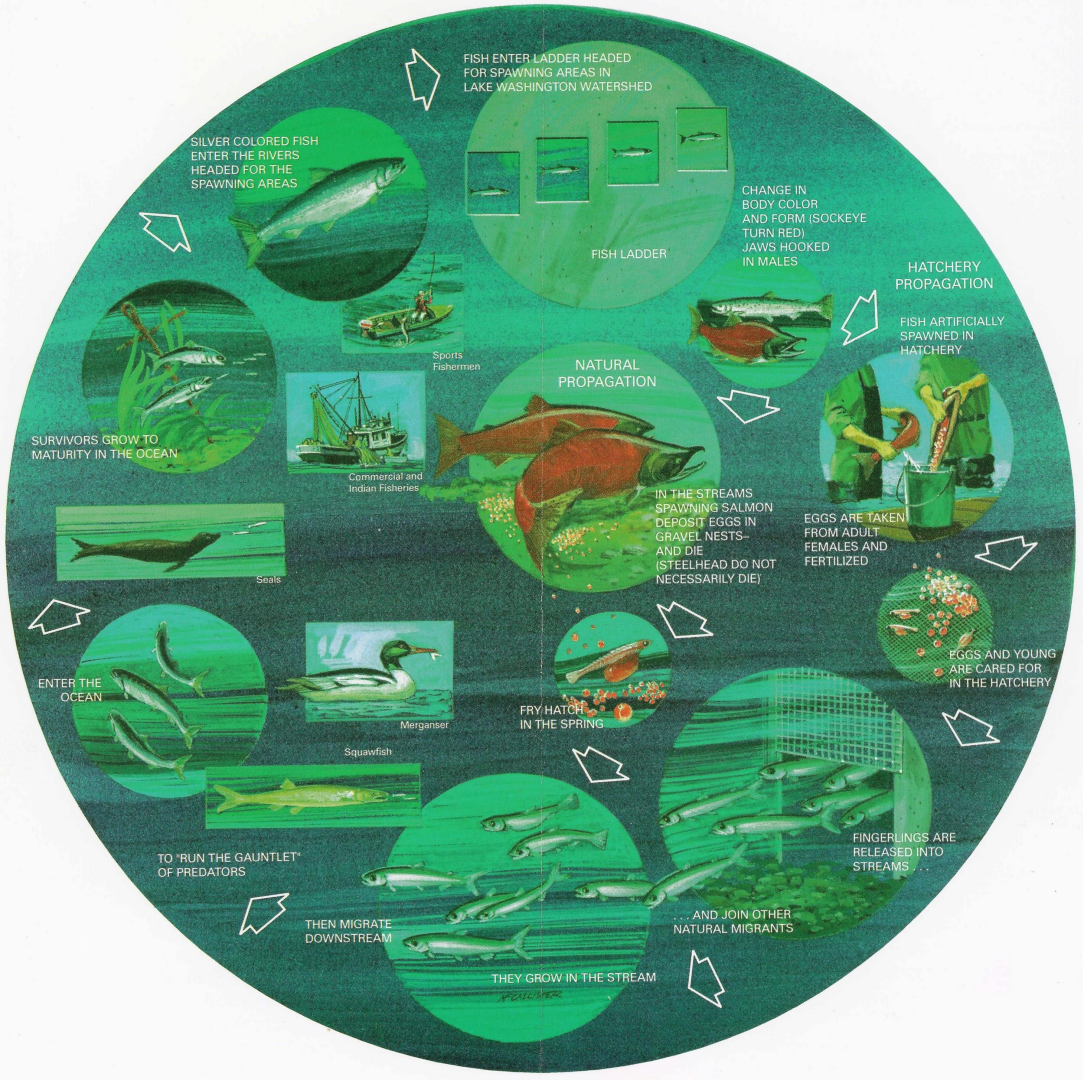
Attritrion is a Reliability Risk

> *I don’t want to have to backfill your ass.*

– Lex

Incident Lifecycle Process

SRE is involved in every incident we have,
so we write and update how it’s done


FISH ENTER LADDER HEADED FOR SPAWNING AREAS IN LAKE WASHINGTON WATERSHED
SILVER COLORED FISH ENTER THE RIVERS HEADED FOR THE SPAWNING AREAS
FISH LADDER
CHANGE IN BODY COLOR AND FORM (SOCKEYE TURN RED) JAWS HOOKED IN MALES
HATCHERY PROPAGATION
FISH ARTIFICIALLY SPAWNED IN HATCHERY
Sports Fishermen
NATURAL PROPAGATION
SURVIVORS GROW TO MATURITY IN THE OCEAN
Commercial and Indian Fisheries
IN THE STREAMS SPAWNING SALMON DEPOSIT EGGS IN GRAVEL NESTS– AND DIE (STEELHEAD DO NOT NECESSARILY DIE)
EGGS ARE TAKEN FROM ADULT FEMALES AND FERTILIZED
Seals
EGGS AND YOUNG ARE CARED FOR IN THE HATCHERY
ENTER THE OCEAN
Merganser
FRY HATCH IN THE SPRING
Squawfish
FINGERLINGS ARE RELEASED INTO STREAMS . . .
TO "RUN THE GAUNTLET" OF PREDATORS
. . . AND JOIN OTHER NATURAL MIGRANTS
THEN MIGRATE DOWNSTREAM
THEY GROW IN THE STREAM

What happens when stuff goes wrong?

Incident Response

Division of Responsibilities

- Dev
  - incident response
  - service health
- SRE
  - incident *coordination*
  - holistic platform health



hold on for dear life

Incident Commander

Support

Vendor

Eng Team 1

Exec



Eng Team 2

Comms

Ruslana Conducting the Orchestra by KrayCeremoush (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

Incident Retrospective

What happened, and how can we prevent it from happening again?



Image credit: http://www.wsdot.wa.gov/Projects/SR520Bridge/Photos/Damage.htm

Complex failures

“The loads that created significant leakage were the combined effects of all accumulations of water, including rain after the wind storm, longitudinal flow on the surface of the bridge, and pumping through Nov. 24, 1990. These loads caused static moments [...] that exceeded the threshold for leakage. [E]xisting cracks were open[ed] sufficiently to allow water to leak into the pontoon. Progressive and accelerating sinking began at this time.”

Dusenberry, D., Zarghamee, M., Liepins, A., Luft, R., and Kan, F. (1995). ”Failure of Lacey V. Murrow Floating Bridge, Seattle, Washington.” J. Perform. Constr. Facil., 9(1), 4–23.

This was almost a good retrospective

Gotta catch ‘em all

Retrospective process

People forget things

Hold it within 7 days

Context clues are the best clues

Have a template

Everyone’s perspective helps

Invite all the responders (don’t take no for an answer)

Big issues benefit from extra attention

Consider selecting a senior facilitator

How did Courtney break the vase?

Ask how, not why

Human Error is not a Root Cause

> *...human error as a root cause isn't where you should* **end**, *it's where you should* **start** *your investigation.*

– John Allspaw, referencing Sidney Dekker, David Woods, and others



https://www.flickr.com/photos/brykmantra/76765412


BLAME

“Try Harder” is not a Remediation

> *The beatings will continue until reliability improves.*

– some combination of my colleagues

The Human “Problem”



The Design of Everyday Things



Donald A. Norman

Conway's Law

organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations
--Melvin Conway, in **1968**

http://www.melconway.com/Home/Committees_Paper.html

GOSSIP

It’s a sign of human connections

Everything is a people problem

Figure out how to love and support your people

Thanks for listening <3

No Q&A – please come talk to us!




Hello
my name is
TECHNICAL DEBT