

Social aspects of change

A tale of Prometheus & Grafana

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‘whoami’

- Richard "RichiH" Hartmann
- System architect at SpaceNet AG
- FOSDEM, DebConf, DENOGx, PromCon staff
- Debian Developer
- Author of <https://github.com/RichiH/vcsh>
- Always looking for nice co-workers in the Munich area

Social stuff in a monitoring devroom?

- Changed jobs middle of 2015
- Very heterogenic environment
- Many old, self-built, well-established solutions
- Islands of data
- Even single teams had several tools in parallel use

Prometheus main selling points

- Highly dynamic, built-in service discovery
- No hierarchical model, n-dimensional label set
- PromQL: for processing, graphing, alerting, and export
- Simple operation
- Highly efficient

Seeing the light

- Ran DebConf15 on LibreNMS, wanted to do the same for SpaceNet & FOSDEM 2016
- 2015-10-01: Inform FOSDEM team of planned migration
First day at SpaceNet
- 2015-10-02: Murali Suriar suggests Prometheus instead
- 2015-10-03: PoC at SpaceNet and submit first patch
- 2016-01-29: Hackday to migrate FOSDEM
- 2016/2017: Migrate SpaceNet to Prometheus

The biggest challenge

The hardest problems to solve are the social ones.

Resistance to change

- Incentives often run counter to change
- Change is hard
- Unless processes embrace and automate change
- Trade-off between delayed/disputed payoff during transition
- Due diligence: Critical systems run in parallel for some time

Toil

”Toil is manual, repeated work with no lasting benefit which scales linearly with your service”

- If teams are busy firefighting, they don't have time to engineer
- Keep legacy working, but have clean path forward
- Keep extra effort on the team low, if possible
- Strive for immediate benefits
- Focus on removing repeated, manual tasks of no lasting benefit
- Show that you free up time and reduce toil

Sanity & sleep

- If it's not actionable, it's not an alert
- If it's not urgent, it's not an alert
- Important, but not urgent, stuff is handled during business hours
- Predict your usage so you add capacity during business hours
- If there's no playbook, it does not go into production
- If a service does not have proper SLOs and alerts, it does not go into production

That one mailserver incident...

- Wrong flag in config
- One server accepting outside mail
- Spammers do a clean, staggered ramp-up
- Once they go all-in the mail gateways come under heavy load
- Quote from On-Call "It took me less than 30 seconds to figure out the problem; with our old system it would have taken at least 60 minutes"
- ...and all of a sudden, you have buy-in from a few more people

Perspective & Incentives

”An engineer can talk for hours about a function; try that with the CEO”

- Managers: revenue, process execution
- Architects: clean design, process definition
- Product/Service owners: Powerful dashboards
- Team leads: morale, quick execution
- Operators: reduce toil, increase sleep

Tell everyone what they need to hear (but never lie)

Big Picture

- Put a big picture on the (proverbial) wall
- Show everyone the pieces they care about
- Make sure to play to their intrinsic motivation
- Get buy-in
- Going forward, align steps with that picture
- Distributed alignment with goals across teams

Leverage

- One combined system allows for correlation and combination
- Power usage against service load
- Optical networks against outside temperature
- Datacenter power feed load against new deployments
- ...and lots more

Oracle

- One source of truth for
 - Tactical overview for current state
 - Dashboards for drill-down
 - Auto-generated PDFs for customers
 - Global SLO statements for sales
 - Usage exports for accounting
- If all you have is a hammer... choose your hammer well

TODO

- Merge config management across teams
- Adapt machines and services to modern orchestration
 - Highly fractured and specific customer setups
 - Revenue comes from those brownfield installation
 - Finding the correct balance will be tricky
- Adopt error budgets
- Hire more people. Munich is beautiful!

Thanks!

Thanks for listening!

Questions?

See slide footer for contact info.