



Umbrella Bridging

Almudena Montiel / Björn Abt

Contents „Umbrella Bridging“ presentation

Part 1: **Umbrella Introduction**

Part 2: **Why to bridge?**

Part 3: **What to bridge?**

Part 4: **How to bridge?**

Part 5: **Use Cases at GSI-FAIR**

Umbrella is the Pan-European Federated Identity System for Users of the Photon / Neutron Facilities

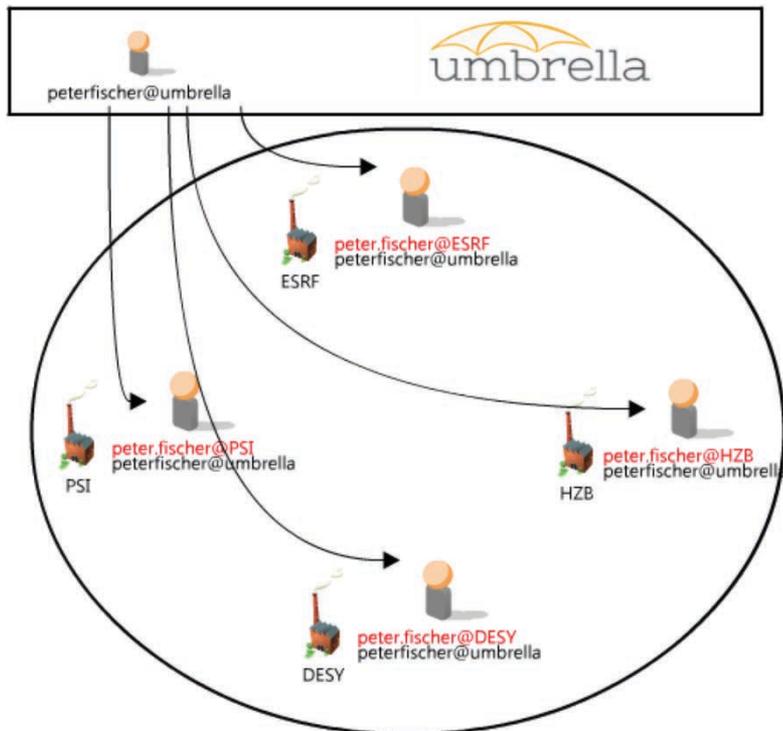
Goal:

–**Optimisation of experimental data handling from data acquisition to publication:**

- **data acquisition**
- **data analysis**
- **data transfer**
- **trans-facility experiments**
- **remote data access**
- **remote experiment access**

Umbrella:

- Provides an EU-wide, unique, persistent user identification
- Respects fully confidentiality
- Is dedicated to the photon / neutron user community
- Is a slim solution on top of the local user office systems
- Users manage own entries, supervised by local user offices
- Bridging to similar identification systems (EduGain, Grid) under development
- Common development of the major European facilities through several EU projects (EuroFEL ESFRI, PaNData ODI, PaNData Europe, CRISP), lead by PSI.
- Start of implementation spring 2013

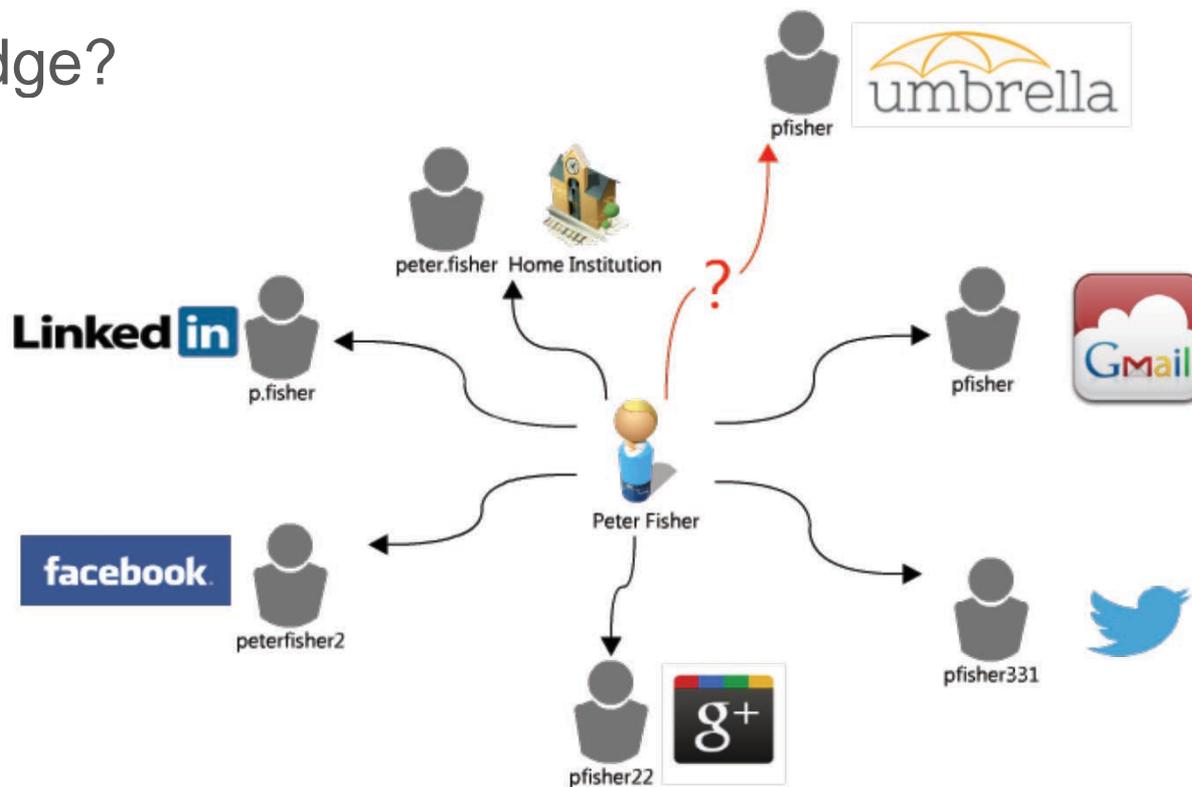


Umbrella is the basis for various user services under development

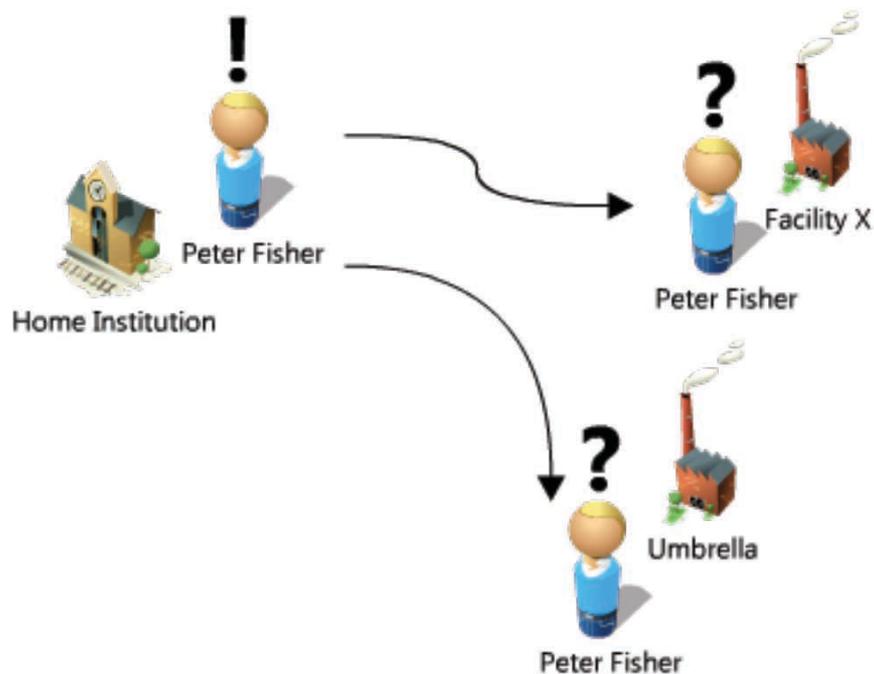
- a. Info & service portal
- b. European proposal support (NMI3 & CALIPSO)
- c. Remote experiment access
- d. Remote file access (ICAT)



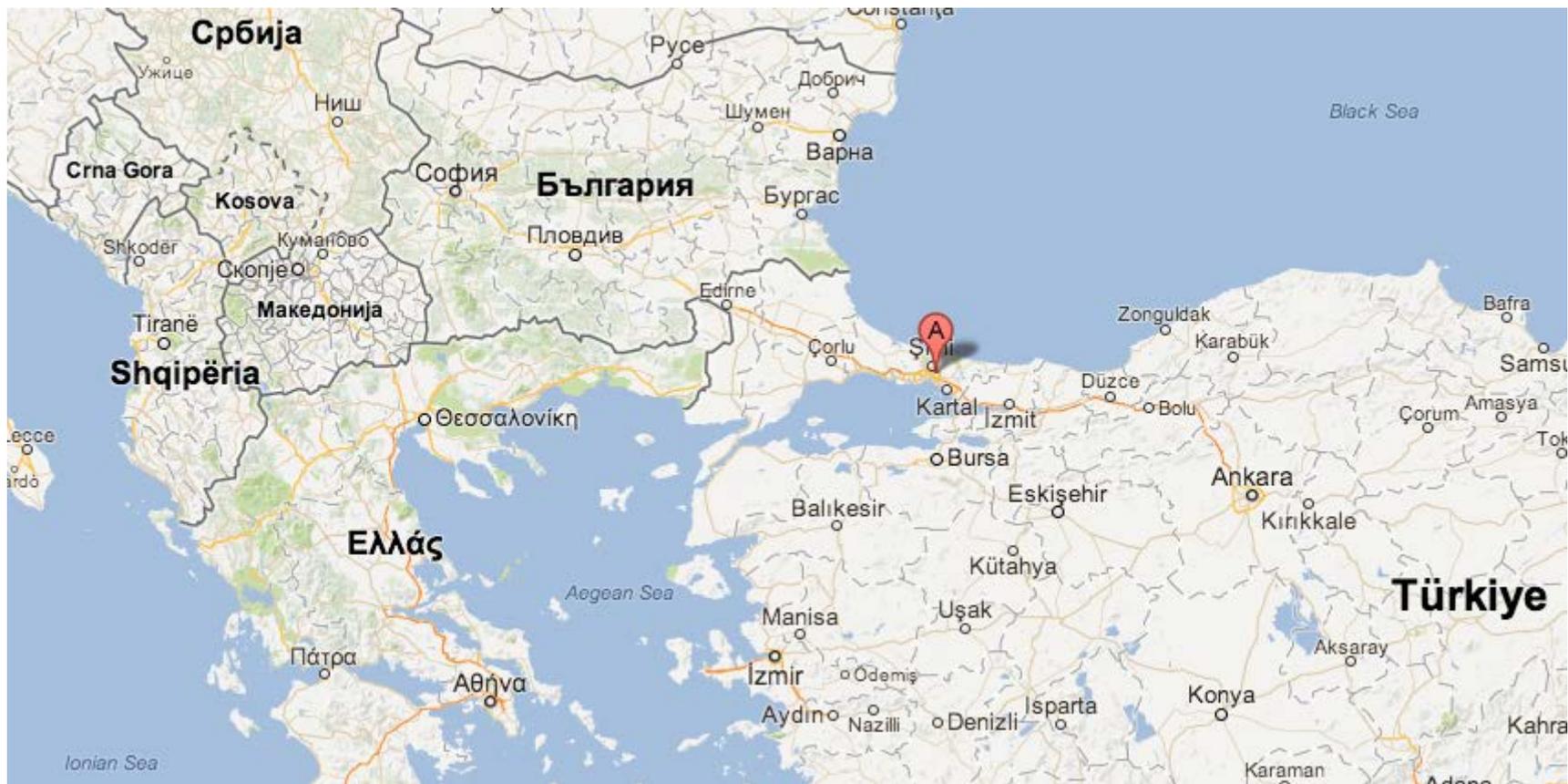
Why to bridge?



Why to bridge?



User already know their home institution credentials

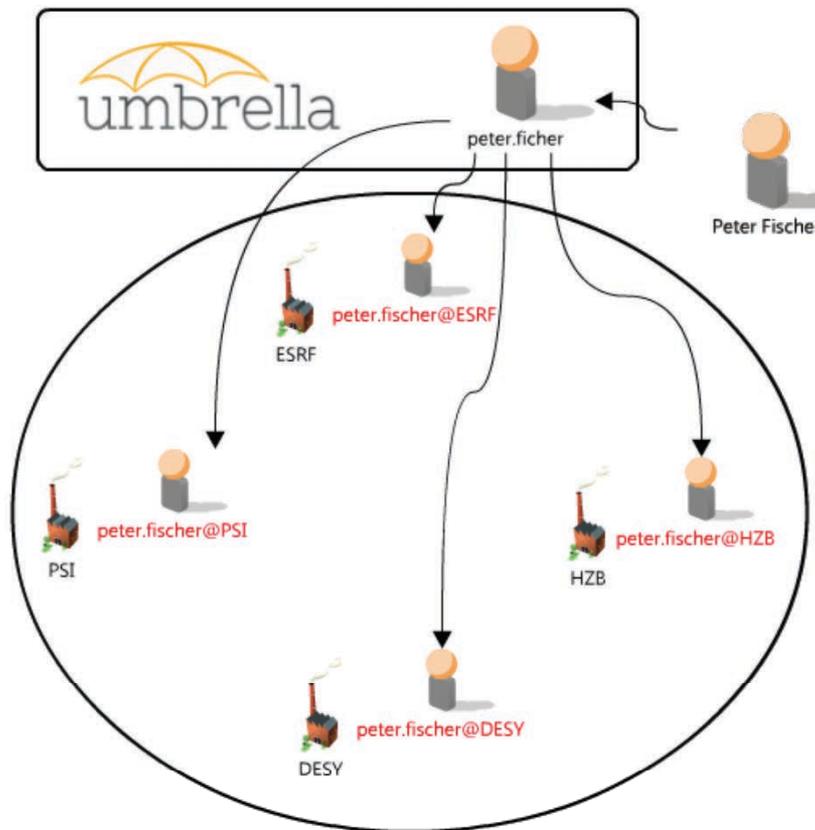


Why to bridge?

- **Bring people together from different federations (cultures)**
- **Not yet another account**
- **People already know their home institution account**

What to bridge?

- Umbrella Federation



What to bridge?

- National research and education networks (NRENs)



What to bridge?

- eduGain



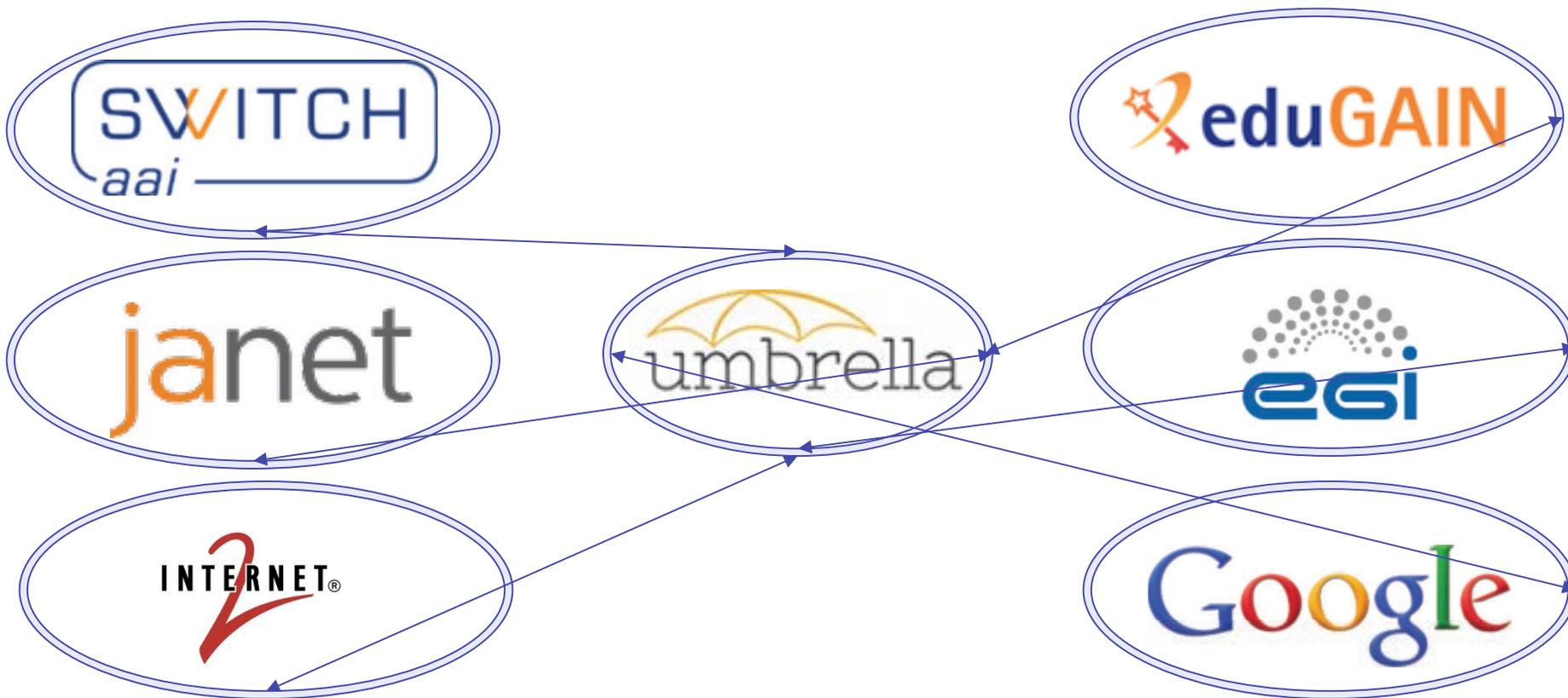
- Grid solutions



- Commercial federations



What to bridge?

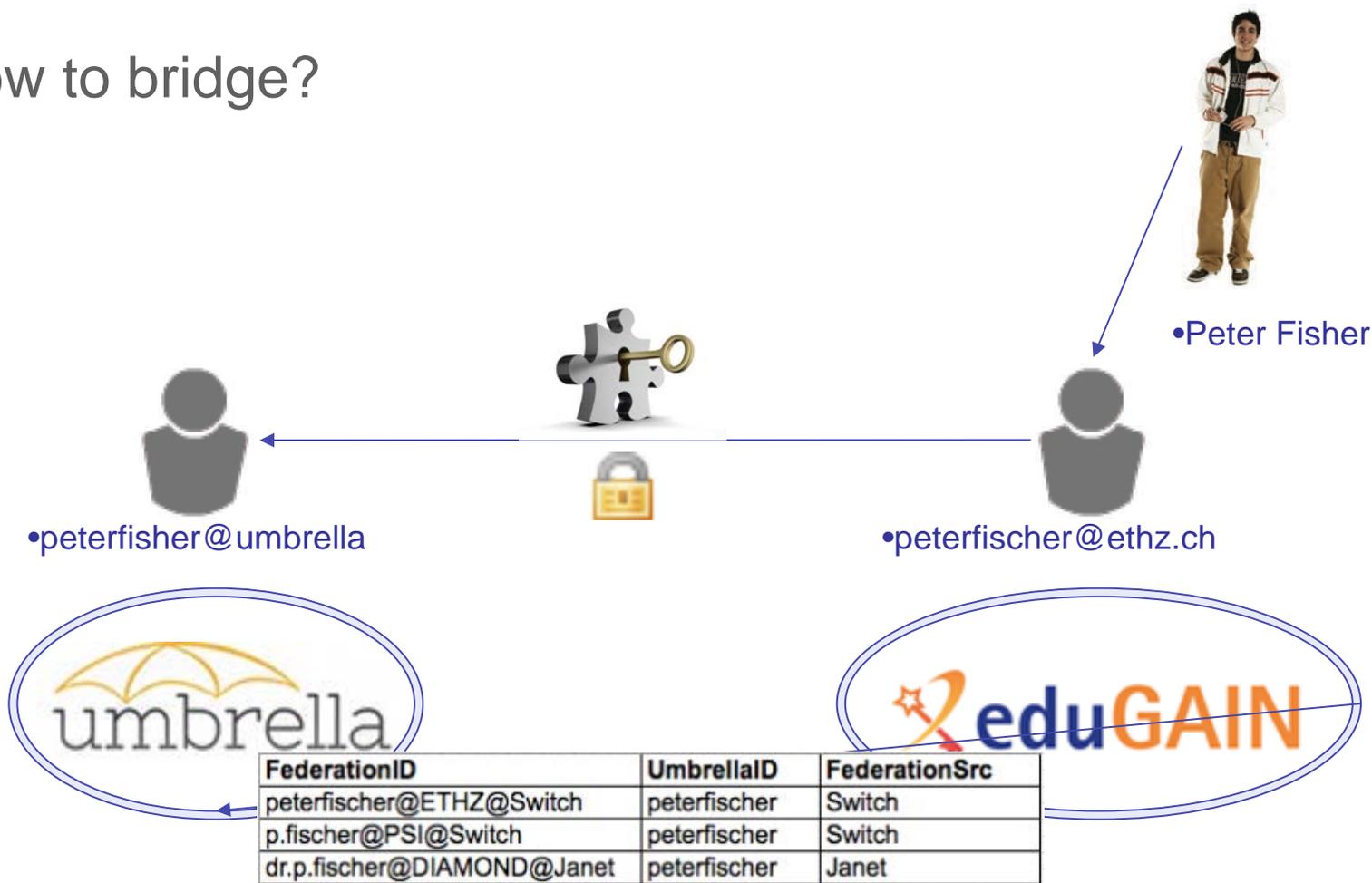


What to bridge?

Keep the Umbrella philosophy:

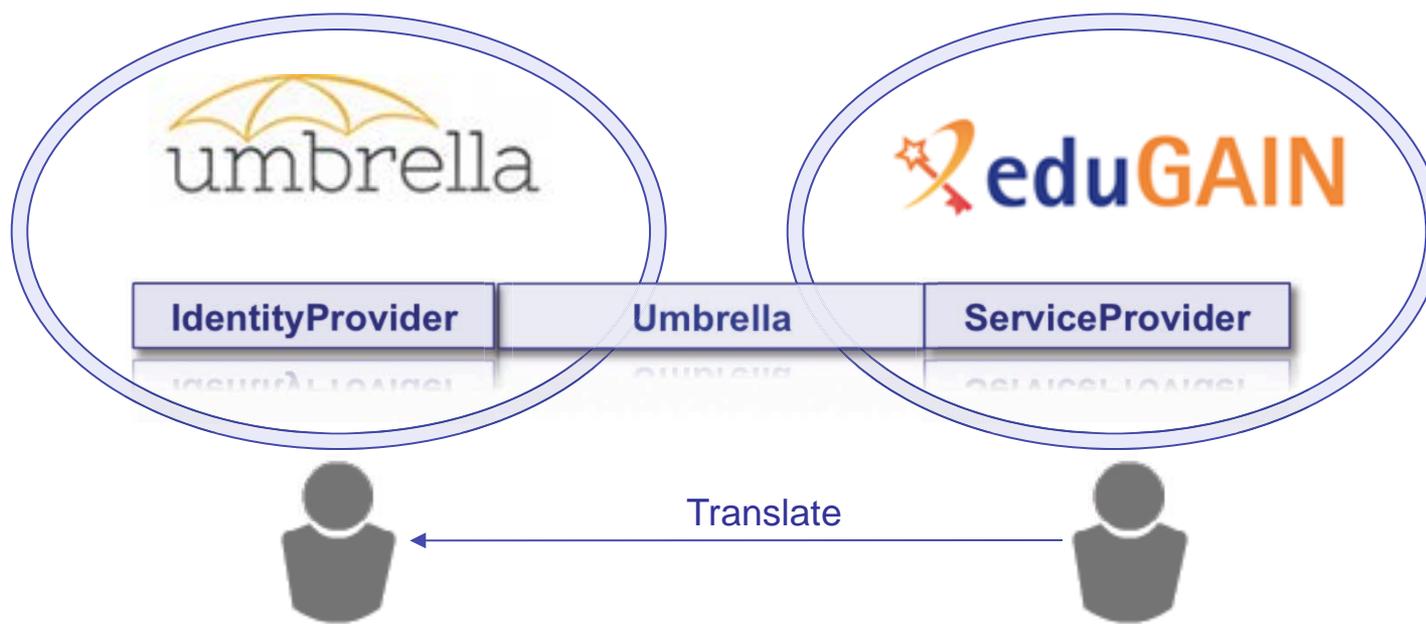
- **User initiated inter-federation mapping of accounts**
- **No automatic cross exchange of information**

How to bridge?



How to bridge?

To get user information from a federation one has to be a service provider in it.



How to bridge?

An AccountLinking Table on the Umbrella keeps track of linked accounts:

- | | |
|---------------|--|
| FederationID | <ul style="list-style-type: none">• A cross federation unique identifier of an account• E.g. peter.fisher@ethz.ch@eduGain |
| UmbrellaID | <ul style="list-style-type: none">• A unique Umbrella identifier• E.g. peterfisher |
| FederationSrc | <ul style="list-style-type: none">• The name of the federation of the source account• E.g. eduGain |

How to bridge?

An AttributeMapping table translates attributes from one federation to another federation.

sourceAttribute

- **An exact attribute name from an incoming federation**
- **E.g. mail**

destinationAttribute

- **The attribute name for an outgoing attribute name**
- **E.g. email**

How to bridge?

Attributes released to Service Providers

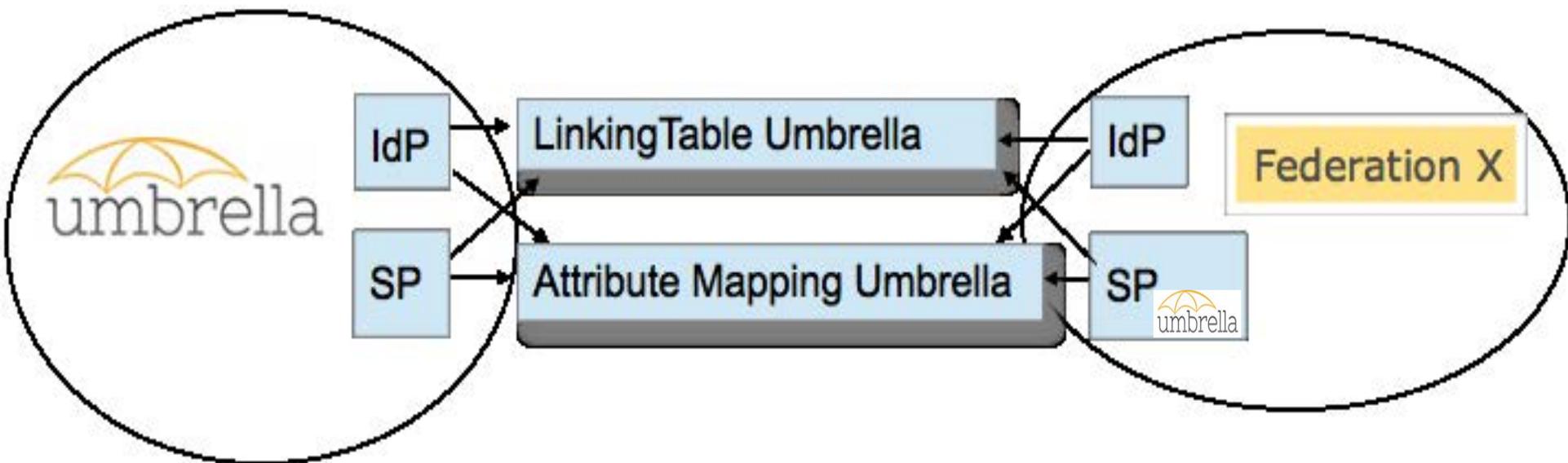
sourceFederation

- **The name of the federation where the Authentication happened**
- **E.g. eduGain**

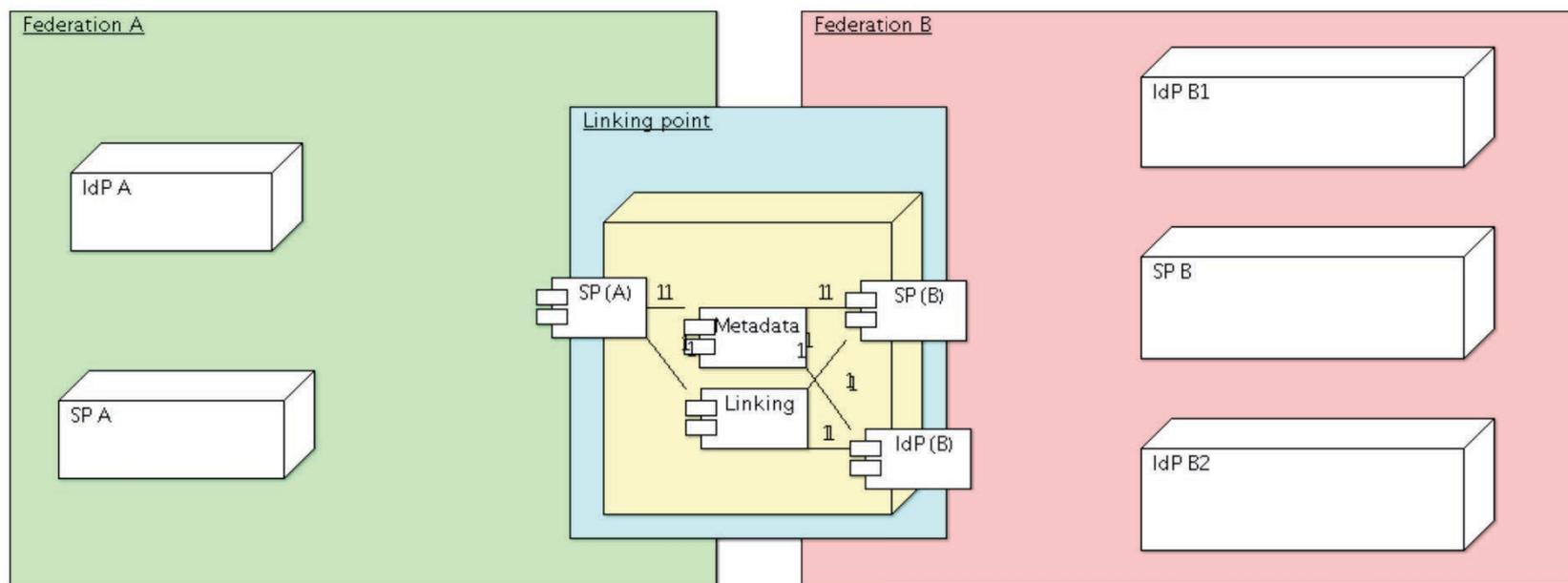
authenticationMethod

- **The type of method of authentication**
- **E.g. Two-Phase Kerberos / OATH**

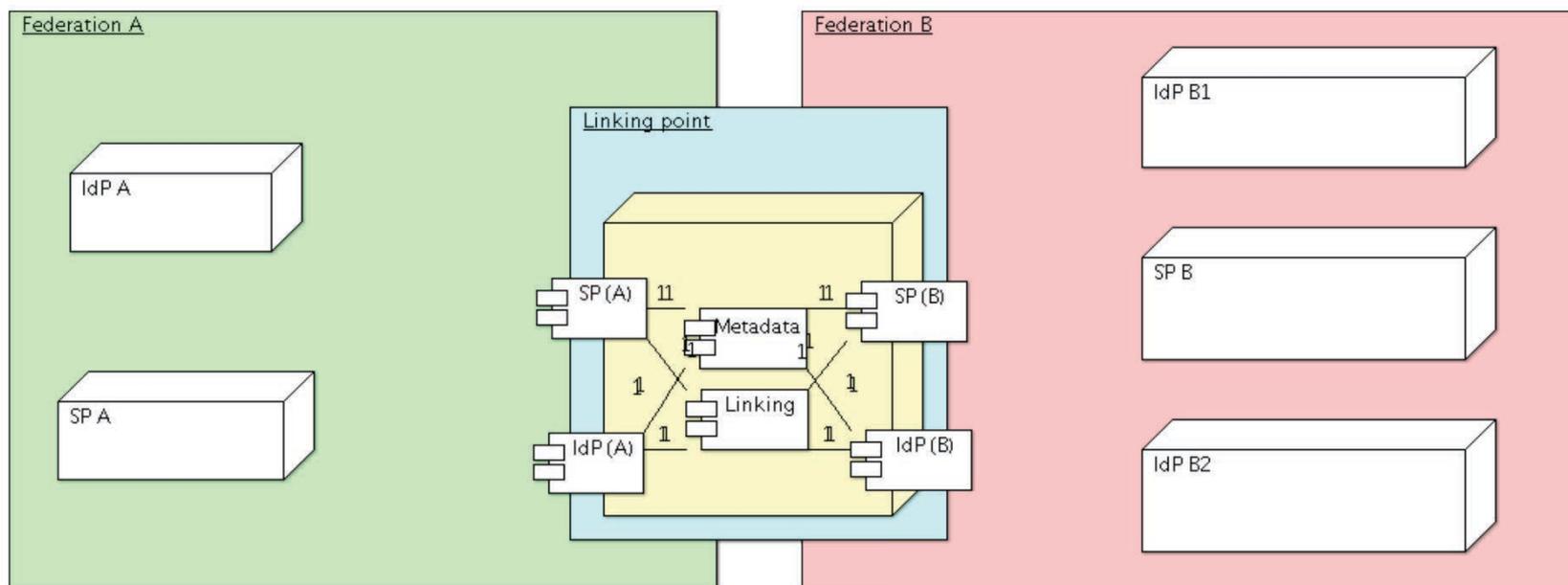
How to bridge?



How to bridge?

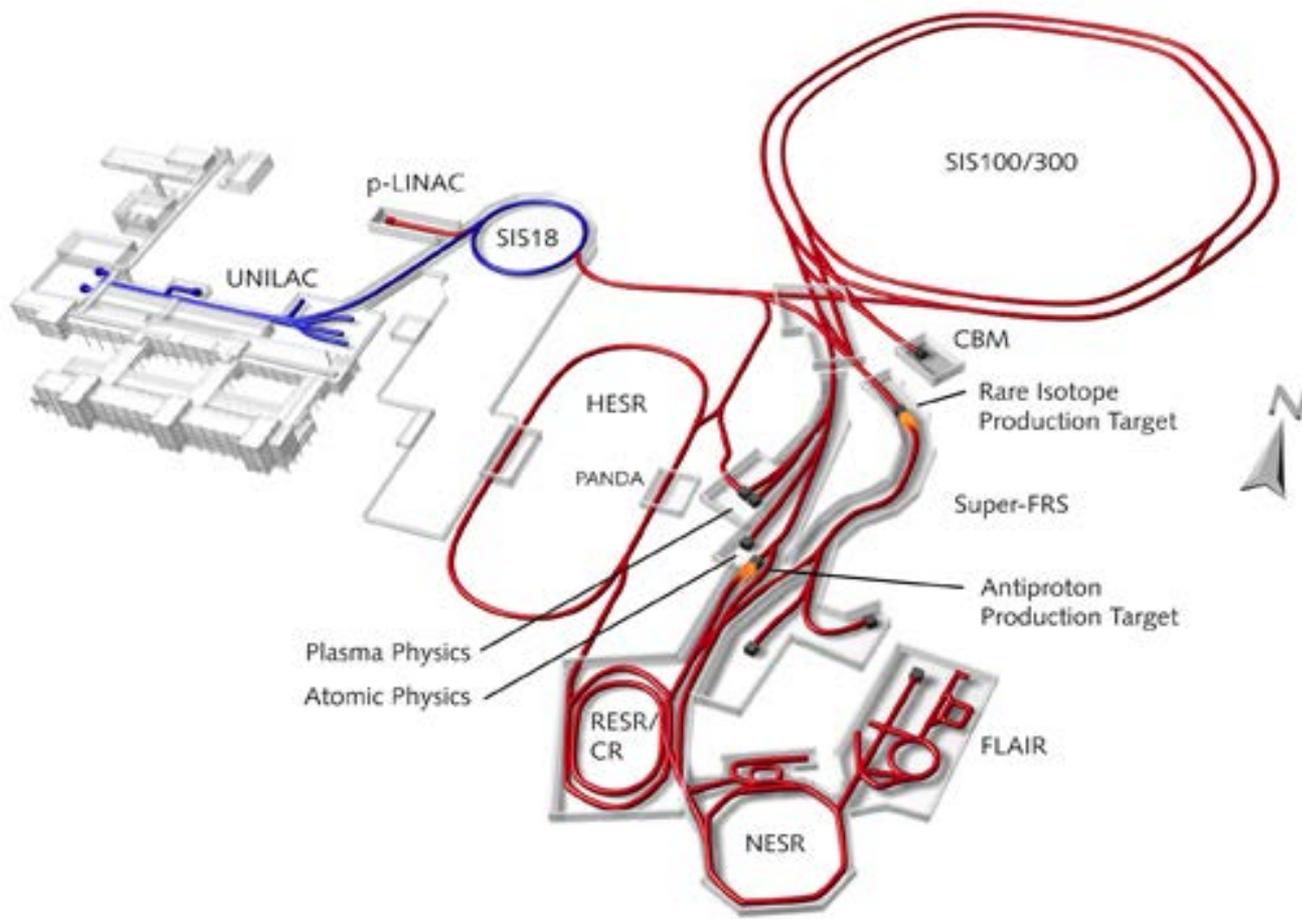


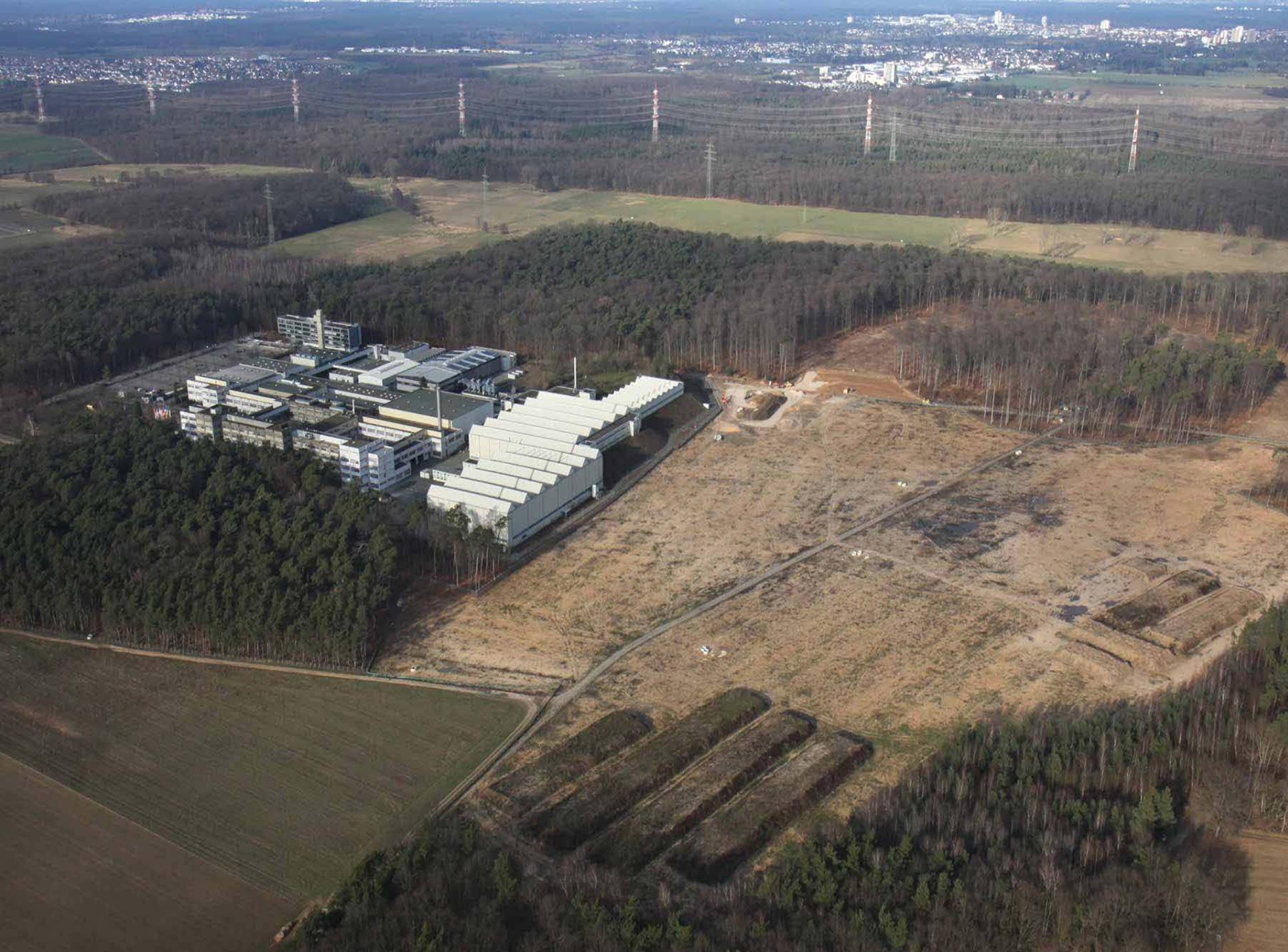
How to bridge?



Use Cases at GSI-FAIR

(Almudena Montiel)





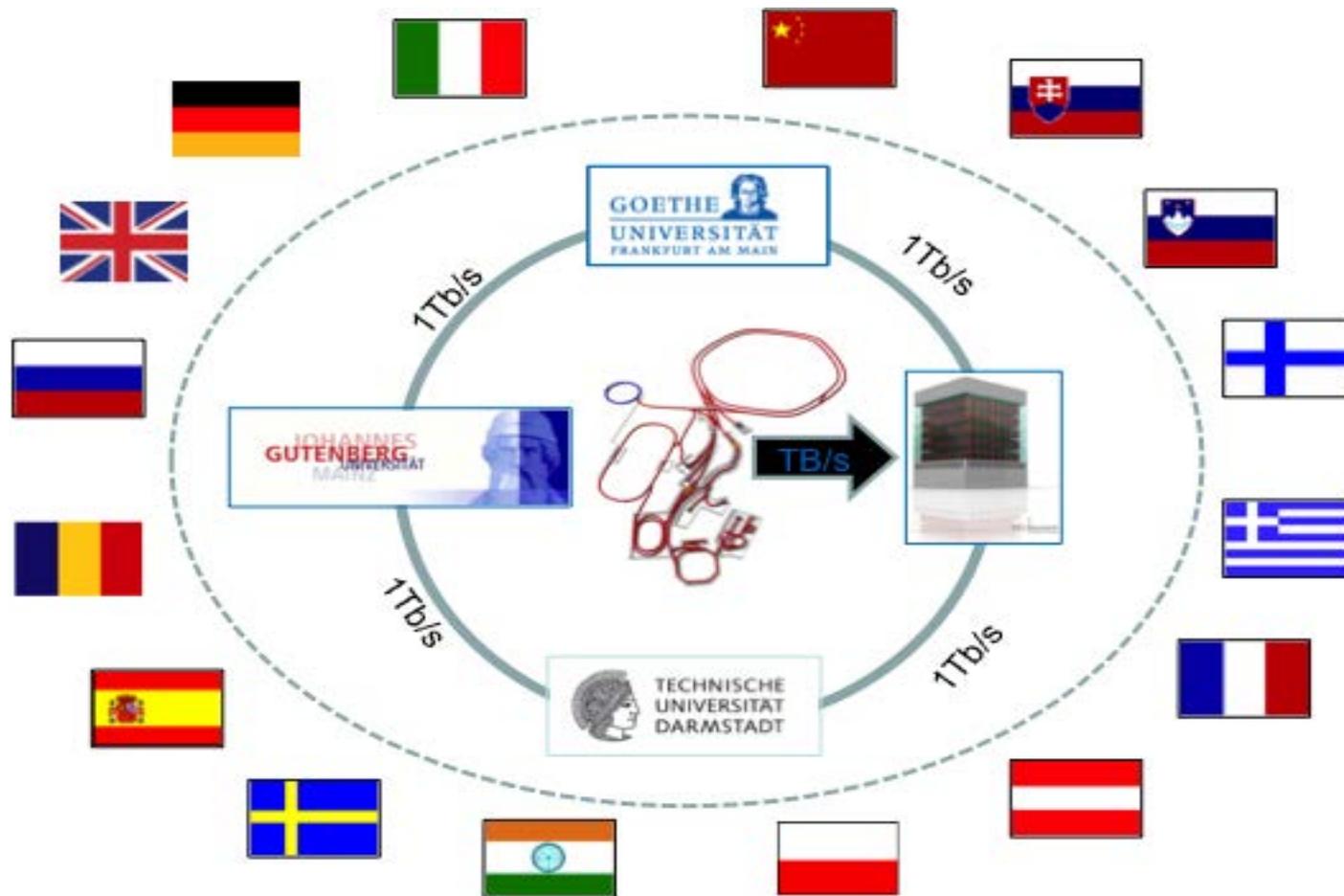


User community at GSI/FAIR

- GSI Computing **today**:
 - ALICE T2/T3
 - HADES
 - 14000 cores, 5.5 PB Lustre, 9 PB archive
- FAIR Computing in **2018**:
 - CBM, PANDA, NuSTAR, APPA, LQCD
 - 300000 cores, 40 PB Lustre, 40 PB archive

FAIR community

- APPA - Atomic, Plasma Physics and Applications
 - BIOMAT – BIOlogy and MATerial science
 - FLAIR – Facility for Low-energy Antiproton and Heavy Ion Research
 - HEDgeHOB/WDM – Plasma physics experimental stations
 - SPARC – Stored Particle Atomic Research Collaboration
- CBM/HADES – Compressed Baryonic Matter
- NuSTAR – Nuclear Structure Astrophysics and Reactions
 - R3B – Reactions with Relativistic Radioactive Beams
 - DESPEC – Decay SPECtroscopy
 - HISPEC – High resolution SPECtroscopy
 - MATS – Precision Measurements of very short-lived nuclei with Advanced Trapping System
 - LASPEC – LAsEr SPECtroscopy of short-lived nuclei
 - ILIMA – Isomeric beams Lifetimes and Masses
- PANDA – AntiProton Annihilation in Darmstadt

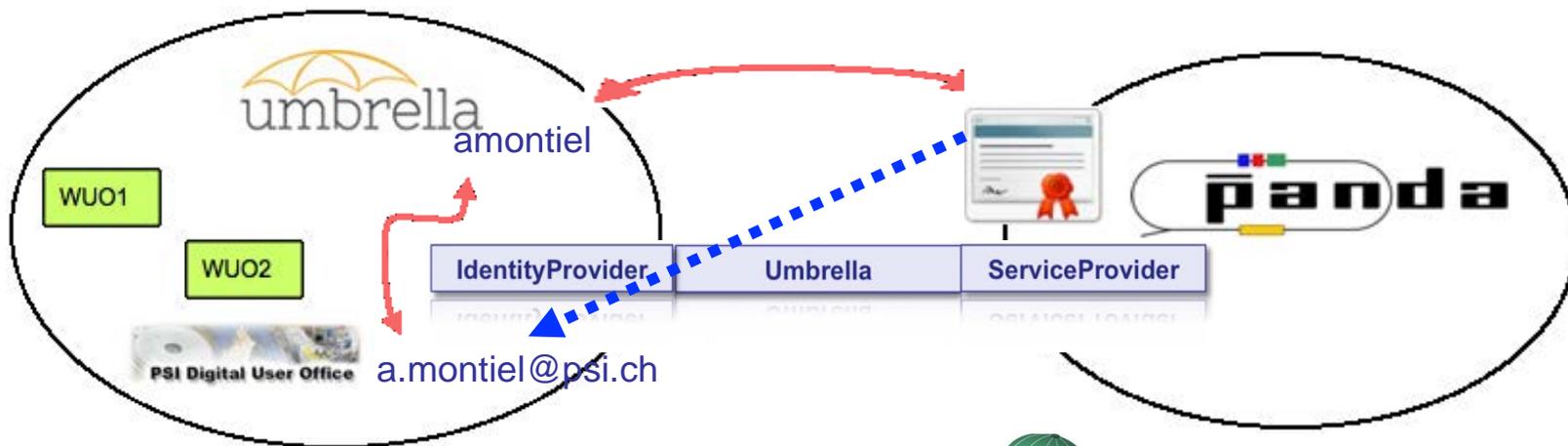


Use Case: GRID

- **Middleware used: AliEn.**
- **Lightweight Open Source Grid framework initially developed by the ALICE Collaboration.**
- **Heavily exploited for simulation, reconstruction and distributed analysis of physics data.**
- **Authentication: PKI.**
- **Authorization: Central LDAP managed by AliEn.**

Proof of concept of Bridging

- GSI-FAIR has presumably is a big HEP like community.
- Most of the users hold a personal x.509 certificate.
- Demonstration:
 - The user holds a x.509 installed in the browser.
 - The user has got a DUO account.
 - The user has got an Umbrella ID.
 - Link existing between Umbrella and DUO.
 - Bridge created behind the scenes, between Umbrella and x509 certificate.



Almudena Montiel Gonzalez

Thank you for your attention!