The MALT Project

Scientific Computing Forum

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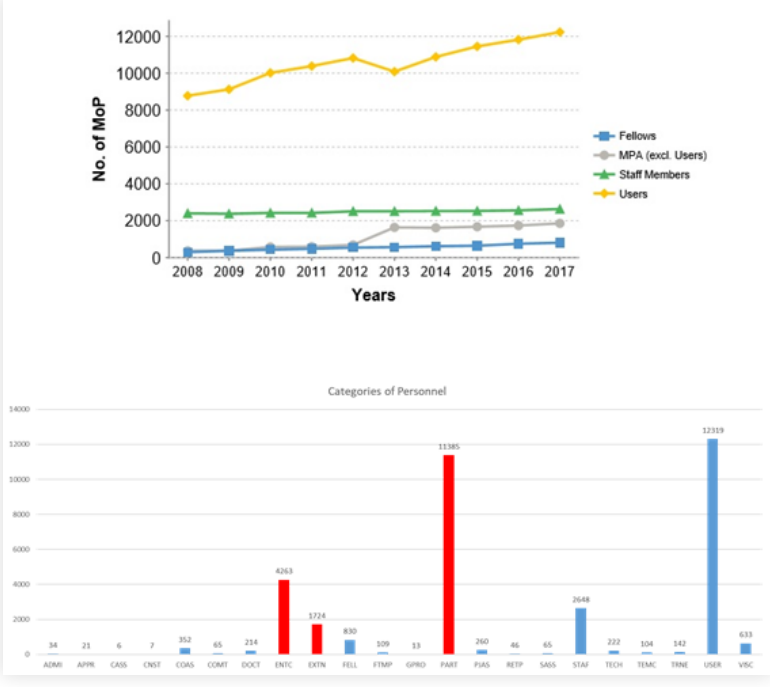
Microsoft Licensing Status

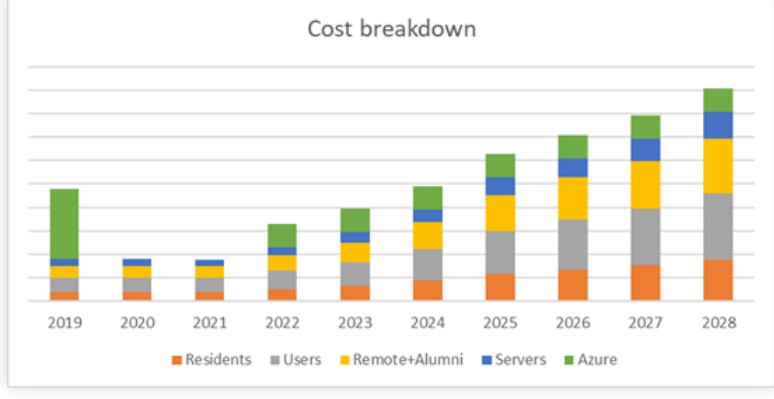
The Problem

- 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



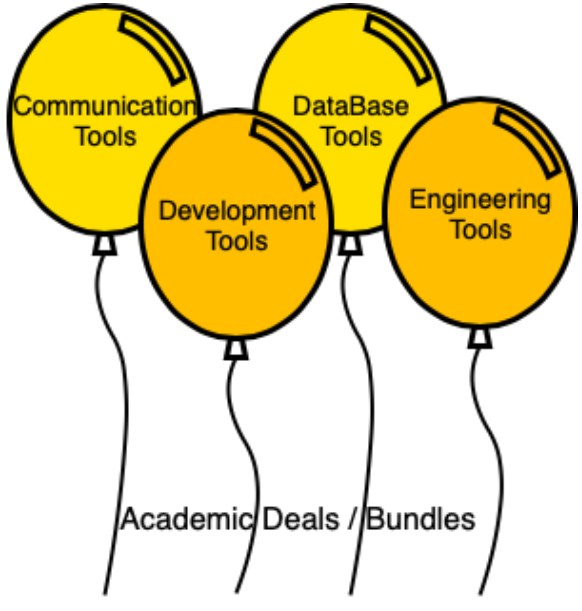
The Problem (cont.)

- 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…



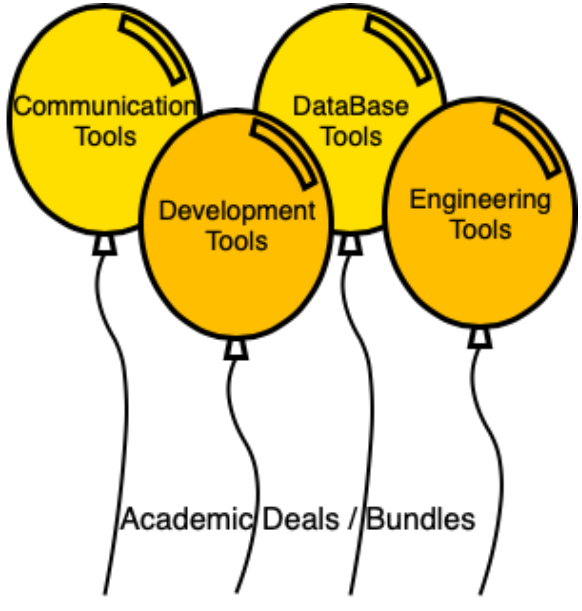
Context and Strategy

Opportunities / Risks



- "academic deal forever"
- "for CERN *our service* is free"

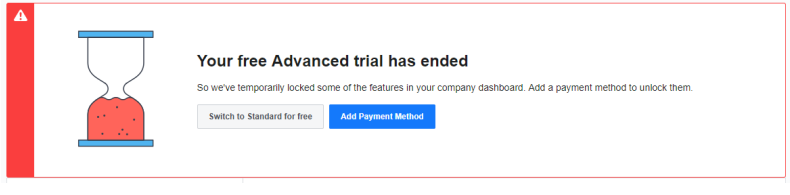
Opportunities / Risks



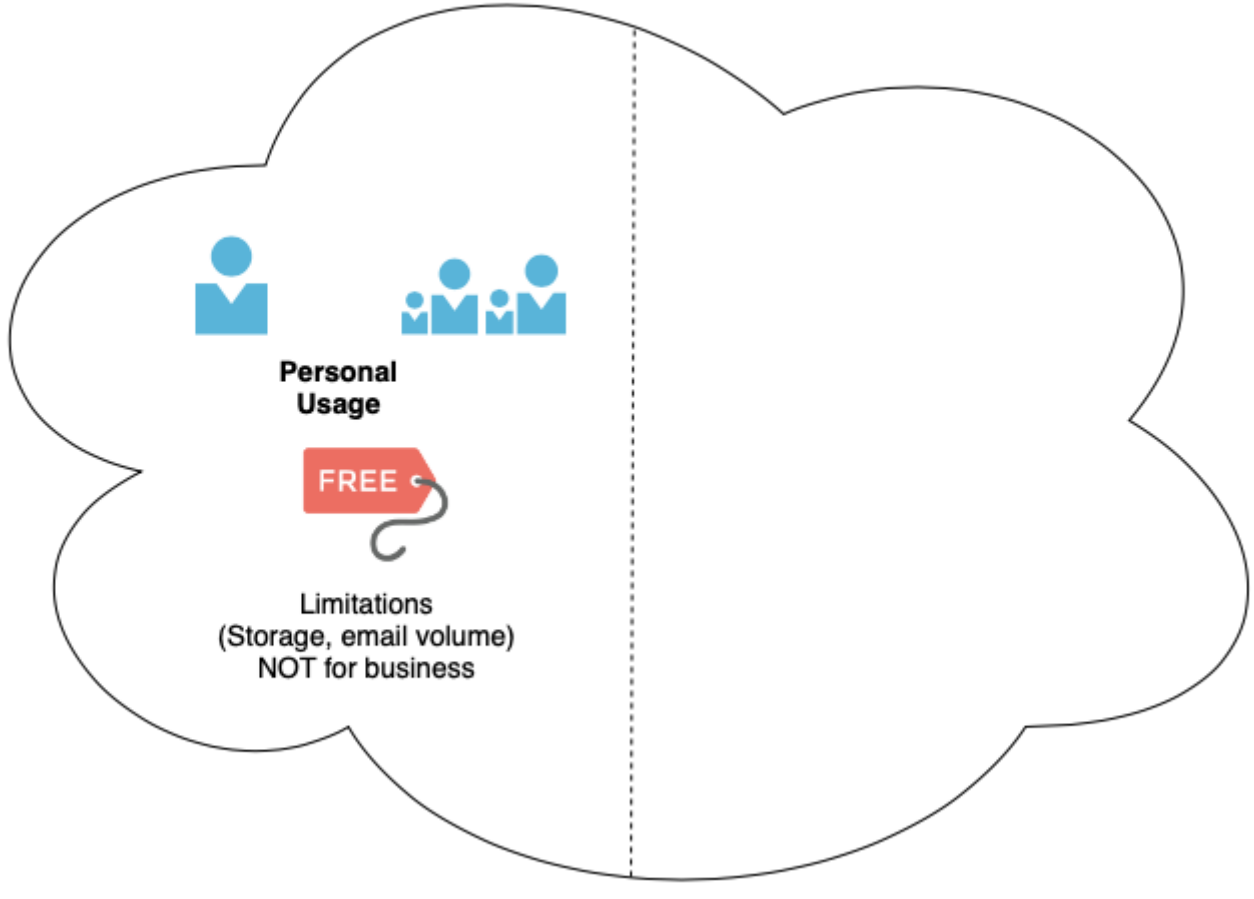
- "academic deal forever"

Supressed

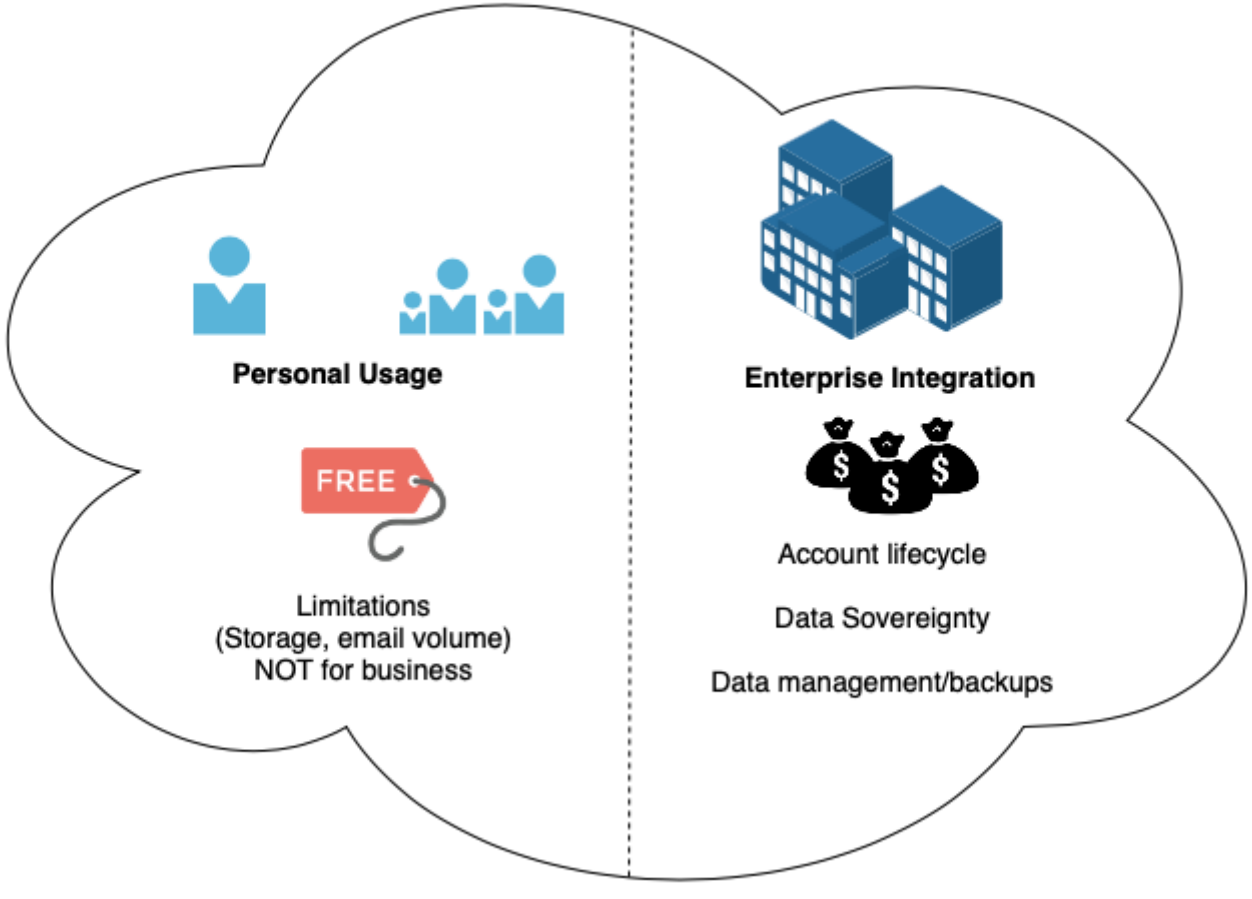
- "for CERN *our service* is free"



Free(mium)


Personal
Usage
FREE
Limitations
(Storage, email volume)
NOT for business

Free(mium)


Personal Usage
FREE
Limitations
(Storage, email volume)
NOT for business
Enterprise Integration
$ $ $
Account lifecycle
Data Sovereignty
Data management/backups

Peers

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

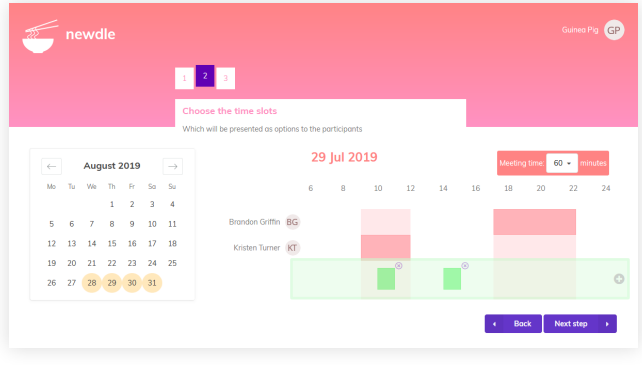
Disentangle services; reduce dependencies and risk

Onsite:

- Open Source
- Architecture: Microservices
  - Coupled, replaceble
  - 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

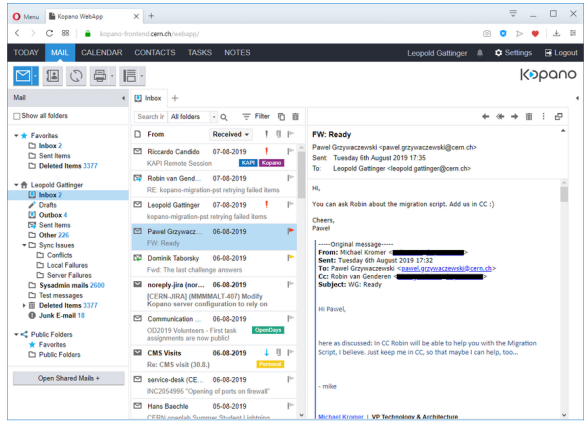


The Projects

Mail

From *Exchange* to *Kopano*

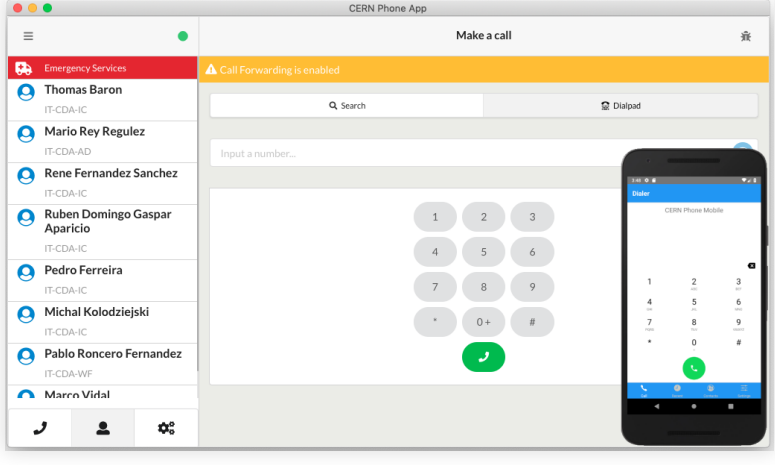
- New mail service based on *Kopano* (https://kopano.com)
  - Groupware system (e-mail, calendar, contacts)
  - **FOSS, on premise, no lock-in, can exit anytime**
  - Developed by Kopano BV (Netherlands/Germany)
  - Optional support and maintenance contract
  - Deployed in enterprises of similar scale
- **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

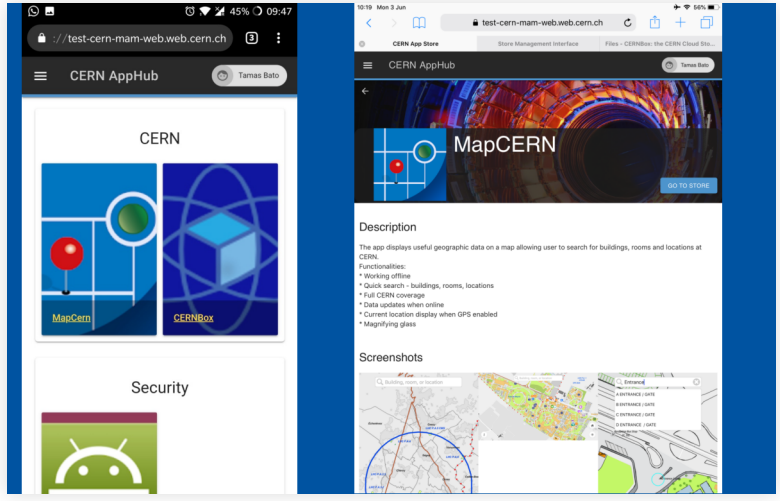
- **Replacing Alcatel PBX by FOSS solution**
  - *Asterisk* (https://www.asterisk.org)
  - End of analog phone support
- Developping & deploying "CERN Phone" app (WebRTC-based)
  - All platforms: desktop and mobile versions
  - https://github.com/cern-phone-apps
- Impact on users
  - Major change for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



Devices & Applications

From Managed Devices to Managed Applications

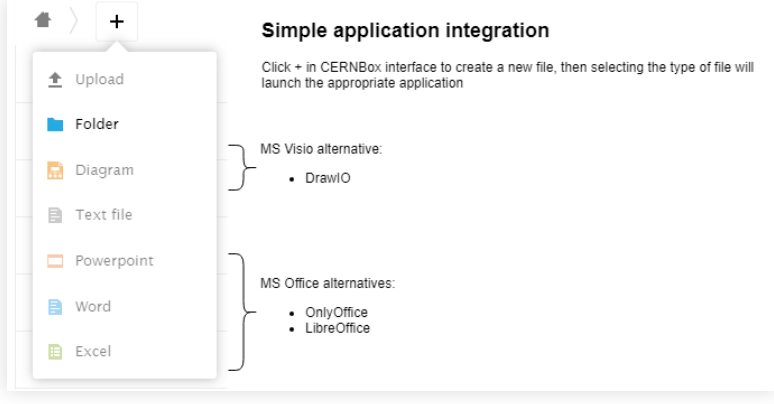
- Reduce managed Windows number to the necessary
  - **Hardened PCs**: Secured, controlled managed PCs
- Offer self-managed Windows PCs
  - *Windows 10* delivered preinstalled, managed by the user
  - Using *Windows Pro OEM* licence instead of *Enterprise* version
- Offer the same app catalogue on all 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

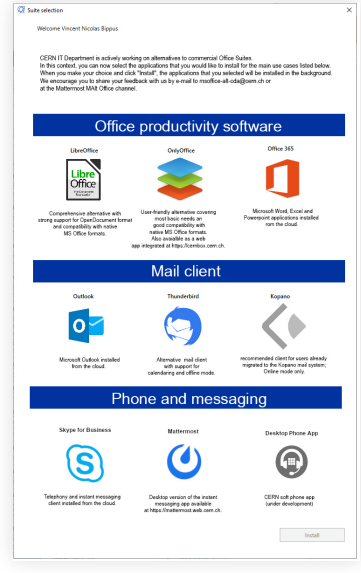
- Offer a web-based applications portfolio à la Google Apps
- Build on top of *OwnCloud* (https://owncloud.org)
- Unify home directories on *OwnCloud* ("CERNbox")
  - For *Windows*, *MacOS*, *Linux* and SmartPhones
- CERNbox web site to become CERN hub for web apps
  - Offering growing panel of apps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



Devices & Applications

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

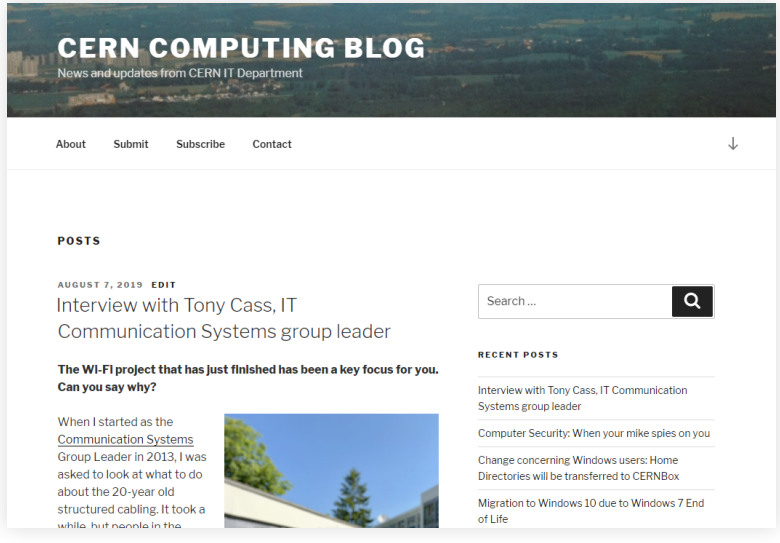
From ADFS/AD to *KeyCloak/FreeIPA*

- **New Single Sign-On based on FOSS solution**
  - *KeyCloak* (https://www.keycloak.org)
    - 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)

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
  - Self-managed devices and CERN AppStore: Pilot Q4 2019, transition in 2020.
- 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/