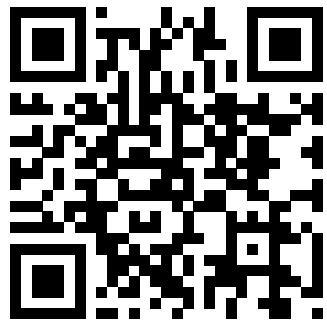
Noteworthy post-mortems

Tomasz Nowak (my slides)



https://github.com/danluu/post-mortems

Allegro, 31.08.2018

https://shorturl.at/dMY01

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- "we plan to introduce a mechanism which will be able to tell backend services to generate simplified, cacheable responses"
- "the traffic which brought us down, was in large part bots rather than human users"

CloudFlare, 21.06.2022

https://shorturl.at/aELM1

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- Changes reached all locations, took 19 locations offline, 50% of requests failed.
- Fix was "delayed as network engineers walked over each other's changes, reverting the previous reverts, causing the problem to re-appear sporadically."

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- Dips in power usage in the range of tens of megawatts.

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- Lessons: Outside environment changes, even when we trust it. Each part of the system should be tested, even when it is currently not used.

Google, 31.07.2009

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- Lessons: Anything that is manually updated might introduce a bug. Thorough testing of this component might have sounded silly and it doesn’t seem important. There should have been integration tests. They could have at least checked whether “obviously safe” sites are indeed marked as safe.

Knight Capital, 1.08.2012

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- 45 minutes running, long on 80 stocks, 3.5 billion dollars, short 3.15 billion dollars.

OWASA water treatment plant, 10.02.2017

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- It prompted a water shortage in Orange County that closed businesses, placed towns under states of emergency. Customers were unable to use or drink their water for more than twenty-four hours.

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- Big changes of voltage, generators go off for safety, cascading effect, 256 power plants offline.
- Blackout, 55 million people affected for 2h-4 days, including NYC.

(predicted end of 45-minute presentation)

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- It passed tests, as Windows recovers when it's on the first partition of the boot drive (and fails to recover otherwise), the testing env was always the same.

Rust crates.io, 21.06.2023

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- Easy one minute fix, just rollback deployment.

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- But generators were rigorously tested! They always passed 8h of load testing, months ago they successfully generated power, weekly tests, they were new.
- Clients' servers were offline. Booting them was slow, as data volumes could be in an inconsistent state (e.g. power off mid-write). It requires manual checks by clients to see if everything is fine.

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Amazon AWS, 02.06.2012

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- Another bug appeared and some "Multi Availability Zones" didn't change the main databases from the faulty data center to the backup ones. It triggered a fail safe, required manual intervention.

GitHub, 21.10.2018

https://shorturl.at/hioBN

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- 24 hours of degradation.

Microsoft, 29.02.2012

https://shorturl.at/rBTY7

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- Outage that lasted for most of a day.

Linux, 7.01.2012

https://shorturl.at/gxyC5

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- This caused applications that used sleep for less than one second in a loop to spinwait without sleeping, causing high load on many systems. This caused a large number of web services to go down in 2012.

European Space Agency, 4.06.1996

https://shorturl.at/adlm7

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- This led to a cascade of problems, culminating in destruction of the entire flight.

Valve, 14.01.2015

https://shorturl.at/beuG7

- ```
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- After this blew up on social media, there were widespread reports that this was reported to Valve months earlier. But Valve doesn't triage most bugs, resulting in an extremely long time-to-mitigate, despite having multiple bug reports on this issue.
  ```

JaneStreet, REDACTED

https://example.com

- REDACTED

CloudFlare, 03.03.2013

https://shorturl.at/qrDM2

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- "ask them to physically access the routers and perform a hard reboot"

Google, 24.07.2014

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- The same system later automatically generated a new correct configuration and began sending it, issue resolved.

ARPANET, 27.10.1980

https://shorturl.at/eBFM3

- The network was unusable for several hours. All the “routers” (Interface Message Processor) didn’t communicate. Restarting the IMPs was OK, until they connected to the net, and then they failed.

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- Full buffers caused loss of keep-alive packets and nodes took themselves off the network.

Google, 05.04.2017
https://shorturl.at/wxzC8

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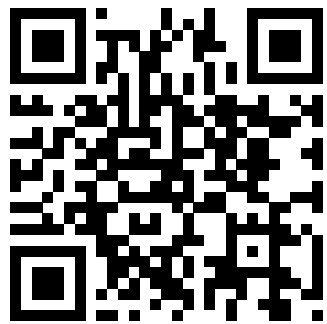
- Server failed health check, automatic reboot. Clients got errors.

Thanks!

Tomasz Nowak



https://github.com/danluu/post-mortems