

# Social aspects of change

## A tale of Prometheus & Grafana

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# ‘whoami’

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

# Social stuff at a monitoring conference?

- This about about enacting change in a company or project
- I learned all this recently; the hard way
- 11 years at the last job
  - I knew the Ins and Outs
  - Many processes had been shaped by me
- Changed jobs middle of 2015 and encountered
  - Very heterogenic environment
  - Many old, self-built, well-established solutions
  - Islands of data
  - Even single teams used several tools in parallel

# 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

# Calculating change

- Gleicher version:  $C$  if  $(ABD) > X$ 
  - $C$  = change happens
  - $A$  = status quo dissatisfaction
  - $B$  = desired state
  - $D$  = steps to the desired state
  - $X$  = cost of change
- Dannemiller version:  $C$  if  $D \times V \times F > R$ 
  - $C$  = change happens
  - $D$  = Dissatisfaction with how things are now;
  - $V$  = Vision of what is possible;
  - $F$  = First, concrete steps that can be taken towards the vision;
  - $R$  = Resistance



# Seriously?

- Formulas might be valid
- ..but useless without correct inputs
- On to the real thing



# 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 must run in parallel for some time
- If you are right, others must be 'wrong'
- Hidden motivations



# Iron law of institutions

The people who control institutions care first and foremost about their power within the institution rather than the power of the institution itself. Thus, they would rather the institution fail while they remain in power within the institution than for the institution to succeed if that requires them to lose power within the institution.

# Four stages of competence

- Unconscious incompetence
  - Conscious incompetence
  - Conscious competence
  - Unconscious competence
- 
- Who will fight the most?
  - Who will be most cautious?
  - ...keep that in mind

# Killer issues

- If you impact revenue, you lose all support
- If you bring essential systems down, you lose all support
- If you wake people without reason, you lose all support

Again, keep this in mind!

# 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 from key players
- Going forward, align steps with that picture
- Distributed alignment with goals across teams

# Perspective & Incentives

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

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

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

# That one mailserv 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

# 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

Show that you increase sleep

# Toil

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

- Teams busy firefighting don't have time to engineer
- Keep legacy working, but have clear path forward
- ..but keep extra effort on the team low, if possible
- Strive for immediate benefits
- Focus on removing repeated, manual tasks with no lasting benefit

Show that you free up time and reduce toil



# 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
- ..with only PromQL

# 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 will have is a hammer... choose your hammer well

# One more thing...

- Prometheus' exposition format will be spun in its own, separate project
- Allow other projects and companies to adopt an independent standard
- Plan to publish RFC within the IETF
  - ..to help convince old-school vendors
  - ..for you to put into tenders and requirement lists
- `github.com/RichiH/OpenMetrics`
- `groups.google.com/forum/#!forum/openmetrics`



# Thanks!

Thanks for listening!

Questions?

See slide footer for contact info.