The MALT Project

Scientific Computing Forum

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Microsoft Licensing Status
The Problem

- Microsoft revoked CERN academic/education status in 2017
  - We do not fit in any of the special categories: Government, Education, Health, Non-profit
- Consequence: potentially a 10 fold increase in price
- The new licensing is based on # users
  - CERN publishes its personnel statistics
  - A user == an email address
  - Leads to ~40000 accounts & mailboxes
- The current offering is based on a bundle
  - Exiting this bundle likely to double the prices
- The previous contract terminated on 28.2.2019
The Problem (cont.)

- Other similar organisations have faced similar problems
  - Although not (yet) for everybody and some benefit from the special categories
- The big financial impact is due to the server side technologies currently used (e.g. Mail, Authentication, etc...)
- Over years, we have granted access to all Microsoft products, regardless of the needs
  - E.g. 500 Visual Studio installations, 1500 Visio or Project...
Context and Strategy
Opportunities / Risks

- "academic deal forever"
- "for CERN our service is free"
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Free(mium)
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**Personal Usage**
- Limitations (Storage, email volume)
- NOT for business

**Enterprise Integration**
- Account lifecycle
- Data Sovereignty
- Data management/backups
Everyone is in the same boat

- Confronted by the same change of licence conditions
  - Research Labs       Universities
  - NGOs             Hospitals
  - ...

- MALT article
  - Contacted by 100s of institutes / companies
    - DE: MPI, Parliament, Federal Ministries, Fraunhofer, ...
    - FR: CNRS, SNCF, ...
    - CH: SWITCH, ETHZ, UNIL, ...
    - EC, UNESCO, ICRC...
    - ...

MALT Strategy

Disentangle services; reduce dependencies and risk

Onsite:

- Open Source
- Architecture: Microservices
  - Coupled, replaceable
  - Agility, lifecycles
- Reimplement, reconceive
  - Not 1-for-1: by use cases
  - Reduce to necessary
    - Not eliminate
  - Example: SharePoint

Clouds:

- Affordable
- Data control and exit clauses
- Cloud Office, Cloud Policy
  - datatransferproject.dev
  - confidentialcomputing.io
The Projects
Mail

From *Exchange* to *Kopano*

- New mail service based on *Kopano* ([https://kopano.com](https://kopano.com))
  - Groupware system (e-mail, calendar, contacts)
  - **FOSS, on premise, no lock-in, can exit anytime**
  - Developed by Kopano BV (Netherlands/Germany)
  - Optional support and maintenance contract
  - Deployed in enterprises of similar scale
- **Validation criteria passed** (functionalities, technical, support)
- Impact on users
  - *Outlook* to be replaced by *Kopano DeskApp/WebApp*
    - No cached mode, need to be online
  - Transparent for all other mail clients
    - *Thunderbird* even gets contacts and calendar support
Telephony

Replacement of Skype for Business and analog phones

- Replacing Alcatel PBX by FOSS solution
  - Asterisk (https://www.asterisk.org)
  - End of analog phone support
- Developing & deploying "CERN Phone" app (WebRTC-based)
  - All platforms: desktop and mobile versions
    - https://github.com/cern-phone-apps
- Impact on users
  - Major change for analog phone users
Devices & Applications

From Managed Devices to Managed Applications

- Reduce managed Windows number to the necessary
  - **Hardened PCs:** Secured, controlled managed PCs
- Offer self-managed Windows PCs
  - *Windows 10* delivered preinstalled, managed by the user
  - Using *Windows Pro OEM* licence instead of *Enterprise* version
- Offer the same app catalogue on all platforms
  - **One stop shop:** "**CERN AppStore**"
  - Platform independent front-end: deliver apps to *Windows*, but also Mac, SmartPhones...
  - Platform specific package manager
Devices and Applications

Enlarge web applications panel

- Offer a web-based applications portfolio à la Google Apps
- Build on top of OwnCloud (https://owncloud.org)
- Unify home directories on OwnCloud ("CERNbox")
  - For Windows, MacOS, Linux and SmartPhones
- CERNbox web site to become CERN hub for web apps
  - Offering growing panel of apps for dedicated use cases
    - Draw.io, Gantt viewer, OnlyOffice, etc.
Objective: Reduce the number of licences by proposing alternatives

- **Office** won’t be installed by default on new devices
  - Product selection at installation for **Office** choice
    - *OnlyOffice* (https://www.onlyoffice.com) currently being compared with *LibreOffice* (https://www.libreoffice.org)
    - *MS Office*
- **Project** alternatives
  - *JIRA* (https://www.atlassian.com/software/jira)
  - *Gantt viewer DHTMLX* (https://dhtmlx.com)
  - **MS Project** licenses available via special request
- **Visio** alternatives
  - *Draw.io* (https://www.draw.io), **MS Visio viewer**
  - **MS Visio** licences available via special request
AuthN & AuthZ

From ADFS/AD to KeyCloak/FreeIPA

- **New Single Sign-On based on FOSS solution**
  - *KeyCloak* ([https://www.keycloak.org](https://www.keycloak.org))
    - Multi-factor support (GAuth, Yubikey & more)
    - ID federation support
    - External providers support (GitHub, Google, FB...)
    - Programmatic access support (OpenID, OAuth, SAML2)

- **New Kerberos/LDAP service based on FOSS solution**
  - *FreeIPA* ([https://www.freeipa.org](https://www.freeipa.org))
Web and content management

From monolytic systems to targeted microservices

- Review of all SharePoint sites to suggest alternative options
- Offer ready-to-deploy templates for targeted services
  - Wordpress (https://wordpress.org/) for blogging & info
  - Discourse (https://discourse.org) as forums solution
  - Jekyll (https://jekyllrb.com) & Hugo (https://gohugo.io) for static content management systems
- Forms, surveys, document collaboration, etc. being evaluated
- Impact on application owners
  - Select the appropriate framework for their use case
Summary

- Mail: Pilot in IT starting now, migration Q4-2019 to end 2020
- Telephony: Pilot in IT starting now, Migration 2020
- Devices and Applications:
  - CERNBox (Owncloud) migration: Pilot since Q4 2018, migration Q4 2019
  - Office choice: in September 2019
  - Project & Visio alternatives: production H1 2019
- SSO: Prototype and pilots in 2019, transition in 2020
- Web and content management: Pilots H2 2019, more in 2020
Conclusion

• It’s not an isolated move
  ■ It’s part of a trend - other vendors are following suit
• We can’t avoid it
• We are not alone
• We need everyone’s participation
More information

- Reference Site
  - http://cern.ch/malt
- IT news
  - https://computing-blog.web.cern.ch/