

# Cultivating Production Excellence

## Taming Complex Distributed Systems

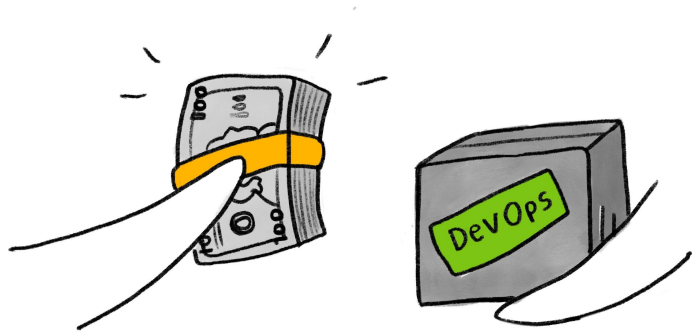
**Liz Fong-Jones**

@lizthegrey

#QConLondon

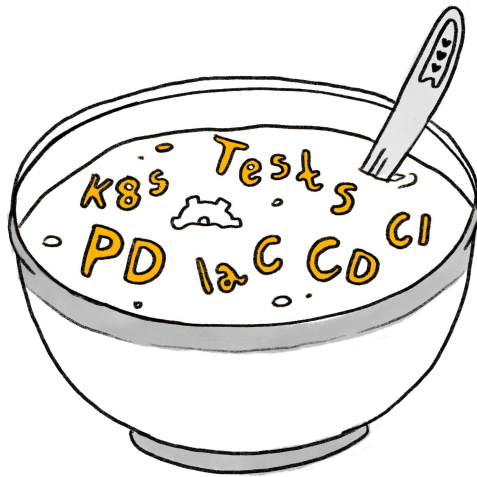
March 5, 2019





# QCorp 'bought' DevOps





# Ordering the alphabet soup...





# Walls of meaningless dashboards.

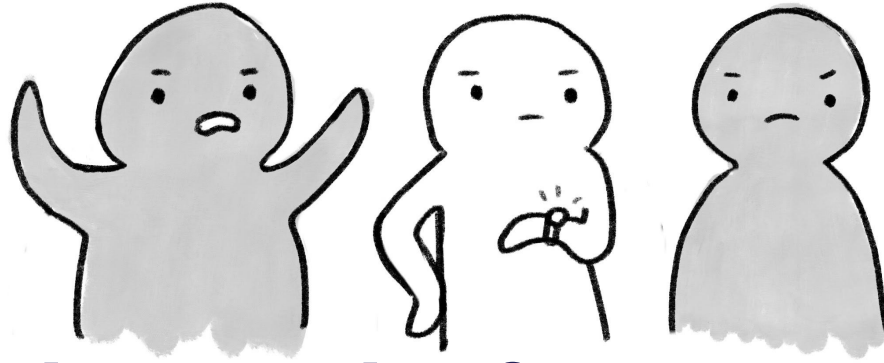






# Noisy alerts. Grumpy engineers.





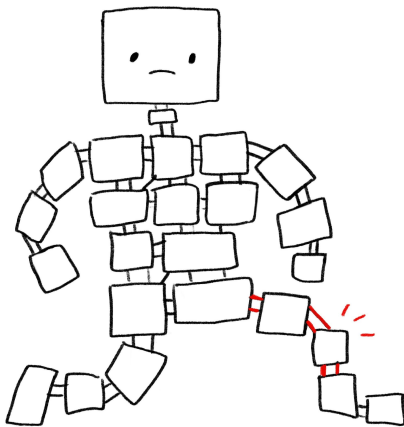
**Incidents take forever to fix.**





**Everyone bugs the "expert".**





# Deploys are unpredictable.





**There's no time to do projects...**





**and when there's time, there's no plan.**





# The team is struggling to hold on.





# What's QCorp missing?





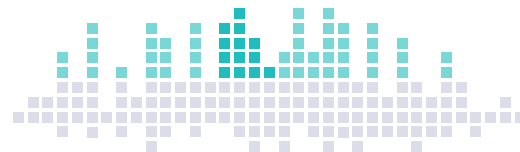


QCorp forgot **who** operates systems.





**Tools aren't magical.**

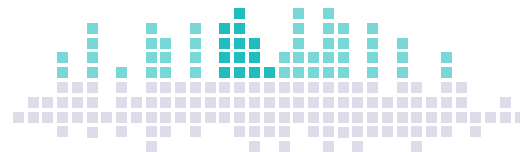




Invest in **people, culture, & process.**

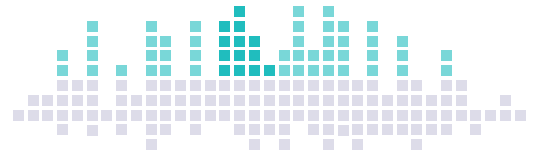


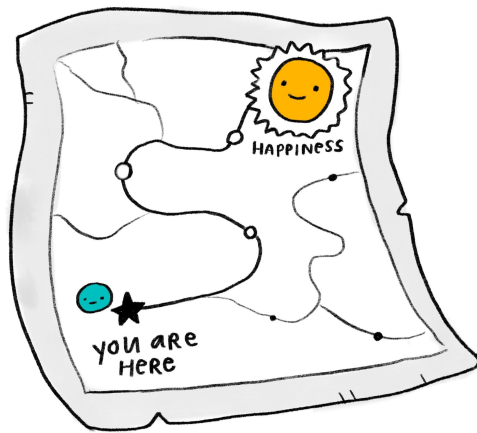
# Enter the art of Production Excellence.



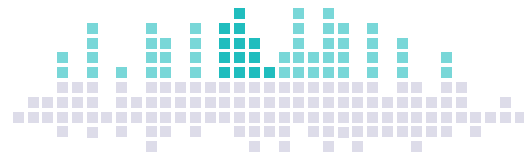


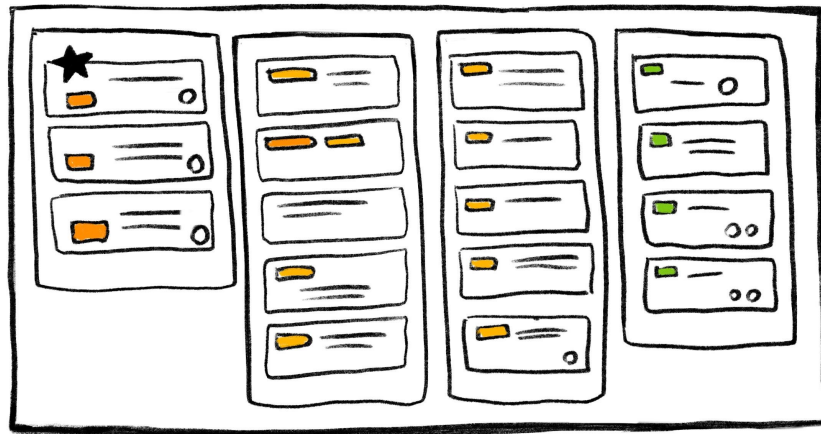
# Make systems more **reliable & friendly.**





# ProdEx takes **planning**.



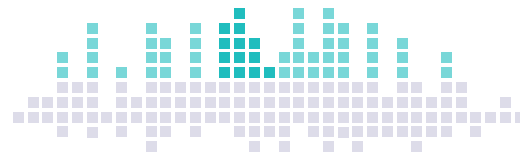


**Measure and act on what matters.**





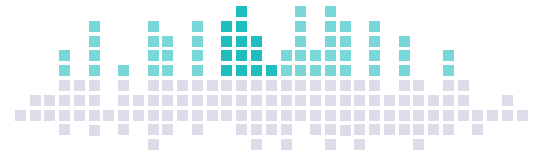
**Involve everyone.**







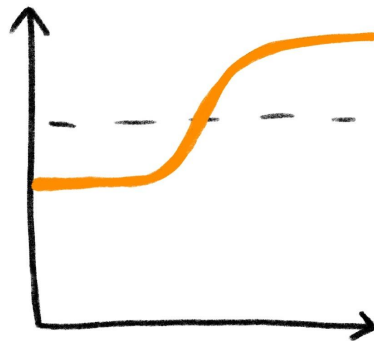
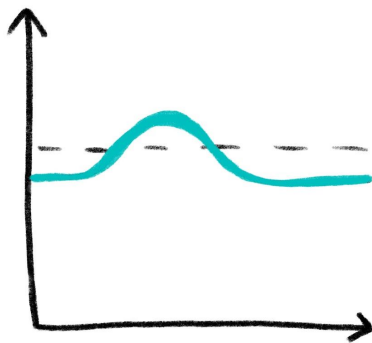
**Build everyone's confidence.  
Encourage asking questions.**



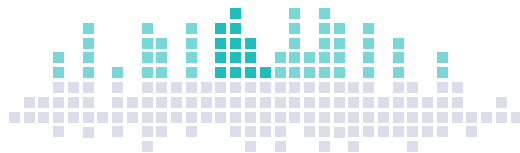


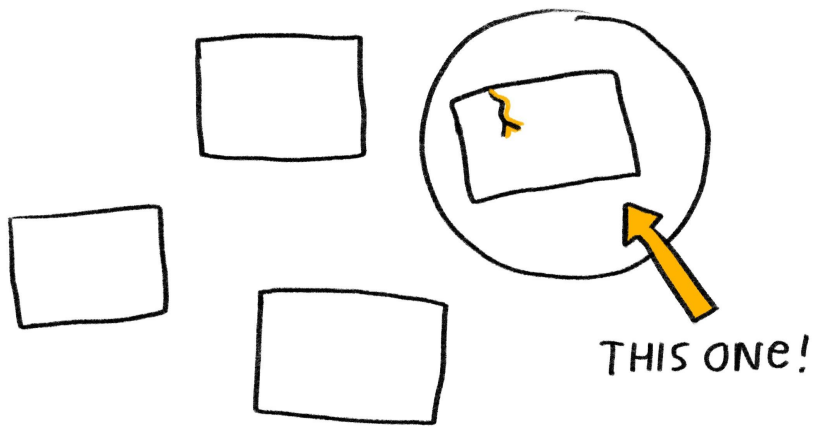
# How do we **get started?**



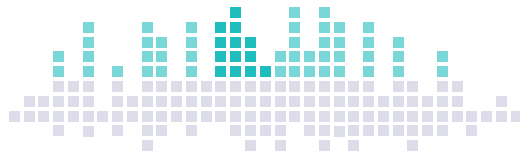


**Know when it's too broken.**



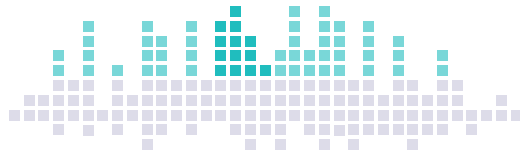


**& be able to debug, together when it is.**



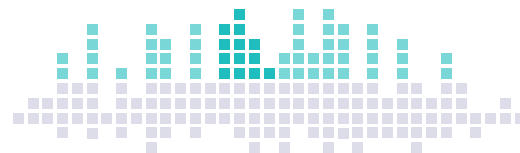


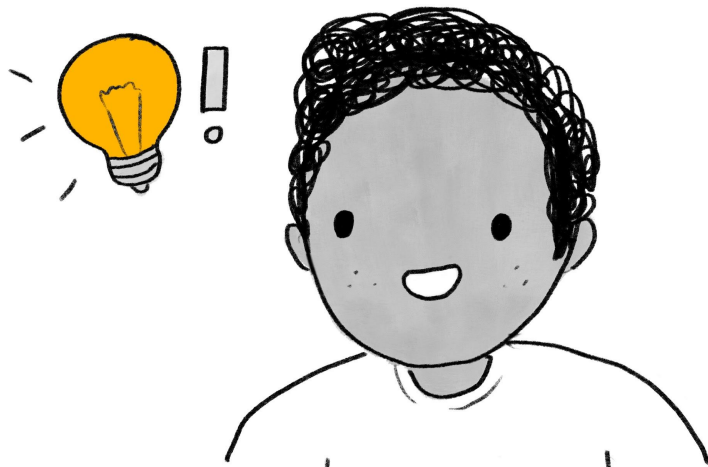
# Eliminate complexity.





**Our systems are always failing.**





# What if we **measure** too broken?

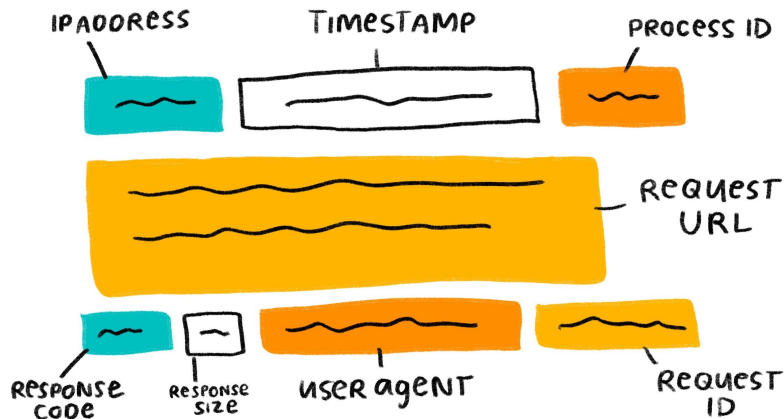




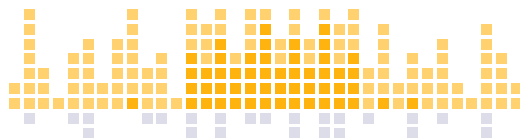
# We need Service Level Indicators

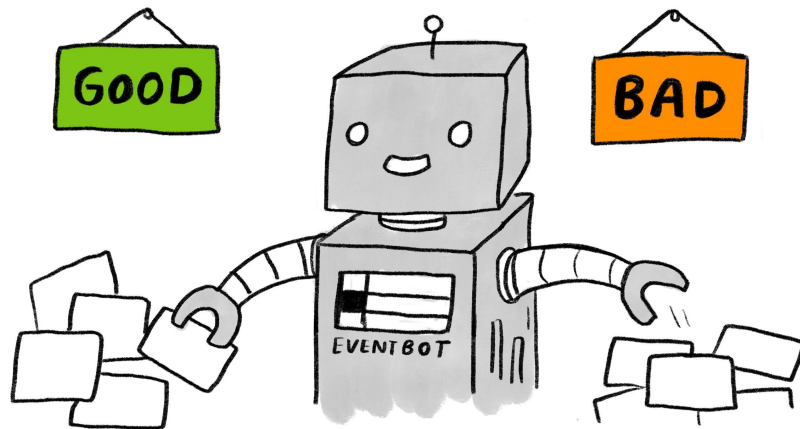




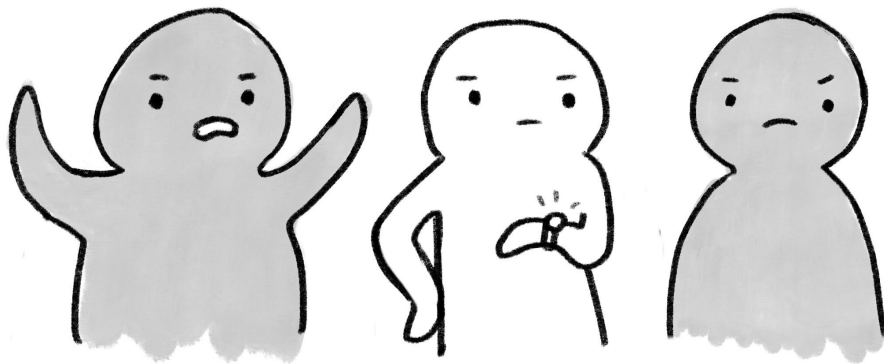


Think in terms of **events** in **context**.

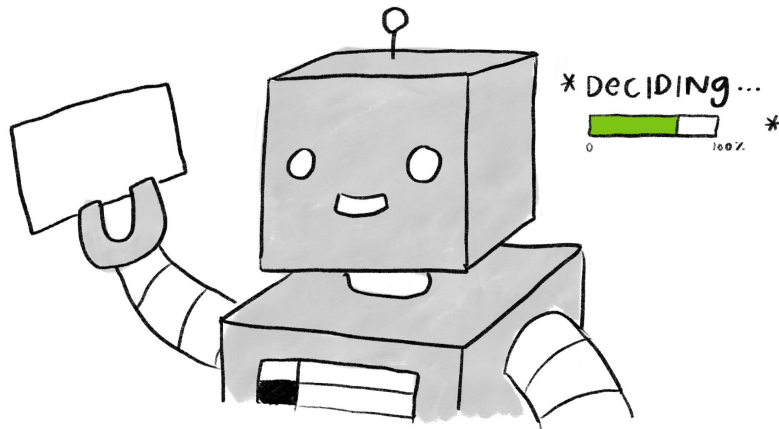




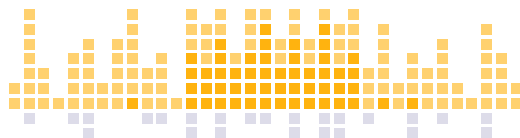
Is this event **good** or **bad**?

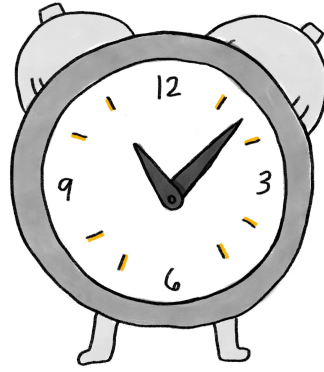


**Are users **grumpy**? Ask your PM.**

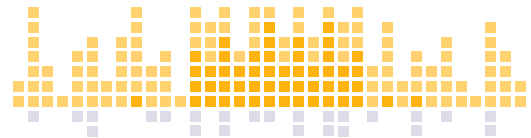


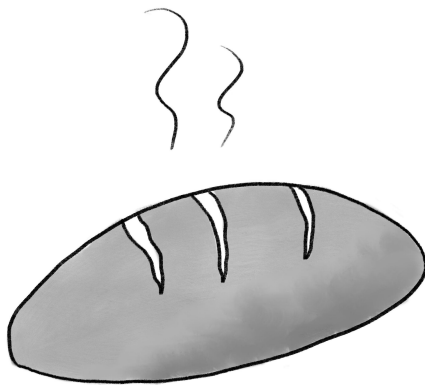
# HTTP Code 200? Latency < 300ms?



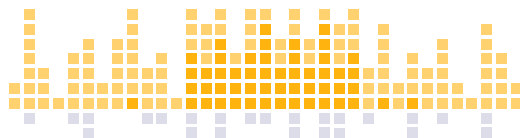


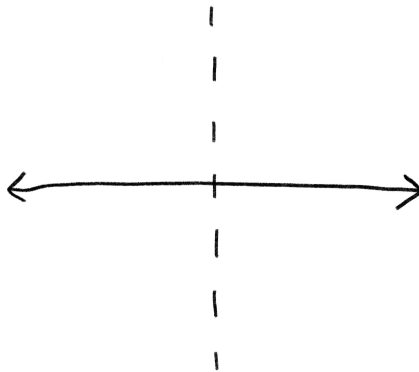
**Or maybe it's batch.**



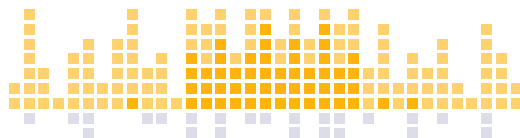


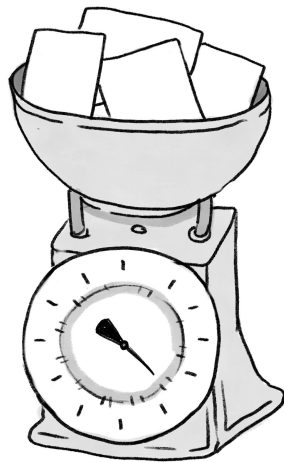
Row of data **fresh**er than 24 hours?



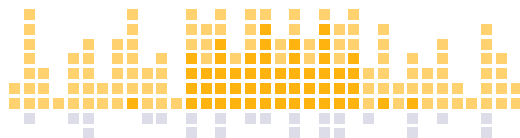


# What **threshold** buckets events?

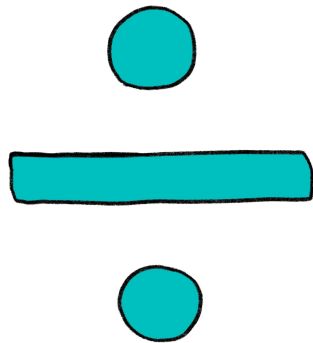




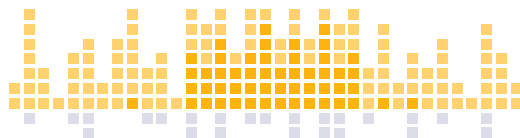
# How many **eligible events** did we see?

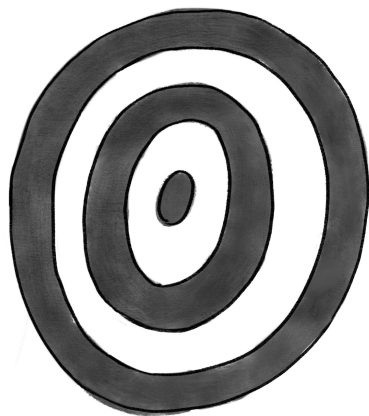




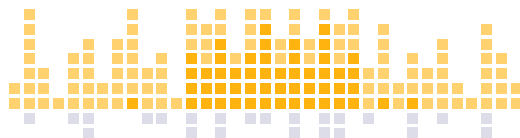


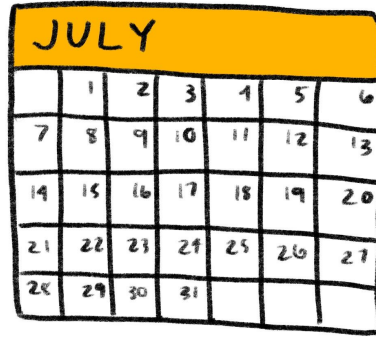
# Availability: Good / Eligible Events





**Set a target Service Level Objective.**



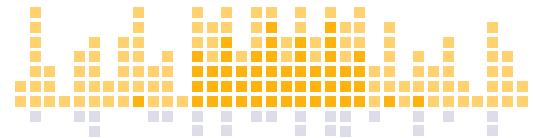


A hand-drawn calendar for the month of July. The title 'JULY' is written in black capital letters on an orange rectangular background at the top. Below the title is a 6x7 grid of squares. The first row contains the numbers 1 through 6. The second row contains 7 through 13. The third row contains 14 through 20. The fourth row contains 21 through 27. The fifth row contains 28, 29, 30, and 31. The last two squares in the fifth row are empty.

JULY						
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

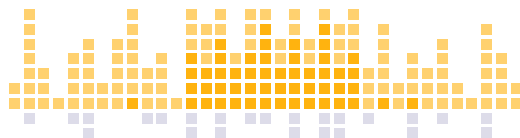


Use a **window** and **target percentage**.



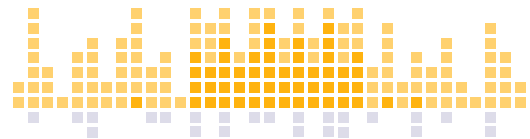


**99.9%** of events good in **past 30 days.**



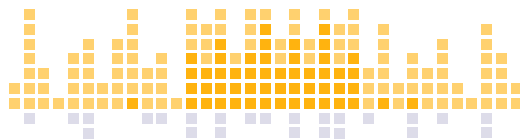


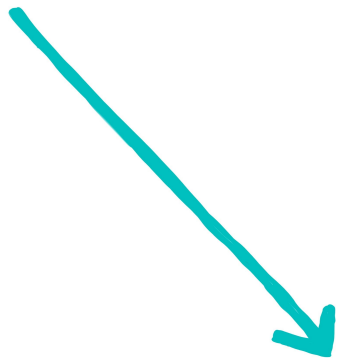
A good SLO barely keeps users happy.



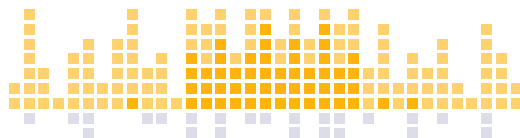


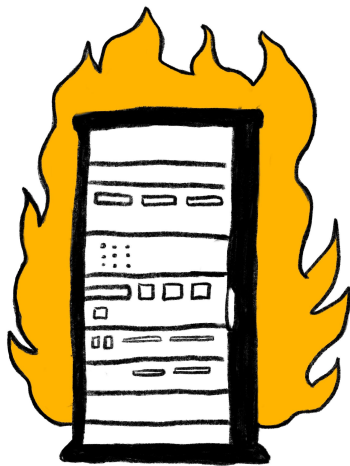
# Drive alerting with SLOs.



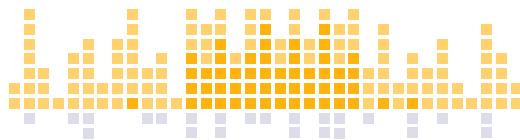


# Are things **trending** in a bad direction?





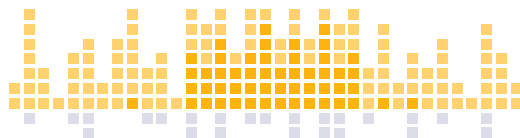
# Is my service **on fire**?

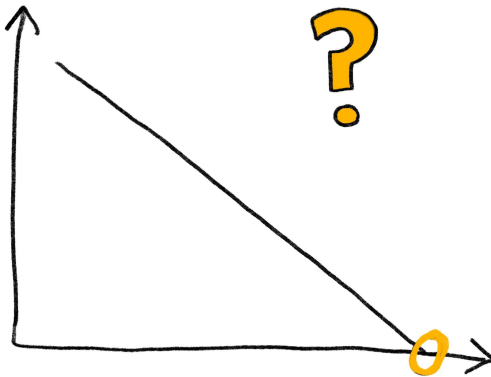




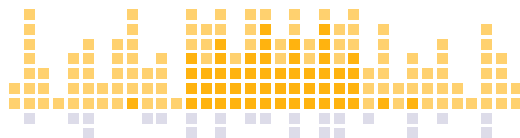
$$1 - x$$

Error budget: **allowed** unavailability





**How long** until I run out?

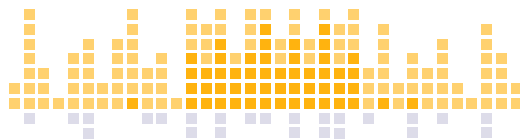


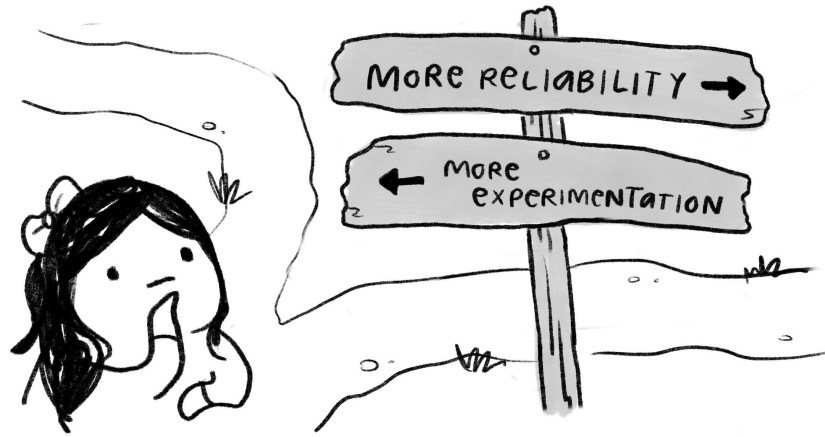


**Page** if it's hours.

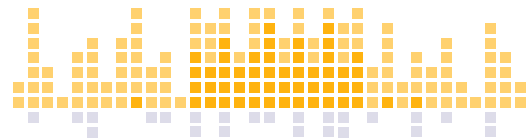


**Ticket** if it's days.



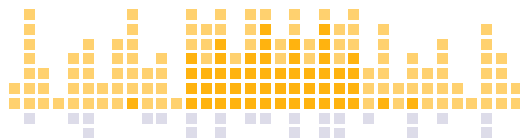


# Data-driven business decisions.



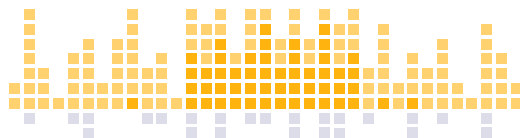


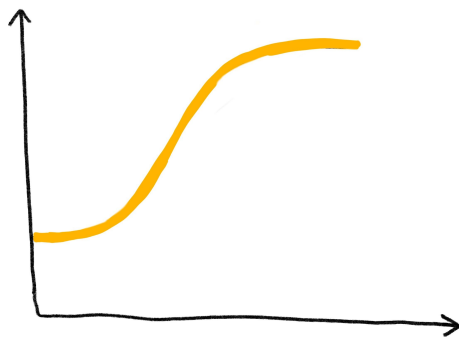
**Is it safe** to do this risky experiment?



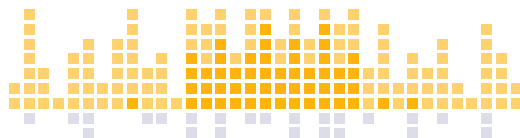


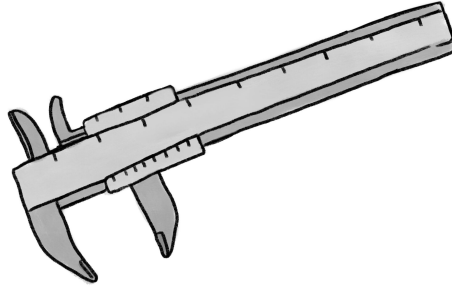
# Should we **invest** in more reliability?



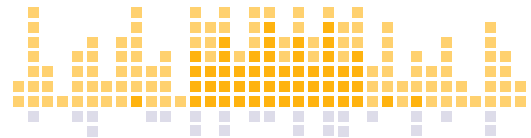


**Perfect SLO > Good SLO >>> No SLO**

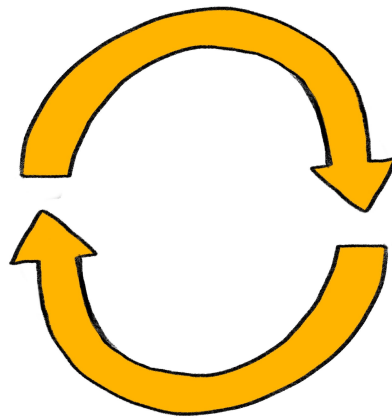




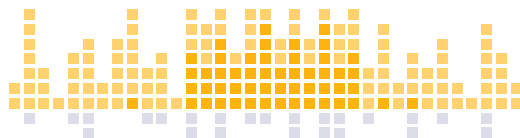
**Measure** what you can today.





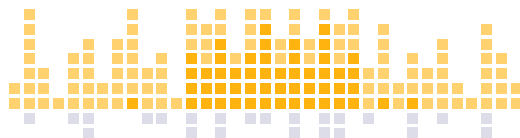


**Iterate** to meet user needs.





Only alert on **what matters.**



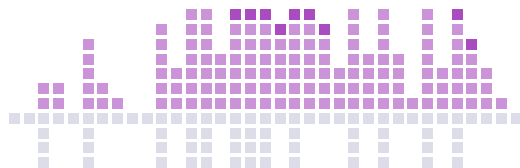


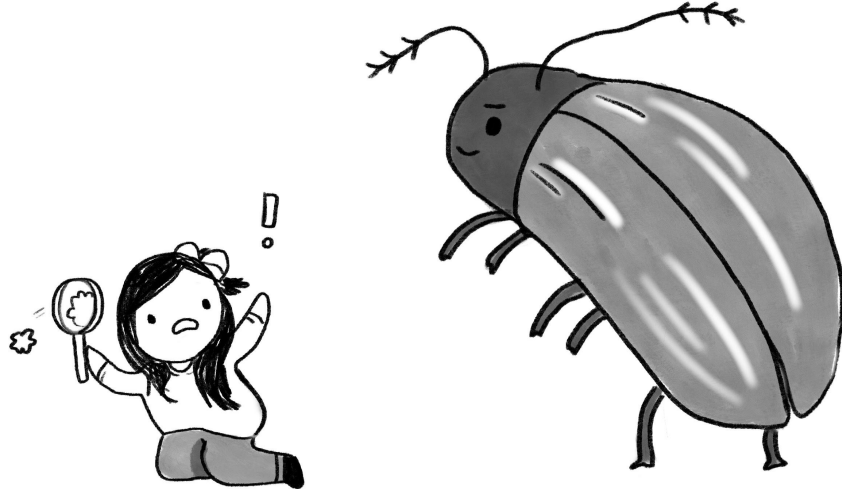
**SLIs & SLOs are**  
**only half the picture...**



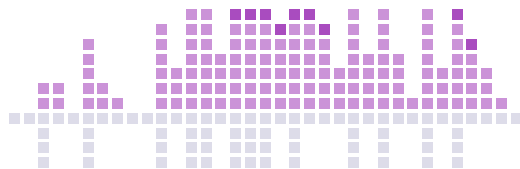


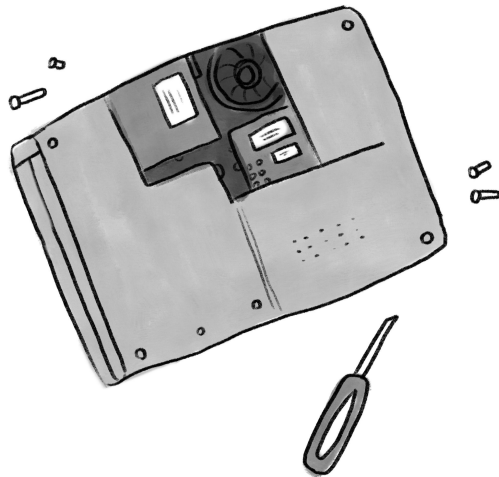
Our outages are **never identical.**





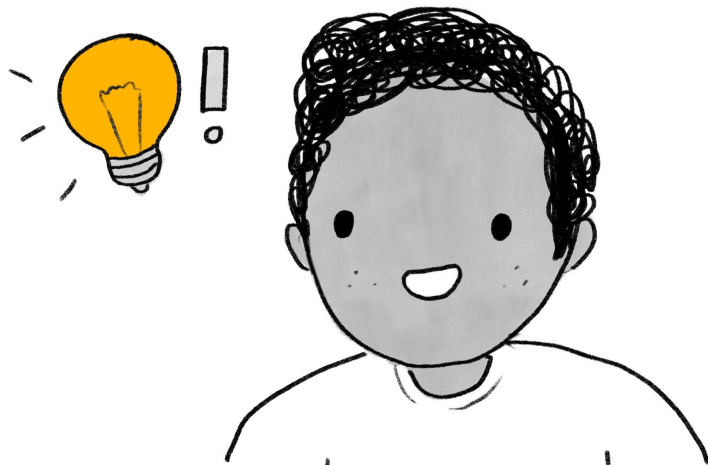
**Failure modes can't be predicted.**



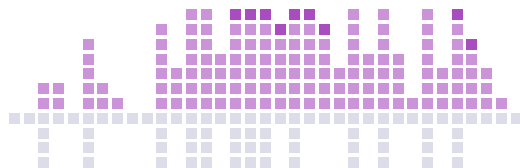


**Support debugging novel cases.  
In production.**



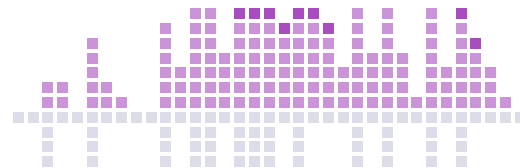


**Allow forming & testing hypotheses.**

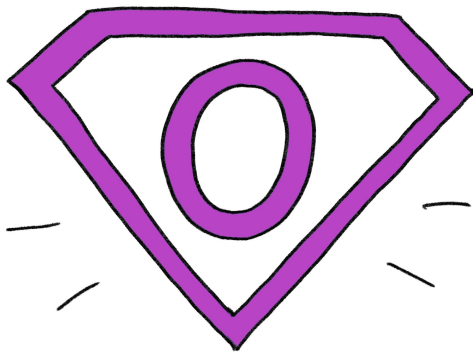




**Dive into data to ask new questions.**

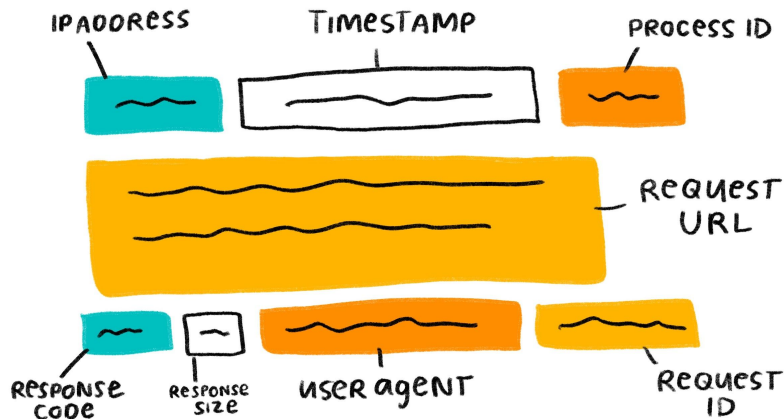




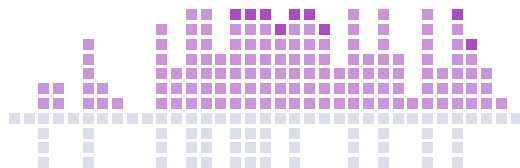


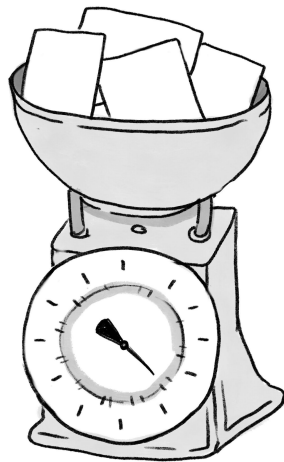
**Our services must be observable.**





# Can you examine **events** in **context**?



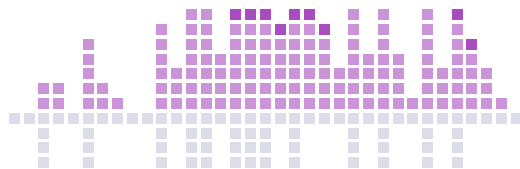


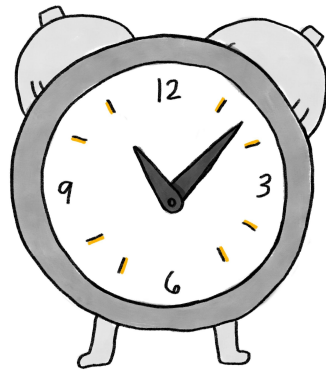
# Can you **explain** the variance?<sup>1</sup>

<sup>1</sup> Ben Sigelman



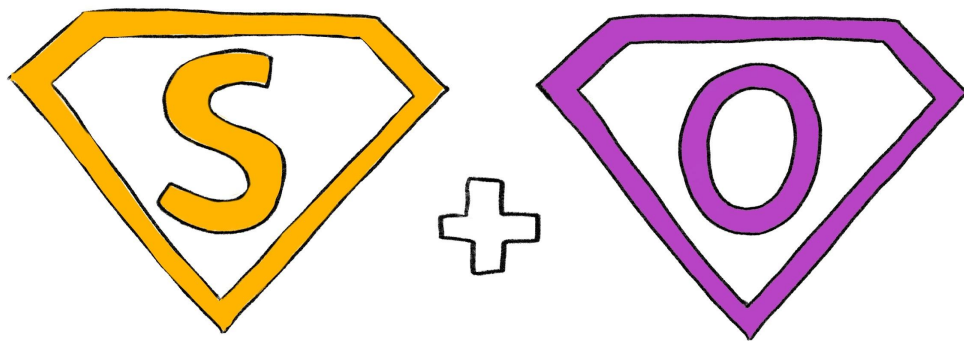
@lizthegrey at #QConLondon



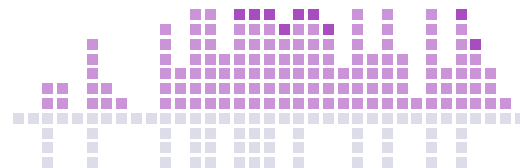


# Can you **mitigate impact** & **debug later**?

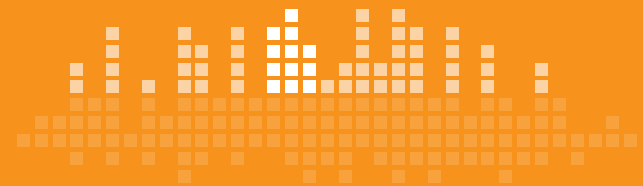




**SLOs and Observability go together.**

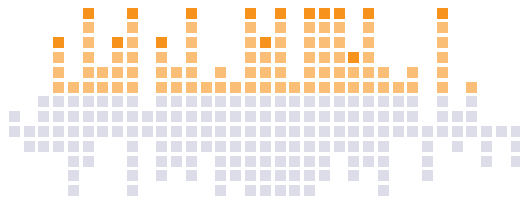


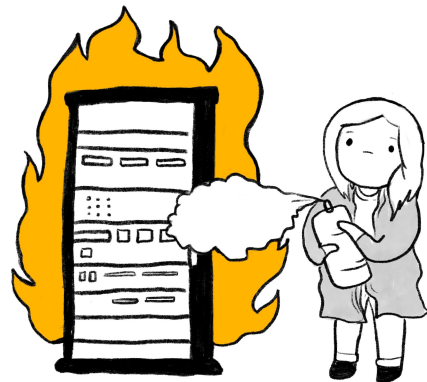
**But they alone don't  
create collaboration.**



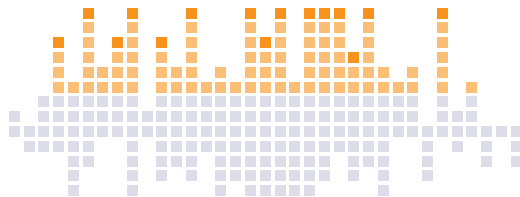


Debugging is **not** a solo activity.





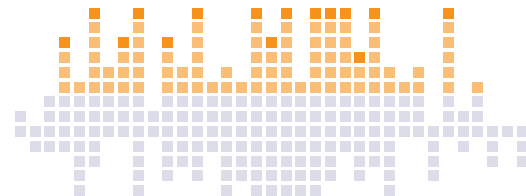
Debugging is **for everyone.**





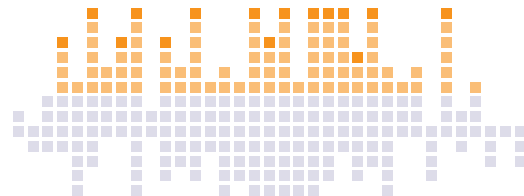


**Collaboration is interpersonal.**



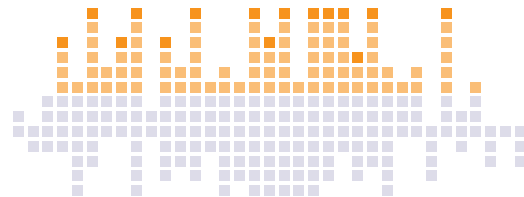


Operations must be **sustainable**.



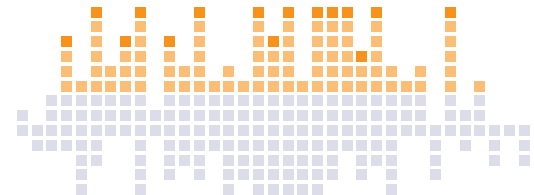


**We learn better when we document.**



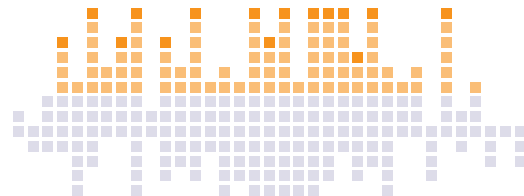


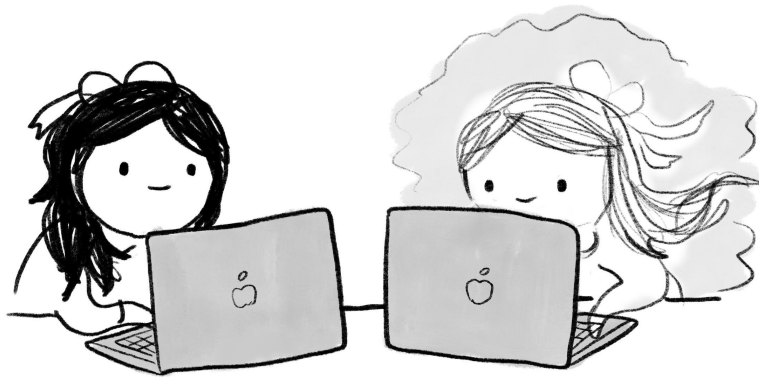
**Fix hero culture. Share knowledge.**



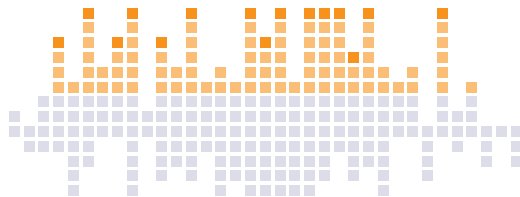


# Reward **curiosity** and **teamwork**.



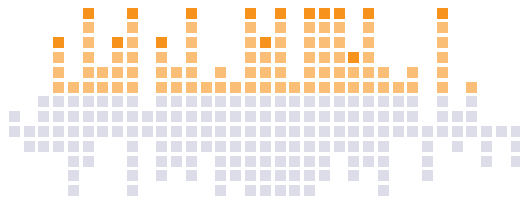


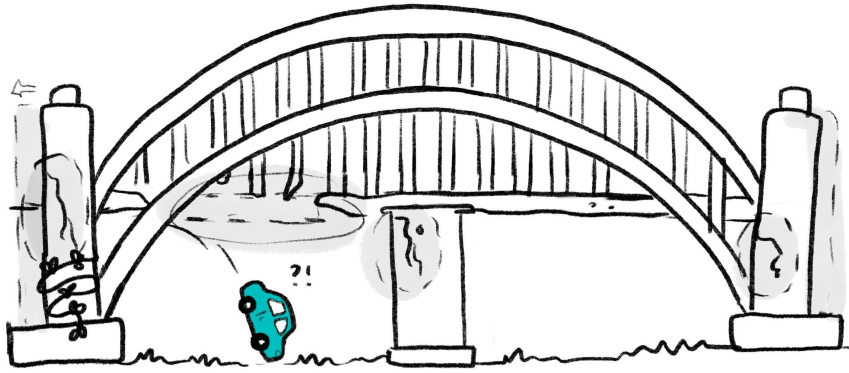
**Learn from the past.**  
**Reward your future self.**





Outages don't repeat, but they **rhyme**.

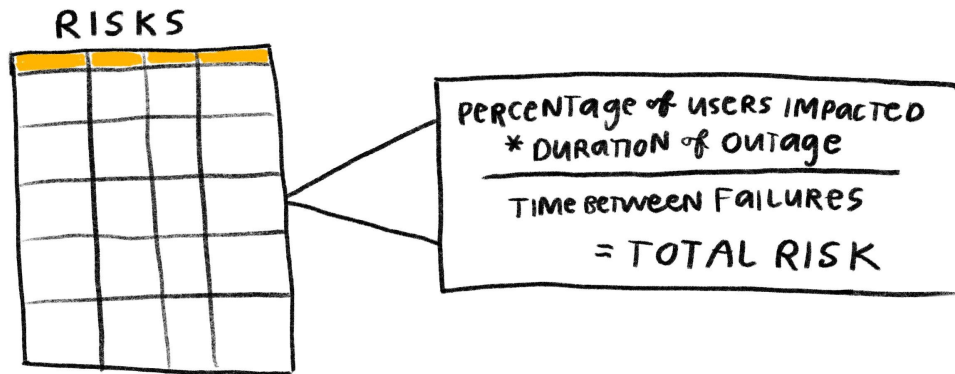




**Risk analysis  
helps us plan.**

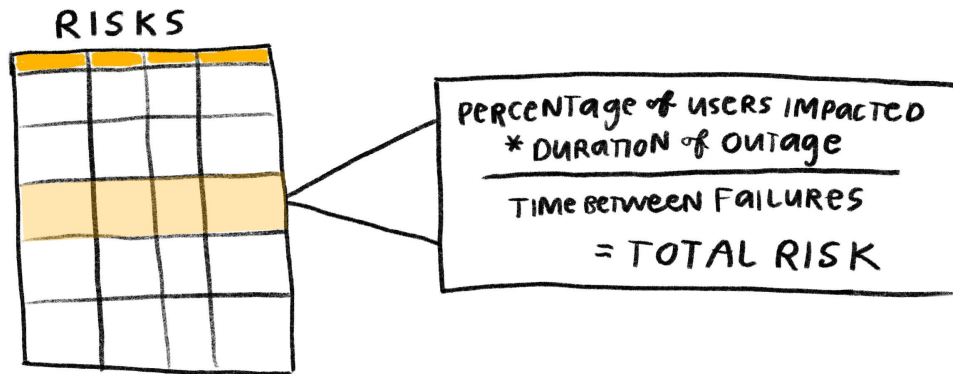






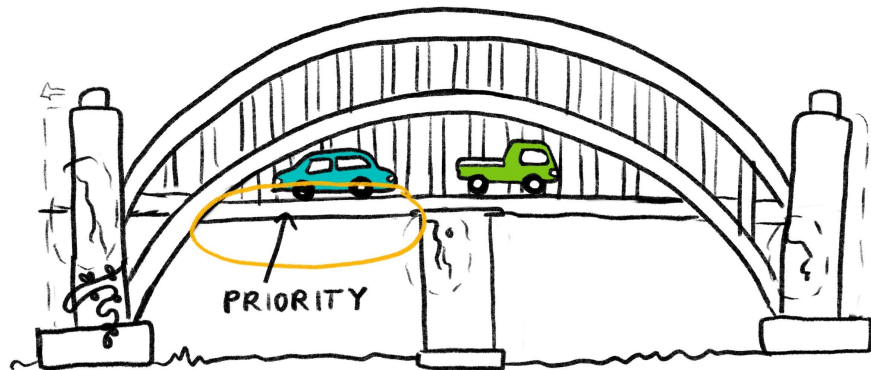
# Quantify risks by frequency & impact.





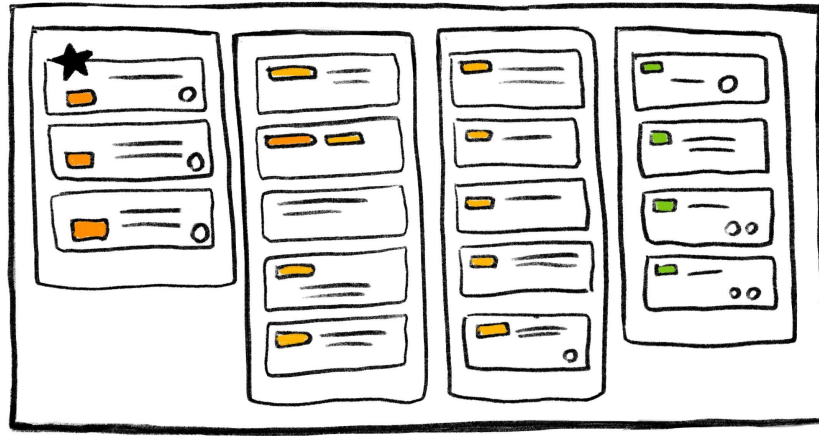
# Which risks are most significant?





**Address risks** that threaten the **SLO**.





Make the **business case** to fix them.





And prioritize **completing** the work.





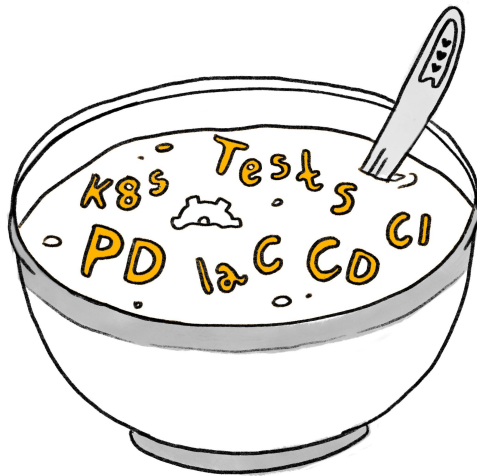
**Lack of observability is systemic risk.**





So is lack of **collaboration**.

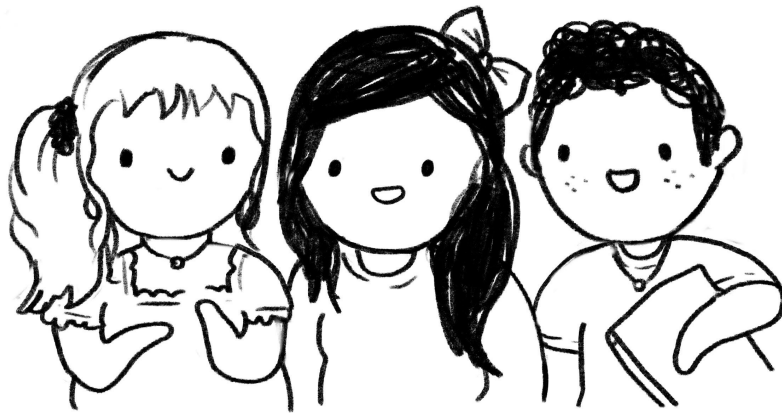




# Season the alphabet soup with **ProdEx**







**Production Excellence**  
brings teams closer together.

**Measure. Debug. Collaborate. Fix.**

[lizthegrey.com](http://lizthegrey.com); [@lizthegrey](https://twitter.com/lizthegrey)

