Migration of CERN e-mail system to open source.
Challenges and opportunities

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E-mail service at CERN

- Microsoft Exchange
  - E-mail, calendar, contacts

- 40 000 mailboxes

- 65 TB of data

- ~500k/day messages from Internet

- Supported e-mail clients:
  - Outlook, Mail/Calendar/Contacts on Mac, Thunderbird, Alpine
Problems with licenses

• Microsoft revoked CERN academic/education status in 2017
• Consequence: potentially a 10 fold increase in price
Alternatives to Microsoft

Find a replacement for Exchange
Face the change

• Market research for FOSS (no lock-in)
• Evaluation of different solutions
• Deployment of ‘proof-of-concept’ for the solutions
• Kopano selected for validation:
  • Technical validation
  • End user validation
Kopano overview

- Free and Open Source software (AGPL3)
- Groupware system (e-mail, calendar, contacts)
- Deployed in enterprises of similar size
- Developed by Kopano BV (Netherlands/Germany)
  - Defines roadmap and provides support
  - Integrates with other services (Mattermost, OwnCloud/NextCloud etc.)
Challenges: Technical
Move from a monolithic solution to microservices

Microsoft Exchange:
• Physical machines
• Full stack managed by e-mail admins

Kopano:
• Kubernetes cluster
• Different components managed by different people
  • Openstack Magnum (k8s)
  • Databases (MySQL)
  • Storage for attachments

• Deploy a system based on new technologies and ensure it’s reliable
Challenges people
“What e-mail client will I use?”

• 70% of users will use the same e-mail client
  • Thunderbird: no change + support for calendar & contacts
  • Mac OSX: no change (Mail, Calendar, Contacts)
  • Mobile clients: no change

• 30% will replace Outlook by Kopano DeskApp
  • Similar, but it’s not 1:1 replacement
  • No “Offline/cached mode”
Opportunities: Technical

• Move from a proprietary solution to open source
  • Avoid sudden increase in cost of licenses
  • Promote open source
• Re-think the e-mail infrastructure
• Deploy e-mail using modern technologies
Opportunities: Organizational

• Reduce resources: use in-house expertise
• Encourage collaboration between groups
• Provide better integration with other tools
  • CERNBOX, Mattermost, etc.
• Keep e-mail data at CERN
• Share knowledge
  • We were contacted by institutes in similar situation (increase of license cost)
Next plans

• Pilot in IT has started
• Mass migration of mailboxes: Q2 2020 – Q4 2020
Summary

CERN is migrating e-mail system (e-mail, calendar, contacts)
- Kopano – free and open source software
- Deployed on Openstack Magnum (k8s)
- Clients for all platforms
My question(s):

• How collaboration services are provided in your institute?
  • Do you see an opportunity for this project?
  • Can we learn something from you?
  • Can we share something with you?
Take away

Change is inevitable.
Respect people, act purposefully and look for opportunities.
Thank you!