

Learning Effectively From Incidents

The Messy Details

John Allspaw
Adaptive Capacity Labs

tl;dw (too long, didn't watch)

- Learning is never **not** happening – it's what we humans do!
- Learning requires **remembering**.
- Learning from incidents **effectively** means highlighting aspects of the story that makes it more likely to be *remembered*.
- ...such as elements of surprise, difficulty, misunderstanding, dilemmas, sacrifice decisions, and workarounds.

The Messy Details: Insights From the Study of Technical Work in Healthcare

I. INTRODUCTION

A. *Tensions Between the Universal and the Particular*

The test of a study of cognitive work in context is: did you discover the significance of small details? The catch is that most details are not significant.¹ This ironic circumstance captures the tensions in the study of technical work [1], [2]: one must be immersed into the details of technical work in order to see the deeper adaptive dynamics. However, it is very easy to get lost in the many specific details of significant work settings. To avoid getting lost in the details of a particular setting, some investigators would remain on the surface and substitute tabulations that

and how changes reverberate to transform roles, judgments, difficulties, strategies, and vulnerabilities [6], [8].

Operators—those who work at the sharp end of an organization—create success in work through their efforts to manage the messy details. As they confront different evolving situations, operators navigate and negotiate the messy details to bridge gaps and to join together the bits and pieces of the system. Operators do this job so well that the adaptations and effort disappear to outsiders and insiders alike. Outsiders' attention is captured by more exotic aspects of the setting, and insiders come to view these adaptations as simply the everyday nature of the work [12].

Nemeth, C. P., Cook, R. I., & Woods, D. D. (2004)

bit.ly/MessyDetails

Incident #2515

Start	2012-09-05 3:22PM ET
End	2012-09-05 4:32PM ET
Severity	SEV1 (full site outage)

A recently hired engineer made a change to production ([3a49604728717ed9c72025e311daed58b85ea9c8](#)) that caused all of Etsy.com to become unavailable for over an hour during the daily peak traffic period.

A fix was identified and deployed.

Total impact time was: 1 hour 10 minutes.

about learning and learning from incidents

People are always learning. It's very difficult to *prevent* learning!

The challenge is not getting people to learn – it's about ***creating conditions*** where...

- People *at every level* have opportunities to discover new things they didn't know before, or revisiting things they thought they already knew (but didn't!)
- Experts are supported in describing and teaching others about what they know – and how they know it.
- Rich stories about incidents are viewed as *valuable assets* to the success of the business.



**Learning is not the
same as fixing.**

*More about this here:
<https://bit.ly/learning-not-fixing>*

if you can't remember something,
you can't say you've learned it

when we ask people about incidents

- they become animated when they tell the story!
- they tell the story in *suspenseful* ways
- they include what was surprising (“*what we didn’t know at the time was...*”)
- they set the stage for us (“*now remember, this is the day we did our IPO...*”)
- they can tell it *in detail*...even if it’s been years since it happened!

**The story they tell is always different
than the ‘official’ write-up.**



A photograph of four teenagers, three boys and one girl, posing together against a dark background. The boy on the left wears a white t-shirt under a black and white baseball jacket. The girl in the center wears a light-colored coat over a blue top. The boy on the right wears a red and white striped shirt. The boy in the foreground wears a grey hoodie. They are all looking towards the camera.

A high school senior in Illinois lead classmates on an eleven hour crime spree, committing fraud, grand theft auto, and cyber crimes.



Etsy Status
@etsystatus

...

NEW: Site Issues etsystatus.com/2012/09/05/site-issues/

3:22 PM · Sep 5, 2012 · EtsyStatus

"site is down"

"whoa um...everybody...something is up"

"site's down for me"

"site down"

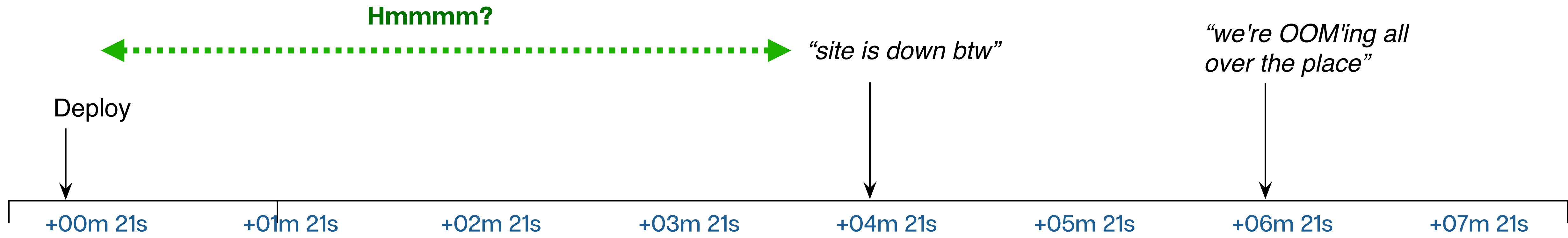
"we're OOMing all over the place"

"looks like we're running out of memory on the webs"

"lots of memory errors in the logs"

"uh...wow"

"seems like templates were rebuilt on last deploy..disk I/O through the roof"



"ok, what's the better chance of fixing this quick? A revert or asset rebuild?"

"looks like we need to get a restart"

"it's really hard to even get shell on some webs"

"clearing templates and assets and repushing may fix"

"push to prod is hung in deployinator too, btw"

"let's get some folks on ILOs for hard restarts..."

"could it be faster to even just powercycle boxes with the PDU's ?"

"pushing at this point in time will be very difficult"

"Rob is disabling the web VIP"

"we don't want them to come back up after we clean them"

"we're fanning out in the office, hitting some on ILO, some others are reachable but need swap cleaning, etc."

"so we're in reboot fest"

"after they're all up, we can then do a clean full deploy"

"i think we have 80% or so of the cluster restarted"

TASK TO BE DONE: supporting old browsers is a PITA

“We’re not supporting IE versions 7 and older.

Let’s get rid of the random CSS stuff that makes IE < 7 work.”



+



(template used by everything)



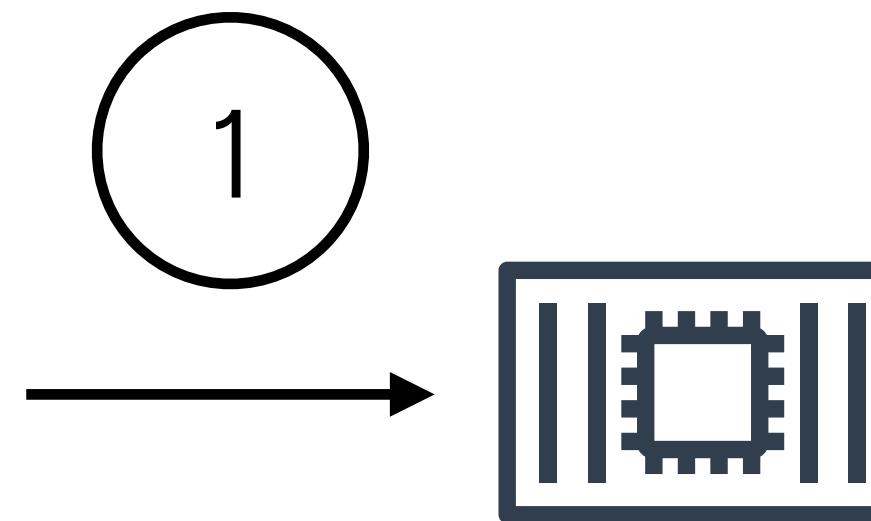
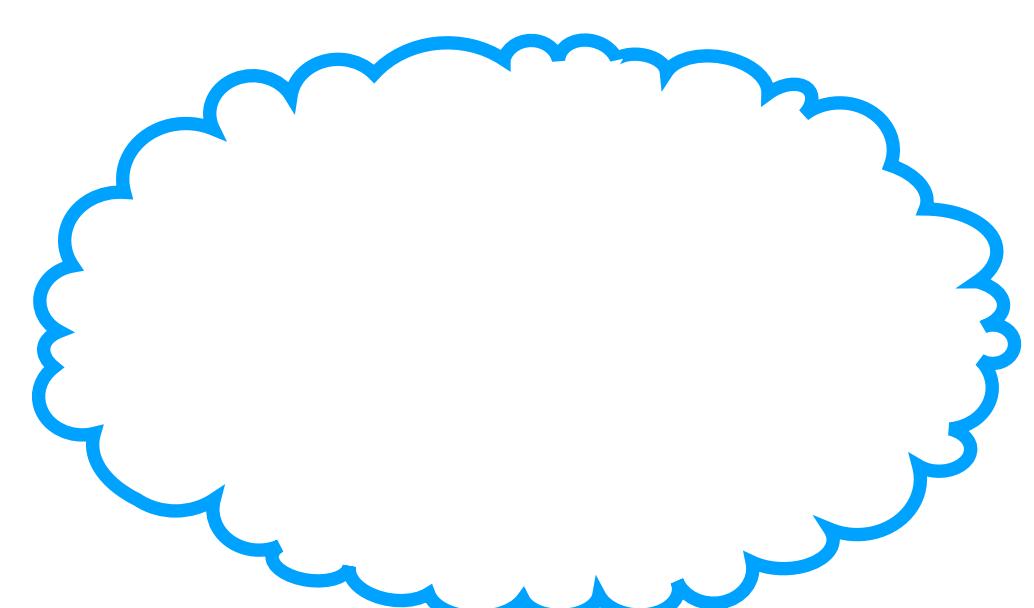
base.tpl

1. remove reference(s) to **header-ie.css** in **base.tpl**
2. remove **header-ie.css** file



header-ie.css

(extra CSS to make IE < 7 work)



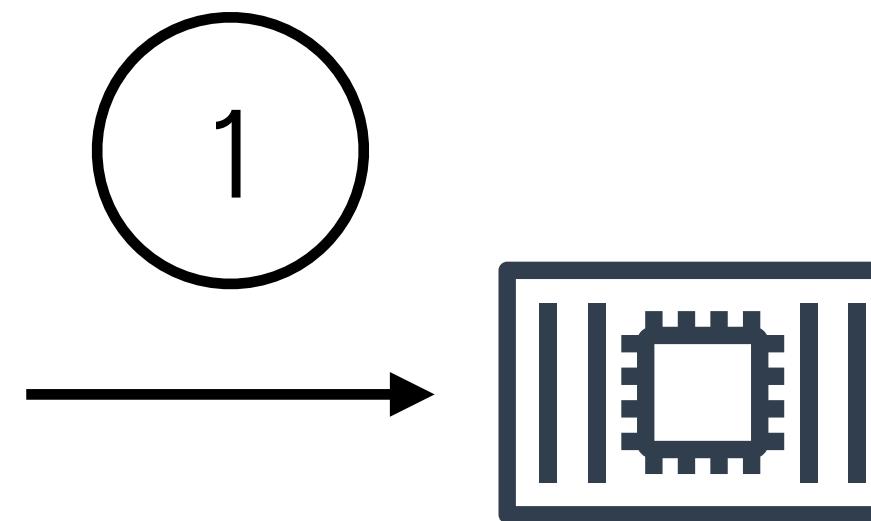
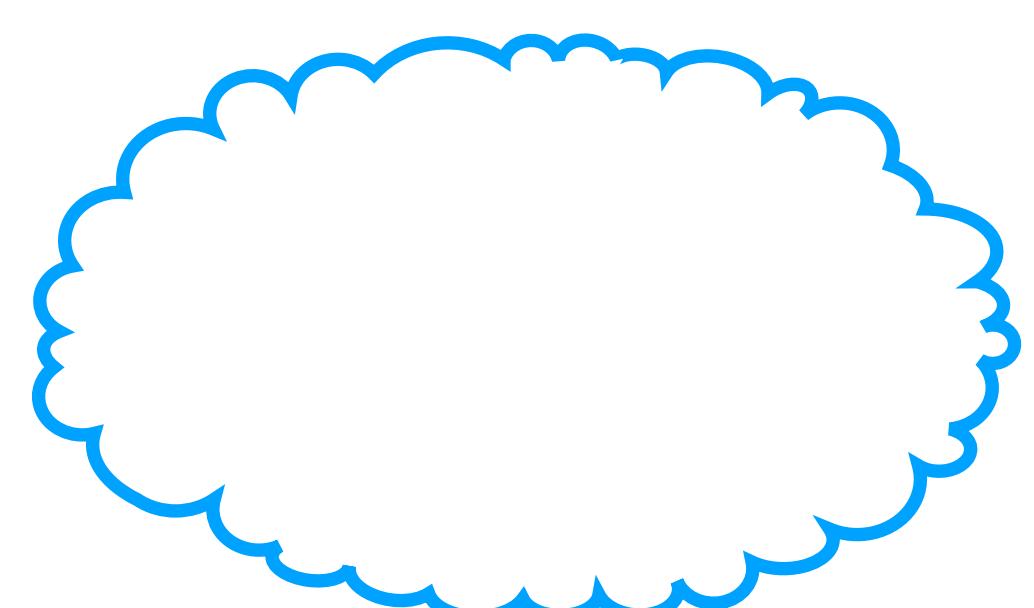
2

“...nope, don’t have that.
I’ll give you a 404 page.”

4

3

(attempts to construct 404 page to
send, which includes reference to
header-ie.css, which is now
non-existent...which means...)



2

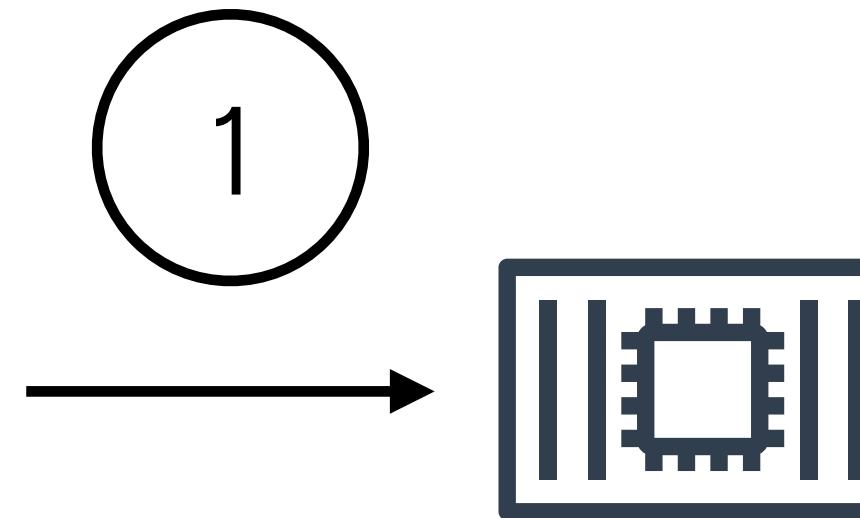
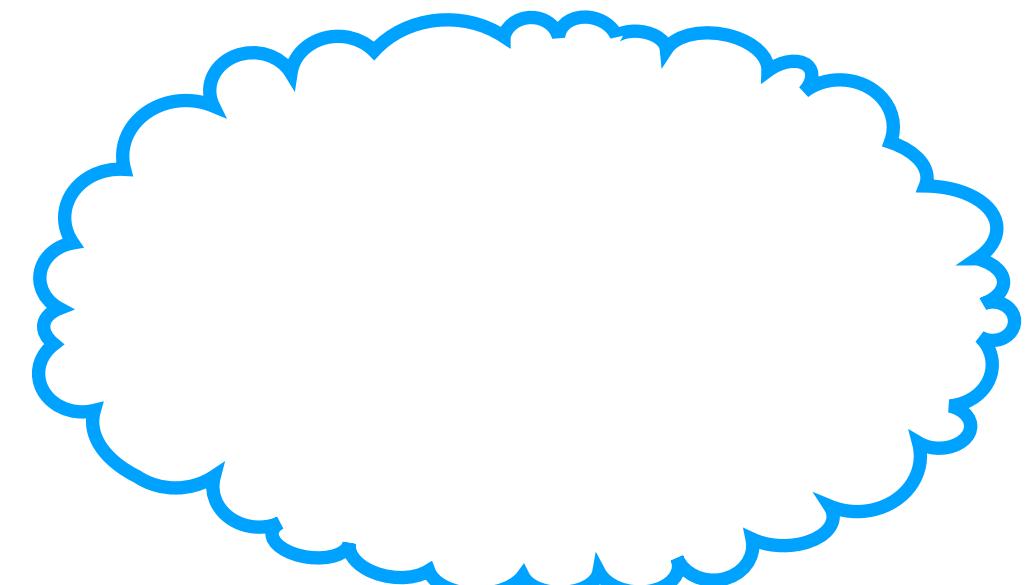
“...nope, don’t have that.
I’ll give you a 404 page.”

4



3

(attempts to construct 404 page to
send, which includes reference to
header-ie.css, which is now
non-existent...which means...)



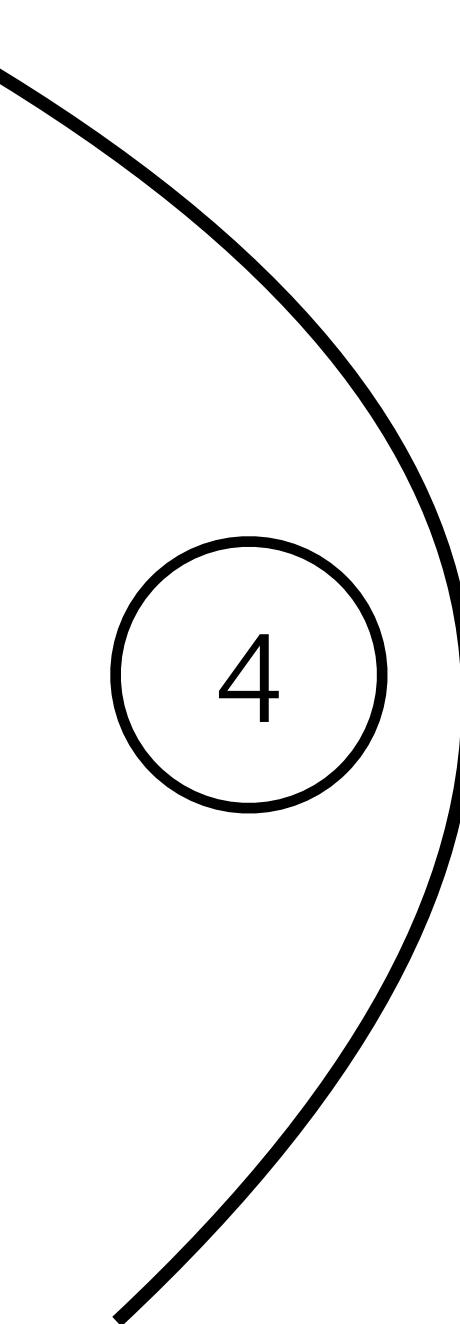
2

“...nope, don’t have that.
I’ll give you a 404 page.”

4

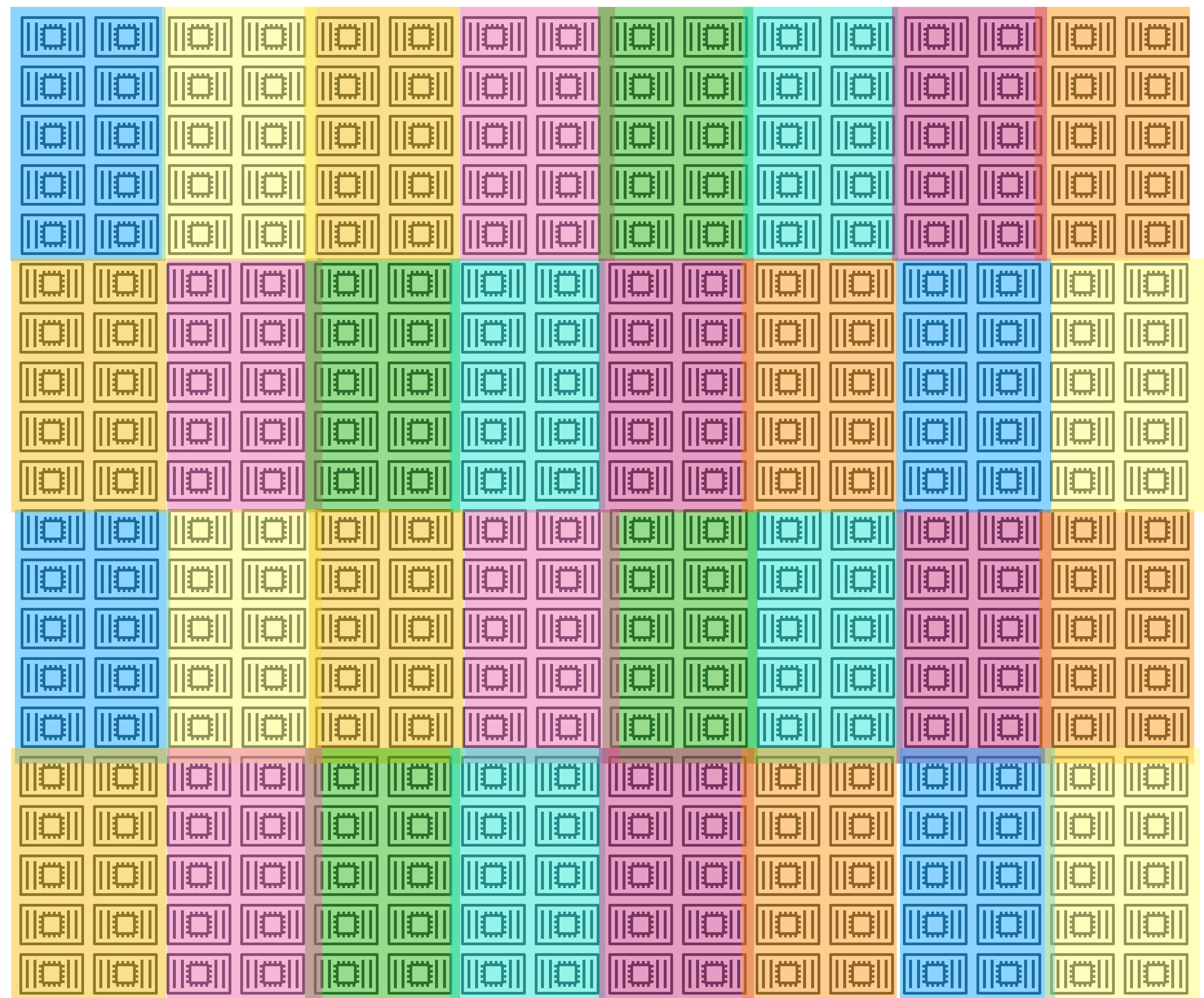


It’s to construct
end, which includes reference to
leader-ie.css, which is now
non-existent...which means...)









Make Effort to Highlight The Messy Details

- *What was **difficult** for people to understand during the incident?*
- *What was **surprising** for people about the incident?*
- How do people understand the **origins** of the incident?
- What mysteries **still** remain for people?

**Capture the *richest* understanding
of the incident, represented for the
broadest audience possible.**

Hindsight: the toughest enemy

- Tendency to simplify the complex (“messy”) details of the event down to **The One True Story™**
- Result: the multiple contrasting perspectives all get wiped away in favor of the story an individual *wants* to tell.
- This perceived need to be “efficient” and crisp in the story is *lossy*.
- Smoothing out the “messiness” of what happens in incidents is effectively *throwing away valuable data*

Support the reader!

- Write incident descriptions to be **read** – not just to be **filed**.
- Describe the data you relied on in your analysis...otherwise it risks losing credibility
- Make it easy for readers to understand terms or acronyms they've not seen before, by using HYPERTEXT LINKING TECHNOLOGY
- Use diagrams or other graphics to describe complex phenomena
- Make it easy for others to link TO the write-up document

**how can you know if you're
making progress?**

markers of progress

- **More** people will *read* post-incident write-ups.
- **More** people will voluntarily attend post-incident review meetings.
- **More** people will link to write-ups from:
 - ...code comments & commit messages
 - ...architecture diagrams
 - ...*other* related incident write-ups
 - ...new-hire onboarding materials

“Findings From The Field”
DevOps Enterprise Summit 2020

markers of progress

- **More** people will read post-incident write-ups.
- **More** people will voluntarily attend post-incident review meetings.
- **More** people will link to write-ups from:
 - ...code comments & commit messages
 - ...architecture diagrams
 - ...other related incident write-ups
 - ...new-hire onboarding materials

ACL Challenge

Technology Leaders

- Start tracking how often post-incident write-ups are **voluntarily read** by people outside of the team(s) closest to the incident.
- Start tracking how often incident review meetings are **voluntarily attended** by people outside of the team(s) closest to the incident.

Practitioners

For every incident that has a “red herring” episode...capture the red herring part of the story **in detail** in the write-up, especially on what made following the “rabbit hole” seem reasonable at the time.

*I literally challenged you last year on these things.
How is that going?*

Help I Want

Thanks!