Umbrella

EuroFEL
FREE ELECTRON LASERS OF EUROPE

Status & future of the FEL user umbrella system

User issues at large-scale facilities (especially FELs and SPSs)

Key players and Interest fields

Users

- Want to perform experiments with minimum of administrative overhead
- Irregular experiment schedules, often non-gurus
- Want their ideas not to leak through to competitors

Facility managers

- Vertical hierarchy
- Mostly national facilities, competition
- Confidentiality (proposals)

Facility user officers WUOs, (Web-based User Offices)

- In direct contact with the users, hundreds of proposals, thousands of users, inefficient procedures immediately punch-through to the WUOs
- Notoriously understaffed

Referees

- Peer basis, need reader-friendly description of the experiments proposed

New techniques (detectors, IT)

- Real quantum leap in data quality, but also data volumes
- 'Petabyte' becomes a 'normal' unity; time over for hard-disk in the pants pocket

Common treatment of User issues

Synergies in user operation

- A real novel approach; up to now each facility on its own
- Many and intense discussions were needed to identify optimal interface points between *common* and *local* issues
- EuroFEL as pioneer

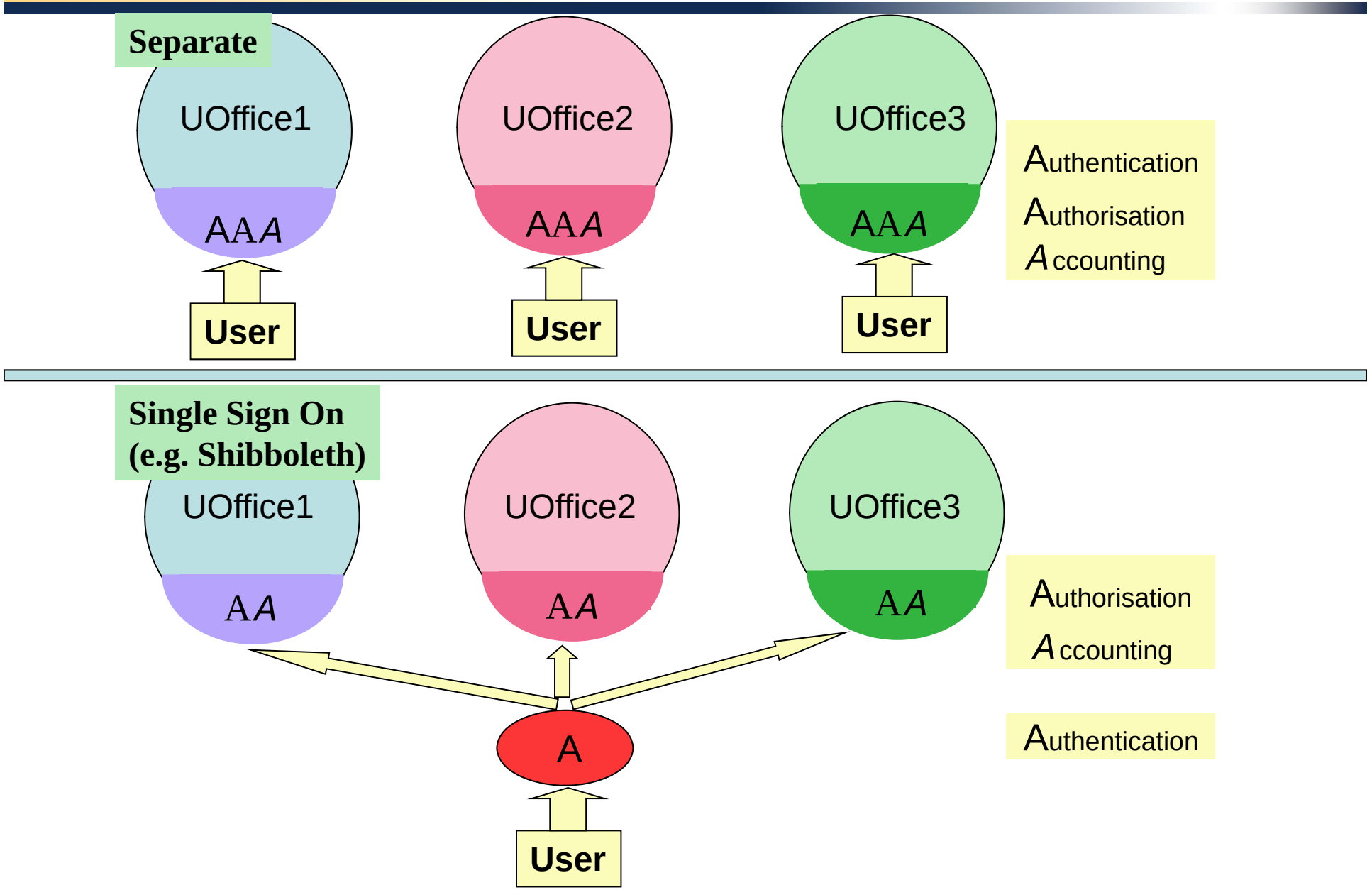
Various documents

- Preparation phase
  - Review of science cases and technical reports
  - Concept for the integration of user needs
- Prototype phase
  - Functional description of the EUU / EAA tools
  - EAA EUU Architecture

Answer of the umbrella concept, basics

- Unique user identification
  Are Miller /DESY and Miller / PSI the same person?
- Separation of identity and role
  Identity is determined centrally.
  Roles are linked to facilities and remain stored locally.
- Confidentiality
  User information and proposal information is highly confidential and politically delicate.
  Adherence is basic for success
- Keep existing goodies
  Local user offices have developed very efficient software tools
- Hybrid character local & central
  keep as much as possible local
  provide central service only, where necessary
- Parallel implementation
  The novel Umbrella tools will be introduced in parallel to the existing local tools. Minimises migration problems.
- Do it yourself
  User and facility friendliness is a key requirement.
  Operational activities predominantly handled by users and facility user offices, thus minimising any requirement for central actions.

Umbrella


Separate
UOffice1
AAA
UOffice2
AAA
UOffice3
AAA
User
User
User
Authentication
Authorisation
Accounting
Single Sign On
(e.g. Shibboleth)
UOffice1
AA
UOffice2
AA
UOffice3
AA
A
User
Authorisation
Accounting
Authentication

Umbrella

User access, IT projects

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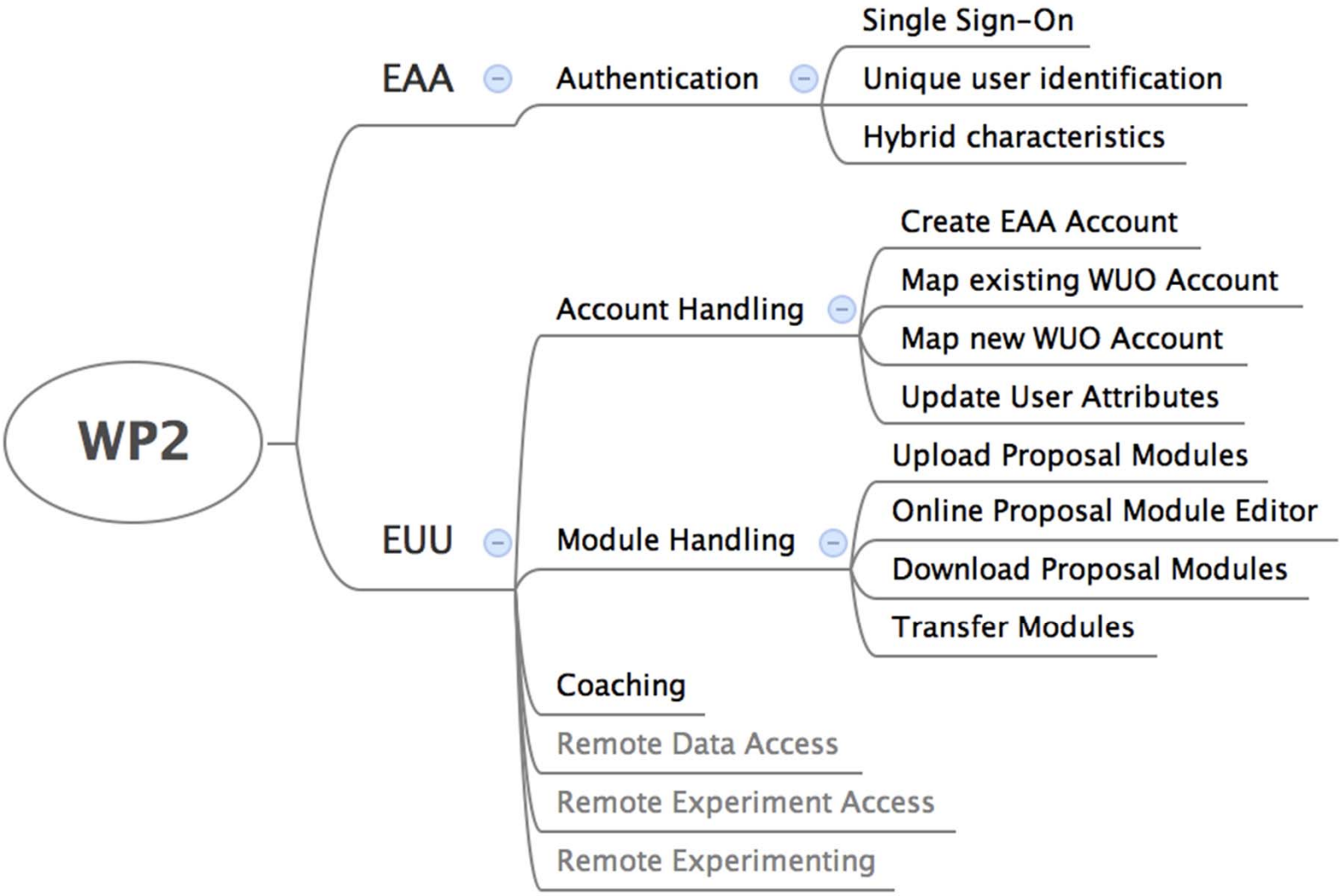
EuroFEL (Umbrella Prototype)

- ❑ Authentication (EU-unique (identification)
  - ❖ *Proposal handling* (thousands of proposals / year)
  - ❖ Coaching (support of novice users)

Next Generation (Umbrella+)

- ❖ ***Remote data access*** **(petabytes of data): CRISP**
  - ➢ But more than authentication (e.g. data format, catalogues …)
- ❖ **Remote experiment login (young scientists; Fedex-style experiments)**
  - ➢ But more than authentication (e.g. fire wall, experiment standardization, component *protocols …)*

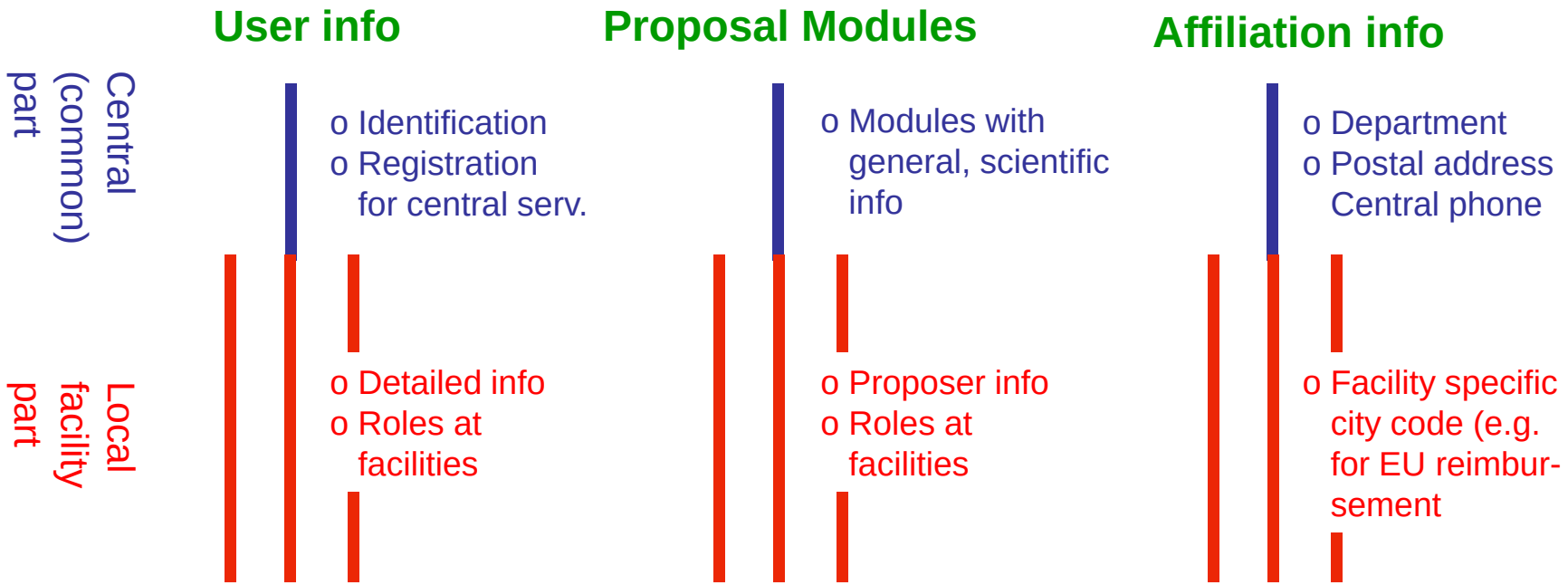
Umbrella architecture



Hybrid character (central vs. Federated)

Answer to conflicting requests:

- Efficient technology
- Confidentiality
- Consequent distinction of authentication and authorisation



Options offered by Umbrella

- **Basis**
  - Authentication: unique user ID
- **Applications**
  - Module (proposal) handling = standard
  - Coaching = novel, flexible
  - common PR actions
  - publications
  - remote file access
  - remote experiment access
- **Basic boundary conditions:**
  - Scientific community for synchrotron and FEL users is practically the same. Therefore:
    - o Also same user database as for synchrotrons.
    - o Proposal system compatible with “
    - o Need for Parallel local / Umbrella operation

Exampes for proposal modules

- **Module A) Goal of the experiment**
  - ... text ... Explain why you want to perform this experiment …
- **Module B) Background**
  - ... text ... What is the scientific status? …
- **Module C) Experimental method; specific requirements**
  - ... text ... Why do you need beamtime this specific facility for perform this experiment? …
- **Module D) Results expected**
  - ... text ... Which results do you expect? …
- **Module E) Own previous work in this field**
  - ... text ... What do you have done in the last time?
- **Module F) General references relevant to the experiment description**
  - ... text ... What are the canonical publications in this field? …

Umbrella

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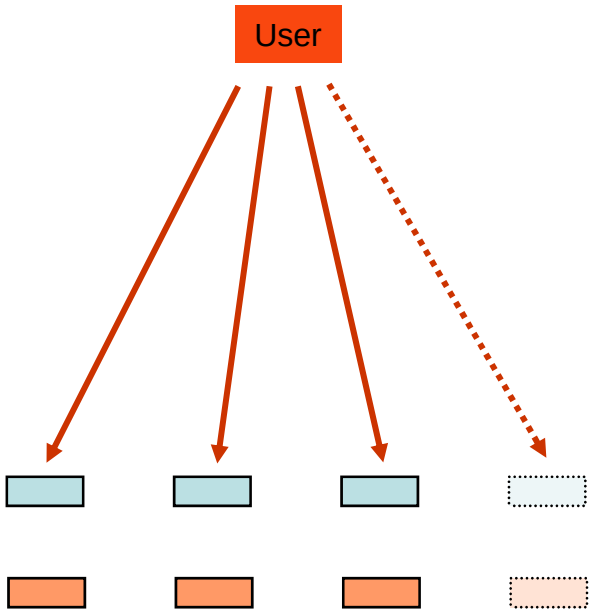
Traditional user office topology



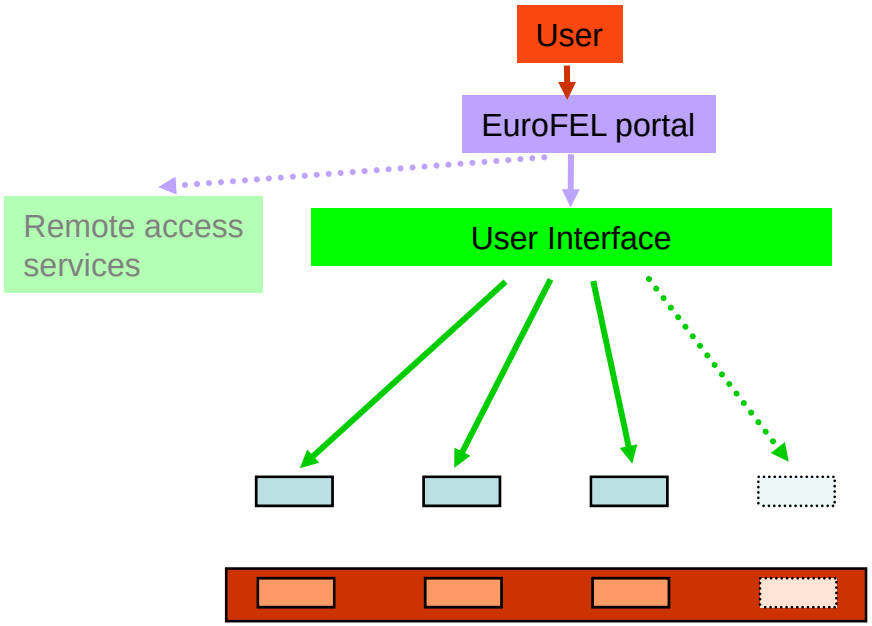
Experiment Access

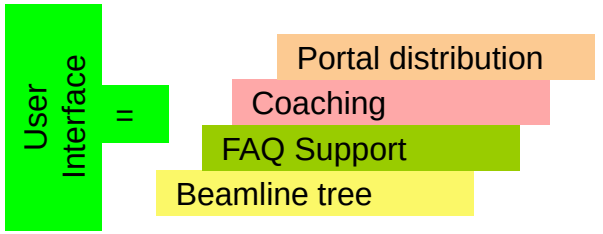
Common User services

Local WUOs

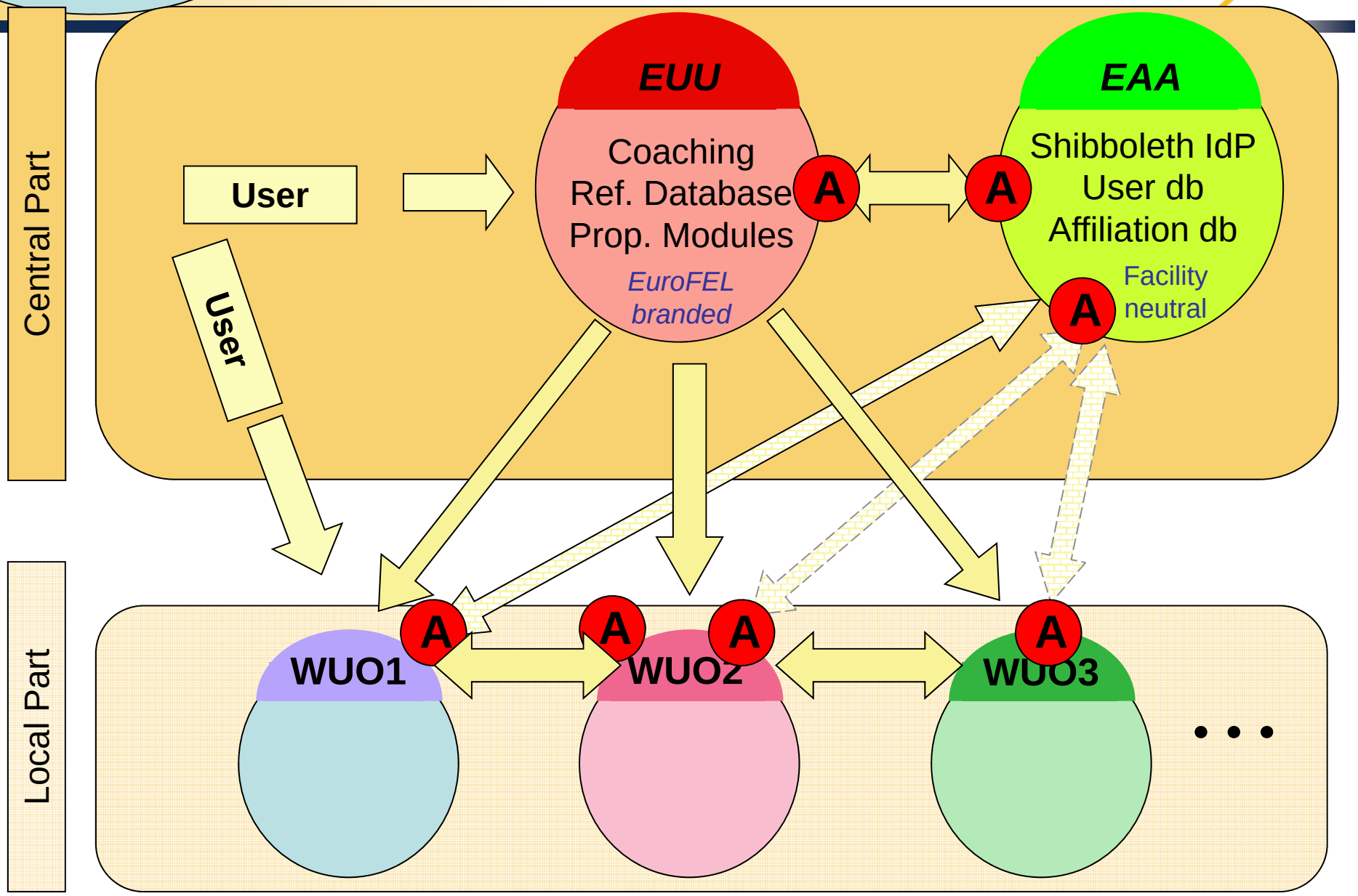
User database

Planned EuroFEL user office topology





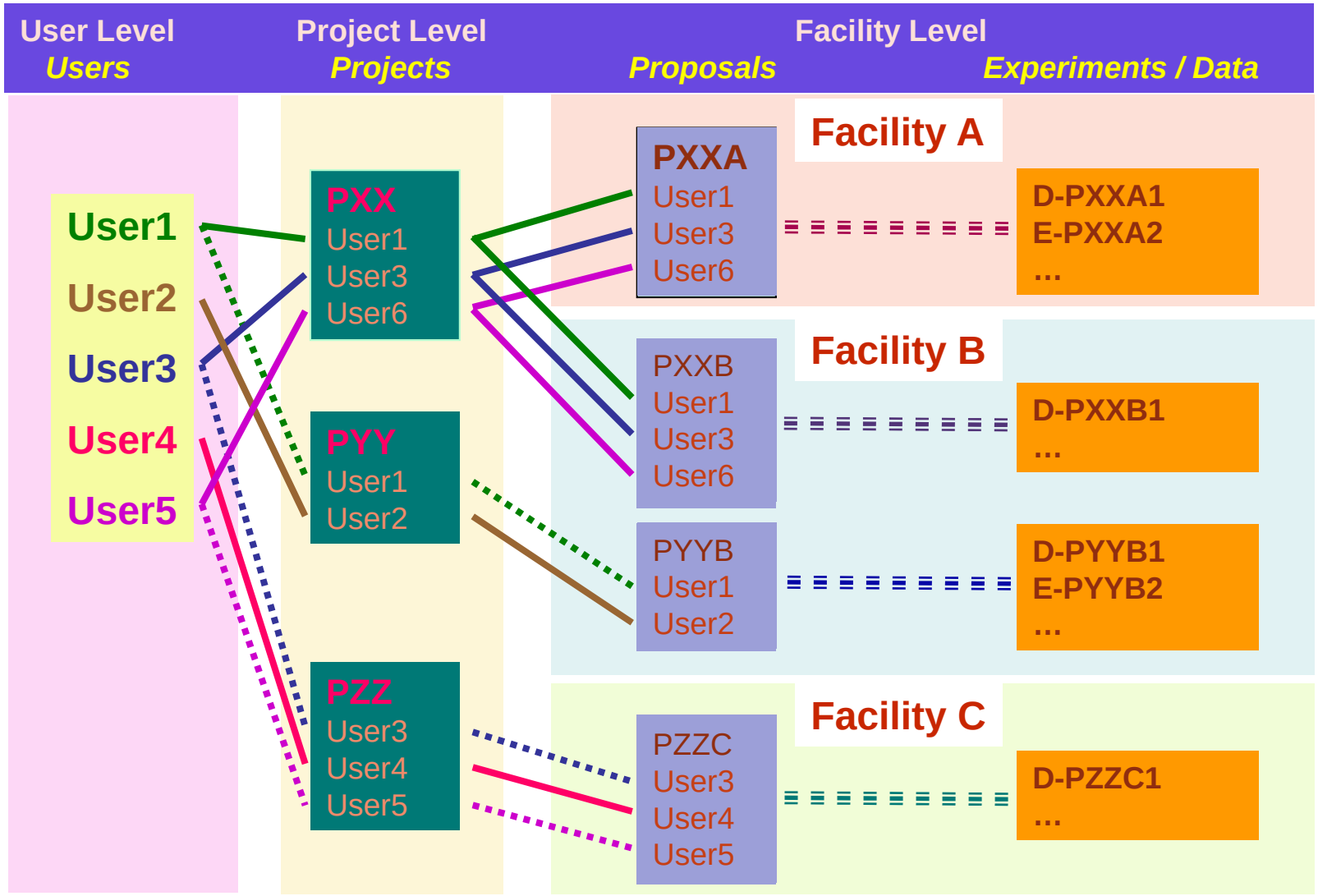
Umbrella


Central Part
User
User
EUU
Coaching
Ref. Database
Prop. Modules
EuroFEL
branded
EAA
Shibboleth IdP
User db
Affiliation db
Facility
neutral
A
A
A
A
A
A
A
Local Part
WUO1
WUO2
WUO3
• • •

FP7 Programs, Job Sharing

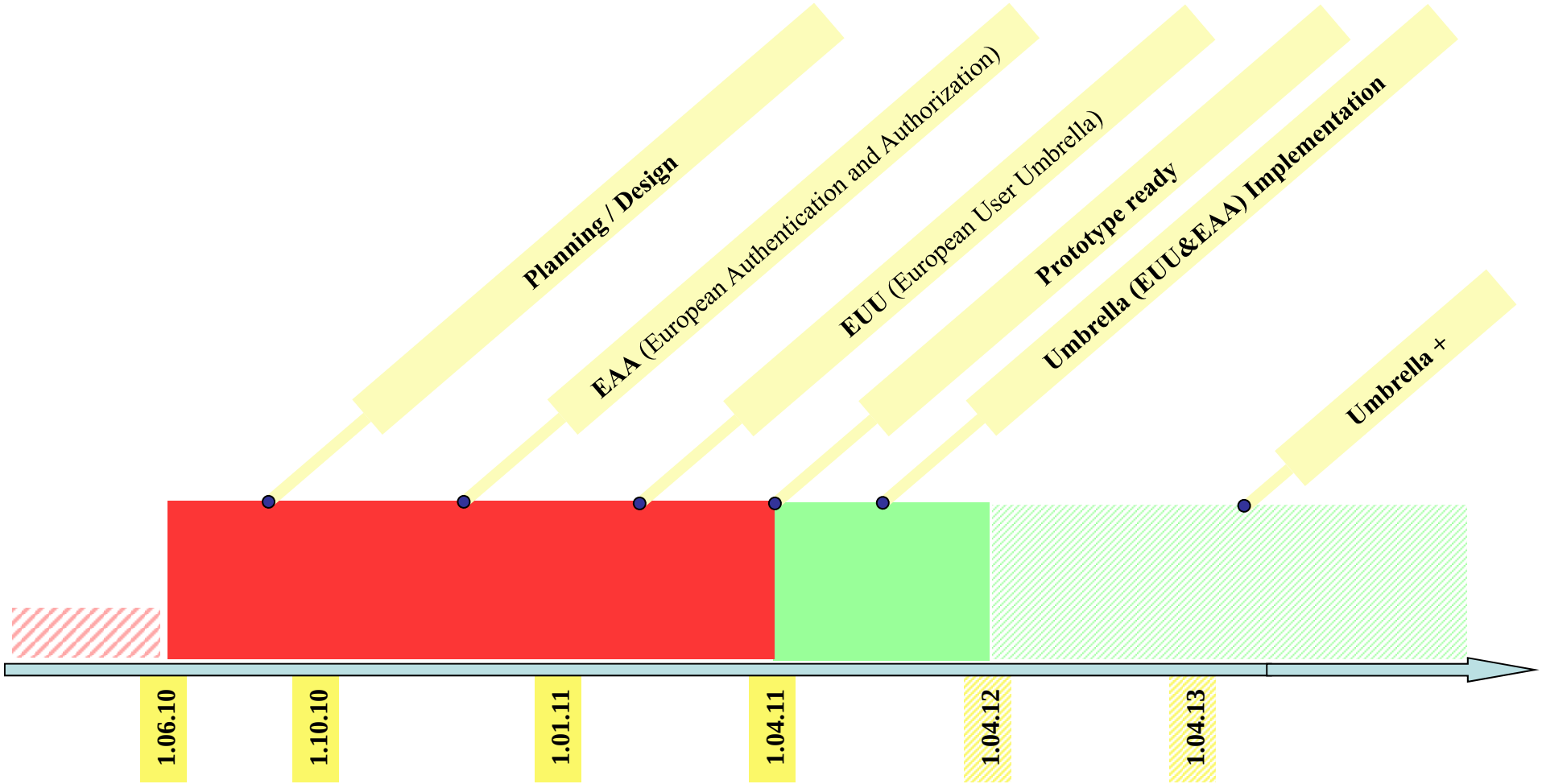
- **EuroFEL WP2**
  - Prototype developments for FEL facilities (March 2011)
    - Authentication: unique user ID
    - Umbrella proposal system
- **CRISP WP6A**
  - **PSI** + ESRF, ESS, GSI, ILL, EU-XFEL
  - Authentication for management of local and remote access to facilities, experiments, data, and IT resources
  - prototype development
  - score 14.5
- **CRISP WP6B**
  - **ESRF** + ILL, CERN, DESY +
  - Metadata management and mining service; data continuum
  - Dual local / Umbrella operation possible
  - score 14.5
- **CRISP WP6C**
  - **EU-XFEL** + DESY, ESRF, ILL +
  - High-speed Recording of Data
  - score 14.5
- **PaN-Data**
  - **PSI** + almost all European Photon / Neutron facilities
  - Authentication implementation for Photon / Neutron facilities
  - score 14

Umbrella Experiment IT Topology



User access, concept

Proposed EUU/EAA Roadmap



User access, conclusion

- **Increased access to facilities by non-classic users**
  - User friendliness
  - Coaching
  - Facility friendliness
- **Huge data rates for acquisition, transfer, storage**
  - Central identification
  - remote data and experiment access tools
  - Umbrella: Tools independent from local tools
- **Increased need for common science-political visibility (funds)**
  - lobbying
  - common web-portal
- **Photon / neutron community is a bouquet of roses (flowers and spines)**
  - Competition and cooperation
    - Between facilities
    - Between users
  - IT Tools: take into account from beginning