Some important folks
Etsy By The Numbers

1.6M active sellers
AS OF MARCH 31, 2016

25M active buyers
AS OF MARCH 31, 2016

$2.39B annual GMS
IN 2015

35+M items for sale
AS OF MARCH 31, 2016

Photo by Kirsty Lyn Jamieson
What happened?

- 15:24 - @joe types bad command "git push -f", hits Ctrl-C, thinks it did not propagate (but it did)
- 15:?? - @rob and @pat both tell @dschauenberg that there is a problem
- 15:43 - push queue is put on HOLD status
- 15:44 - "do not push" email goes out to techall
- 15:46 - @joe joins #push to work out the issue
- 15:49 - @klee pushes all but one commit to master
  he was missing the most recent merge commit; @dschauenberg advocated that @klee do this push
- 15:52 - @dschauenberg suggests that we use deploy03 git repo to recover
- 16:09 - @dschauenberg finishes backing up deploy03 git repo and does "git push -f", recovering the lost commits
- 16:19 - we push princess again at commit b0d6f3615f8ce02b3437977d9e46eaa737ef078b and everything is peachy

Images

https://github.com/etsy/morgue
A Story
“It's just too crazy to try to explain...”

- Coffee
- Keys
- No cabs
- Bus strike
- Broken car
- Spare keys

Diagram: Failure at the center, with branches to Interview, Coffee, Keys, No cabs, Bus strike, Broken car, and Spare keys.
What was the cause

- Human error?
- Mechanical failure?
- The environment?
- Design of the system?
- Procedures used?
Complex systems
Complexity

- Robust
- Unpredictable
- Produce large events

Bottom up emergent phenomena
Surprise!
04-01 19:12:46: (#etsy) cathi adi: anything related to your icon work?

04-01 19:13:02: (#etsy) adi might be... i didn't make any changes to [the homepage] though

04-01 19:14:57: (#push) marty oh my god

04-01 19:14:59: (#push) marty i saw that on [our qa server]

04-01 19:15:01: (#push) marty and i thought it was an april fools joke
Whoever you are, find whatever you're into

Get something you love
Our marketplace is a world of vintage and handmade goods

Find your new favorite shop
More than a million independent sellers from everywhere are right here

Buy safely and securely
Etsy handles and protects every transaction, so shop with confidence

Shop by category

Browse our latest collections

EDITORS' PICKS
Personalized & Custom
Accident Models

WHY DO ACCIDENTS HAPPEN?
“HUMAN ERROR”
Amazon blames human error for Xmas Eve outage; Netflix vows better resiliency
Human error causes NASDAQ outage

31 October 2013 | By Penny Jones

One of NASDAQ’s premier data feeds – the Global Index Data Service which provides valuation data for electronic trades - went down for more than half an hour at 11:53 EDT Tuesday following a “human error” in the data center.
Germany train crash: Human error to blame, says prosecutor

The trains collided head-on while travelling at about 100km/h (60mph)
Bad Apples

The system is basically safe.
Unreliable humans cause failure.
Get rid of bad apples.
The Herald leaves the Belgian port of Zeebrugge bound for Dover. 193 passengers and crew died.
HUMAN ERROR?
Four years earlier...

October, 29 1983: The *Pride* of Free Enterprise makes it from Calais to Dover with both bow and stern doors open, successfully.
Two years after that...

“There is no indication on the bridge as to whether the most important watertight doors are closed or not.”

“Thanks for the suggestion.”
The year before the Herald disaster

Two different captains ask for door closure indicator lights.

They are told: “Please submit a request via application.”

They do so.
“Do they need an indicator to tell them whether the deck storekeeper is awake and sober? My goodness!!”

“Nice but don’t we already pay someone?!”

“Assume the guy who shuts the doors tells the bridge if there is a problem.”
Other factors

• Herald designed for berths at Calais/Dover
• Zeebrugge run added later
• High tide (need to fill the ballasts)
• Transfer time at Zeebrugge under tighter constraints
Operational decision making:
Decision makers from separate departments in operational context very likely will not see the wood for the trees

Accident Analysis:
Combinatorial structure of possible accidents can easily be identified

Fig. 2. The complex pattern of the Zeebrugge accident.
“Someone did (or did not do) something that they were not (or were) supposed to do according to someone.”
James Reason's Swiss Cheese Model

Some holes due to active failures

Other holes due to latent conditions (resident "pathogens")

Successive layers of defences, barriers and safeguards
Safety

Getting work done
A top rope anchor on bolts
Safety is an **EMERGENT PROPERTY** that arises when components and processes interact with each other and their environment.
Reason's Swiss Cheese Model

Some holes due to active failures

Other holes due to latent conditions (resident "pathogens")

Successive layers of defences, barriers and safeguards

Hazards
Cause is not something you find. Cause is something you construct.
Thank you!
References

- ‘A Day in the Life’ Normal Accidents, Charles Perrow
- [http://www.nytimes.com/2016/01/31/magazine/the-wreck-of-amtrak-188.html?_r=0](http://www.nytimes.com/2016/01/31/magazine/the-wreck-of-amtrak-188.html?_r=0)
- *The Field Guide To Understanding ‘Human Error’*, Sidney Dekker
- ‘Life After Human Error’ Steven Shorrock, Velocity 2014 [https://www.youtube.com/watch?v=STU3Or6ZU60](https://www.youtube.com/watch?v=STU3Or6ZU60)
Image Credits

- http://sidneydekker.com/about-sidney
- http://www.safetydifferently.com/contributors/
- http://erikhollnagel.com/
- http://www.kitchensoap.com/about-me/
- http://www.slideshare.net/jallspaw/alert-designcac-talk2013
- https://github.com/etsy/morgue
- https://en.wikipedia.org/wiki/Normal_Accidents
Related Reading/Learning

- Todd Conklin’s Pre-Accident Investigations podcast (http://preaccidentpodcast.podbean.com/)
- http://www.safetydifferently.com/
- Steven Shorrock’s blog (http://humanisticbydesign.blogspot.com/)
- Don Norman’s *The Design of Everyday Things*
Blame Awareness in Incident Investigation
Hey, I’m Will!

Ops Engineer @ Etsy

@wcgallego
(Yes, this is me.)
I'm in the box of shame today because: I threw up.
Without biases we’d not survived sabertooth days. Biases WORK! For every cog fixation there R $10^4$ good results.
“You will undoubtedly fall into biases. This is natural.
You’re not trying to stop them, just call them out in a non-shameful way”
- Morgan Evans
What kind of biases are we running into?
Hindsight bias
Counterfactual

• “If only they had…”
• “They failed to…”
• “They should have…”
• “They could have…”
Outcome bias

- Misspelled copy on the header
- Prevent users from logging in
- Site running 15% faster
Assignment of Responsibility for an Accident - Walster, 1966
Curse of Knowledge
Defensive Attribution Hypothesis
So how do we know when our biases are negatively impactful?
Practice Empathy
Takeaways

• Replace bias heavy language. Typically, there’s a question hidden underneath

• Failing during failures is ok!

• Blame awareness exists outside the vacuum of a Post Mortem
Overview

1. Learning Culture

2. Debriefing
Learning Culture
Local Rationality

“People do things that make sense to them given their goals, understanding of the situation and focus of attention at that time.”
JUSTICE
Retributive Justice

- Looks to the past
- Determines blame
- Tries to prevent a “bad apple” from re-offending
- Feels good
- Easy
Restorative Justice

- Looks to the future
- People involved give their account
- Focus on organizational safety
REPORTING
EMPATHY
Debriefing
Talk to the people involved

• Let them know you’re on their side
• Set their expectations
• Get a sense for their expectations
Gather Data

- Graphs, Metrics
- IRC Logs, emails
- Commits, Pull Requests
During the Debriefing

- Set the stage
- Ask people about their story
- Tell their story back to them
- Identify critical junctures
- Progressively re-build how the world looked to people inside the situation at each juncture.
BIASES
ASK BETTER QUESTIONS
CUES
Cues

• What were you seeing?
• What were you focusing on?
• What were you expecting to happen?
INTERPRETATION
• If you had to describe the situation to a colleague at that point, what would you have said?
HISTORY
History

- Did this approach work for you before?
- Did this situation fit a standard scenario?
- Were you trained to deal with this situation?
- Were there any rules that applied clearly here?
- Did you rely on other sources of knowledge to tell you what to do?
GOALS
Goals

- Were there any conflicts or trade-offs to be made that you were aware of at the time?
- What were the goals you were reaching for?
- To what extent did you feel time pressure at this point?
- What was most important to accomplish at this point in the incident?
• How did you judge you could influence the course of events?
• Did you discuss or mentally imagine a number of options or did you know straight away what to do?
COMMUNICATIONS
Communications

- What communications mediums did you prefer? (IRC, Vidyo, phone, email, in person, etc.)
- Did you use any communication channels together?
Help

• Did you ask for help?
• What was the signal that brought you to ask for help?
• Were you able to get in touch with the people you wanted to talk with?
• How did you know to trust the guidance that you got?
Our Goal is to Learn
Remediation

- Action items not always necessary
- Soak time
Thanks!
Homework

(Due during the next session)

Think of a time when your skills were particularly challenged, or when your experience really made a difference in the way something turned out.

It should be something that you can share.
Questions?