Enroll 2FA to thousands of users

Automating processes with privacyIDEA

FOSDEM 2018

Cornelius Kölbel

privacyIDEA AUTHENTICATION SYSTEM

About Cornelius

- Cornelius Kölbel
- 2FA since 2005
  - Smartcards, Aladdin eToken, privacyIDEA since 2014
- Cornelius.koelbel@netknights.it
- @cornelinux
- @privacyidea

privacyIDEA AUTHENTICATION SYSTEM

Challenges

- 2FA for services offered by city administration

Challenges

- End customers of electricity provider

privacyID3A AUTHENTICATION SYSTEM

Challenges

- 2FA for all university students!

privacyIDEA AUTHENTICATION SYSTEM

Problems

- User will not come to admin desk
- User unknown
- User dislocated
- User not tech savvy

privacyID3A
AUTHENTICATION SYSTEM

Problems

- User shoud not copy

privacyID3A AUTHENTICATION SYSTEM

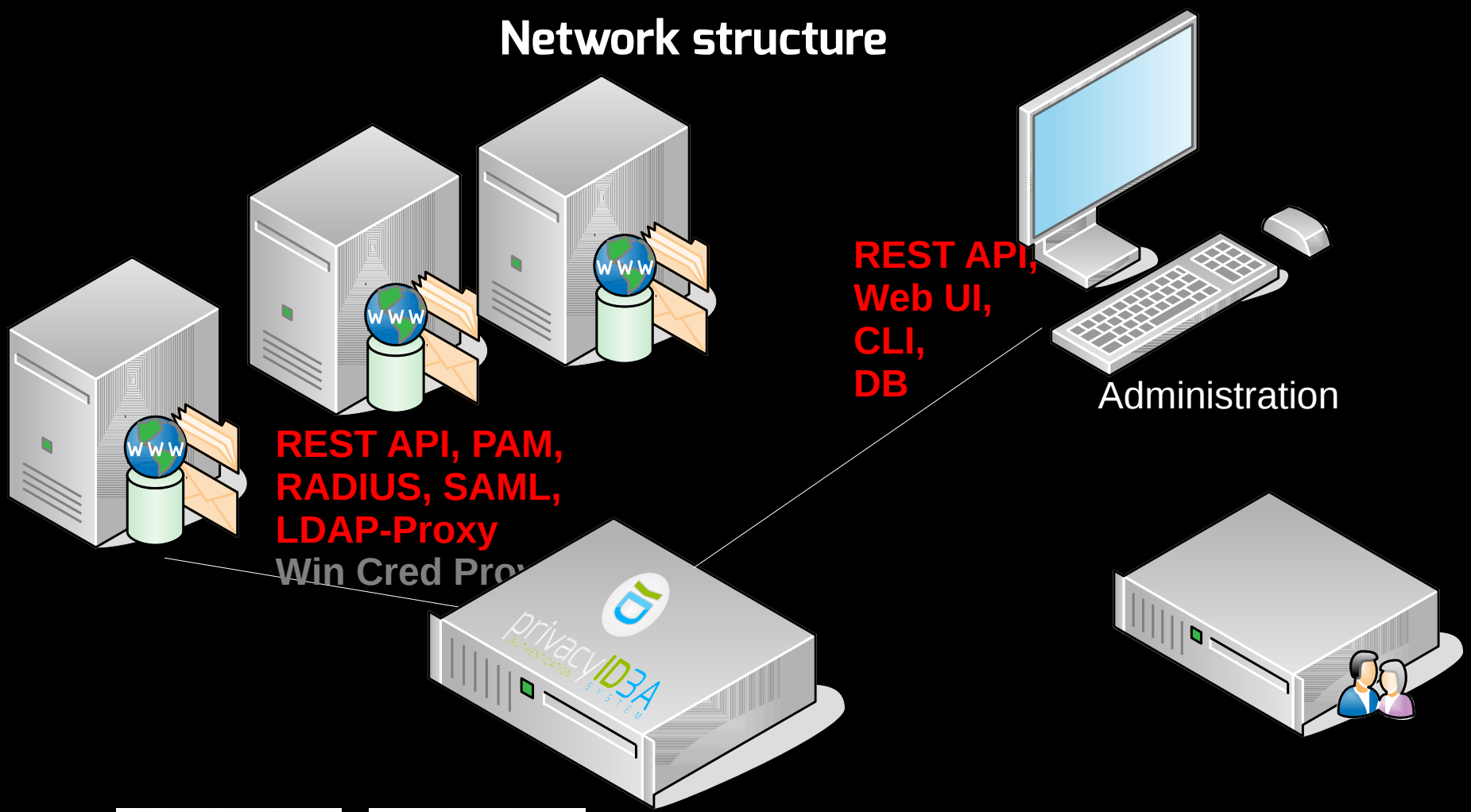
Management and Authentication

privacyID3A

AUTHENTICATION SYSTEM

privacyID3A
AUTHENTICATION SYSTEM

Network structure



privacyIDEA
AUTHENTICATION
SYSTEM

privacyIDEA can manage different token types

- Key-fob Tokens
- OTP Cards
- SMS, Email, Smartphone
- Yubikey
- U2F
- eToken NG/OTP
- SSH Keys
- x.509-Certificates
- Meta-Tokens (Forward, RADIUS, 4eyes)
- ...

privacyIDEA AUTHENTICATION SYSTEM

Structure of privacyIDEA

- UI on Webserver
- REST API on Webserver
- Library level
- Database level

See: http://privacyidea.readthedocs.it

Possible automations

- Database (SQL)
- Library-Calls
- REST API-Calls
- Event Handler

privacyID3A
AUTHENTICATION SYSTEM

library

- Python libs for **all** tasks.
- No need for REST API
  - No load on Webserver
- Tools for
  - expired users,
  - janitor for orphaned tokens

privacyIDEA
AUTHENTICATION SYSTEM

Example: automation via library

```
for token_obj in tlist:
    try:
        if action == "disable":
            enable_token(serial=token_obj.token.serial, enable=False)
            print("Disabling token {0!s}".format(token_obj.token.serial))
        elif action == "delete":
            remove_token(serial=token_obj.token.serial)
            print("Deleting token {0!s}".format(token_obj.token.serial))
        elif action == "unassign":
            unassign_token(serial=token_obj.token.serial)
            print("Unassigning token {0!s}".format(token_obj.token.serial))
```

privacyIDEA AUTHENTICATION SYSTEM

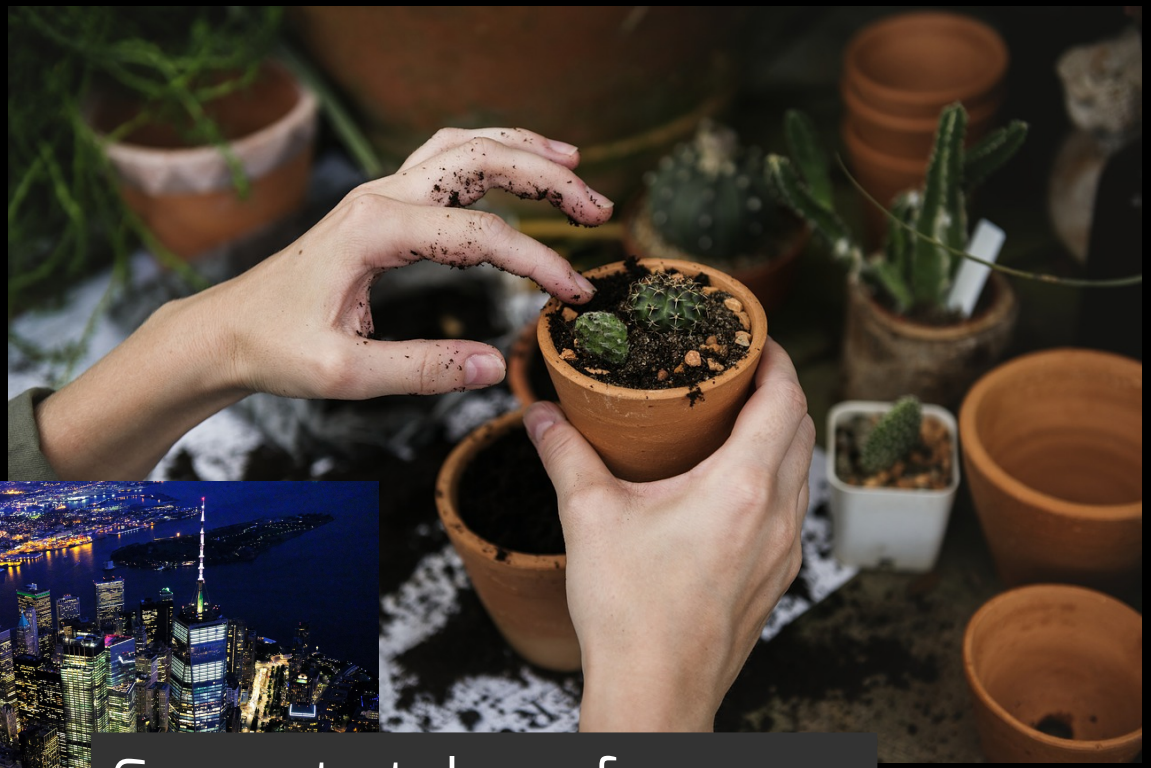
Call your API

- POST /validate/check
- POST /token/init
- GET /token/
- DELETE /token/OATH12344

See: http://privacyidea.readthedocs.it

privacyIDEA AUTHENTICATION SYSTEM

Example: API automation



Generate tokens for users

privacyID3A
AUTHENTICATION SYSTEM

Automation via Event Handler

- Trigger additional action

privacyIDEA AUTHENTICATION SYSTEM

privacyIDEA HTTP Request

1. Pre policies (exceptions)
2. Request
3. Post policies (exceptions) → Response
4. Event Handler triggers **additional** action

privacyIDEA AUTHENTICATION SYSTEM

ingredients

- Connected API calls
- Handler Module
  (notification, token, script, federation)
- Conditions
- Action with options

privacyID3A
AUTHENTICATION SYSTEM

Example Event Handler

- If a paper token is generated by an administrator, the token will be disabled.
- It will be enabled if, the user authenticates with a registration code.
- The user gets notified, when his registration code is used.

privacyIDEA
AUTHENTICATION SYSTEM

Example: Event Handler

- To support external workflow, set arbitrary token attribute…

privacyID3A
AUTHENTICATION SYSTEM

Example: Event Handler

- ...and run an external script!

privacyID3A
AUTHENTICATION SYSTEM

Example: Event Handler

- (API call) /token/init of registration code
- triggers script to print welcome letter

privacyIDEA AUTHENTICATION SYSTEM

Example: Event Handler

- /token/assign yubikey
- triggers token handler to set token attribute (needs shipping)

privacyIDEA AUTHENTICATION SYSTEM

Graduate students: Token Janitor

- Token janitor can find and disable/delete unused tokens

privacyID3A AUTHENTICATION SYSTEM

Succesful 2FA is a matter of smooth workflows

privacyID3A AUTHENTICATION SYSTEM

- https://privacyidea.org
- https://github.com/privacyidea
- @privacyidea
- @cornelinux
- Cornelius.koelbel@netknights.it