Géant-TrustBroker
Dynamic inter-federation identity management

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Agenda

- Introduction
- Motivation
- GNTB Overview
- GNTB in Details
  - Workflow
  - Initiation of GNTB Workflow
  - Metadata Registry
  - Feature Attribute Repository
- Conclusion

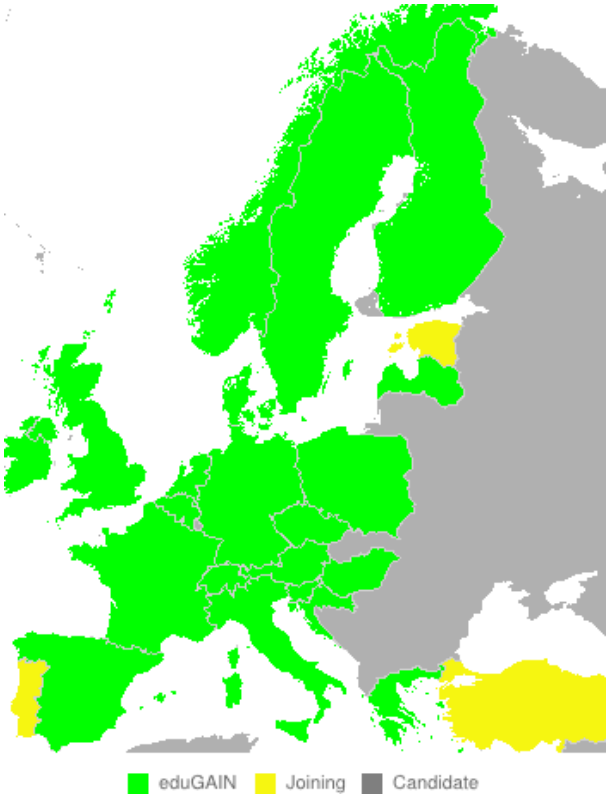
GNTB Introduction

- Géant-TrustBroker (GNTB):
  - Dynamic establishment of technical trust between Identity Provider (IDP) and Service Provider (SP)
  - Dynamic metadata exchange
  - First time contact initiated by the user
- GN3+ Open Call project (10/2013 – 03/2015)
- Internet-Draft to IETF in summer 2014
- Shibboleth-based prototype

GNTB Motivation

Current situation:

- Two types of federations:
  - National federations operated by NRENs
  - Community federations operated by research communities / projects
- Inter-federations, e.g., eduGAIN



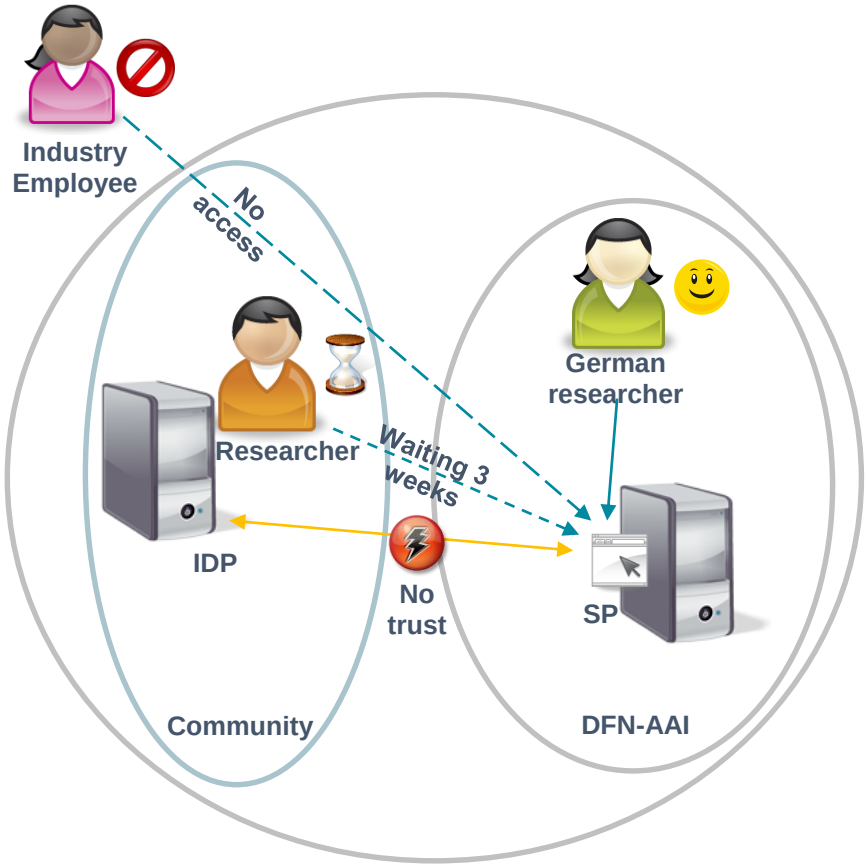
Source: eduGAIN membership status

GNTB Motivation

The resulting problem:

SP and the user's IDP need to be in **same federation** or inter-federation.

- → Communities need to participate in national federations or
- → need to join eduGAIN as a federation.
- → IDPs/SPs might need to join several federations.
- → Research partners outside eduGAIN / national federation cannot make use of Federated Identity Management .



GNTB Motivation

Further Issues:

Initial efforts

- **Complexity**: Additional contracts increase the overall complexity for IDPs and SPs.
- **Manual work**: IDPs need to set up configuration, e.g., attribute filters / release policies, manually.
  → *Users may have to wait.*
- **Trust**: IDPs have to trust SPs.
  → *SPs may not get all required attributes.*

Limitation through schema: Inter-federation schema is only the common denominator of NREN federations.

→ *SPs may not get all required attributes.*

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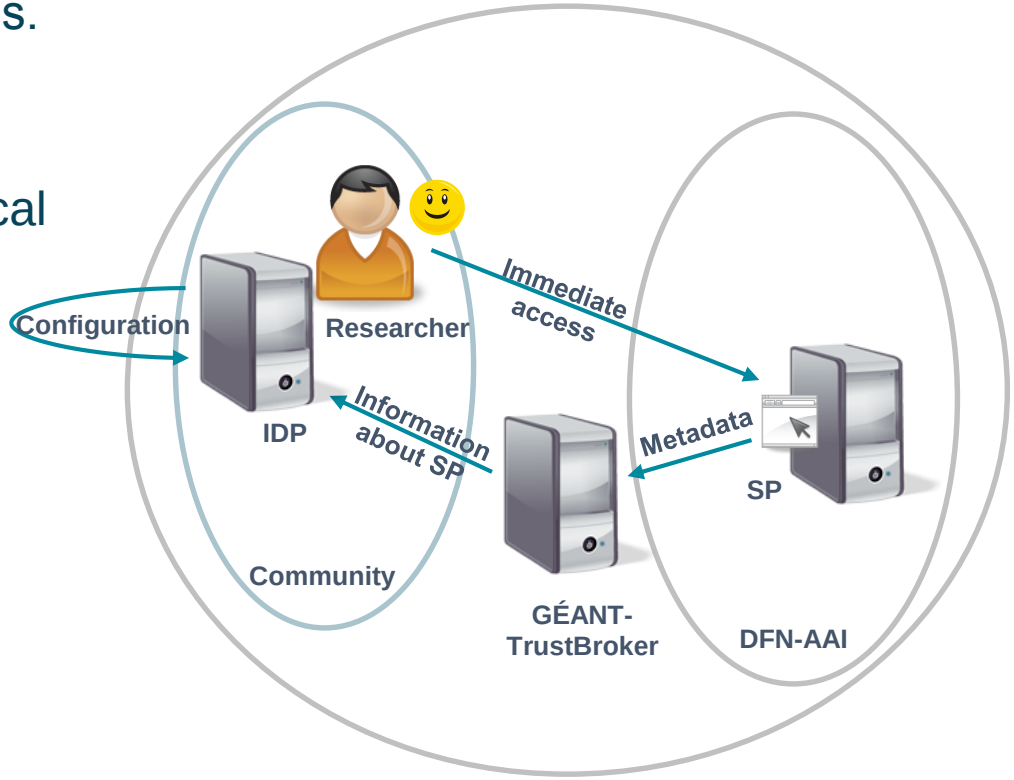
GNTB Overview

Our goal:

- SPs connected to user's IDPs.
- Independent of federation borders.
- Dynamic establishing technical trust and automated configuration.



GNTB Overview

Basic function: Automate established workflows

→ No manual setup work for IDPs

→ No waiting time for users

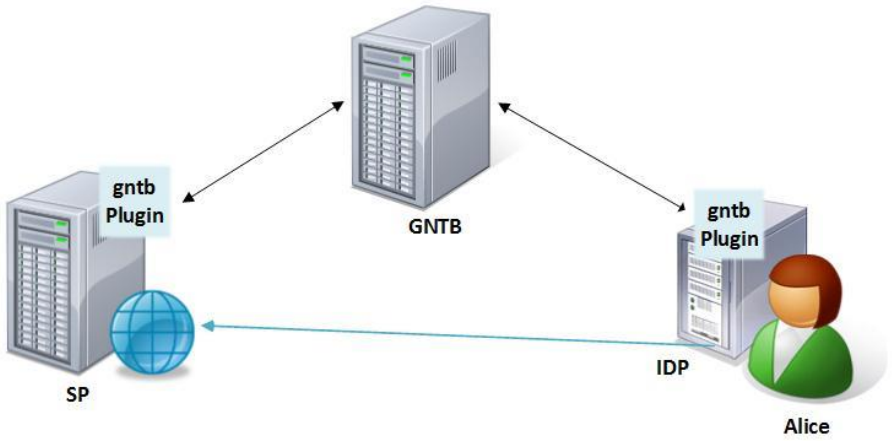
Features: Attribute Conversion Rule Repository + Account Choosing

→ Re-use of attribute conversion rules

→ One rule for all

→ Only needed: registration + plugin

→ Complements existing approaches



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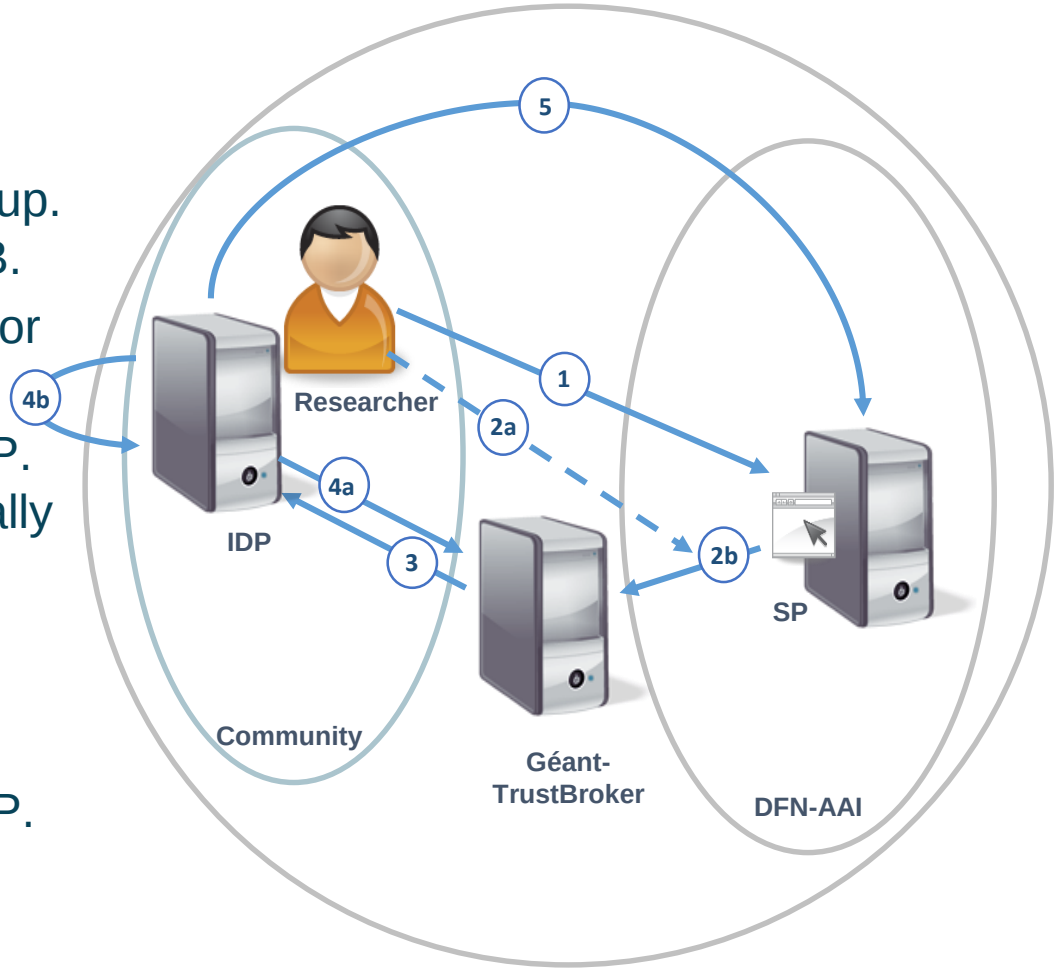
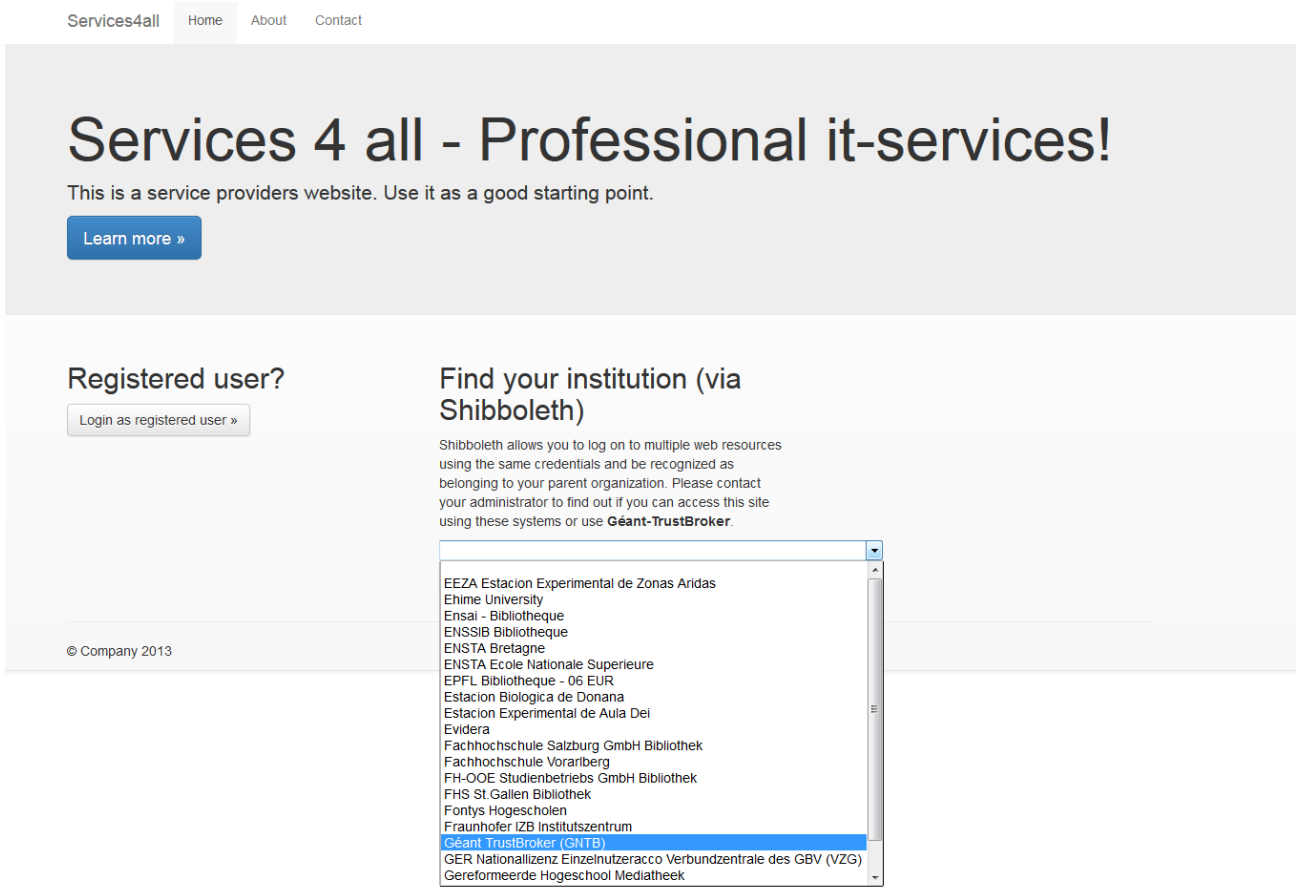
GNTB Workflow

1. Researcher R wants to use a service at SP.
   R chooses her IDP at GNTB.
2. a) R triggers the technical setup.
   b) SP has to register at GNTB.
3. GNTB redirects R to his IDP for authentication.
4. a) IDP fetches metadata of SP.
   b) Configuration is automatically updated.
   IDP looks for attribute conversion rules.
5. IDP sends assertion to SP.
   R gets access to service at SP.



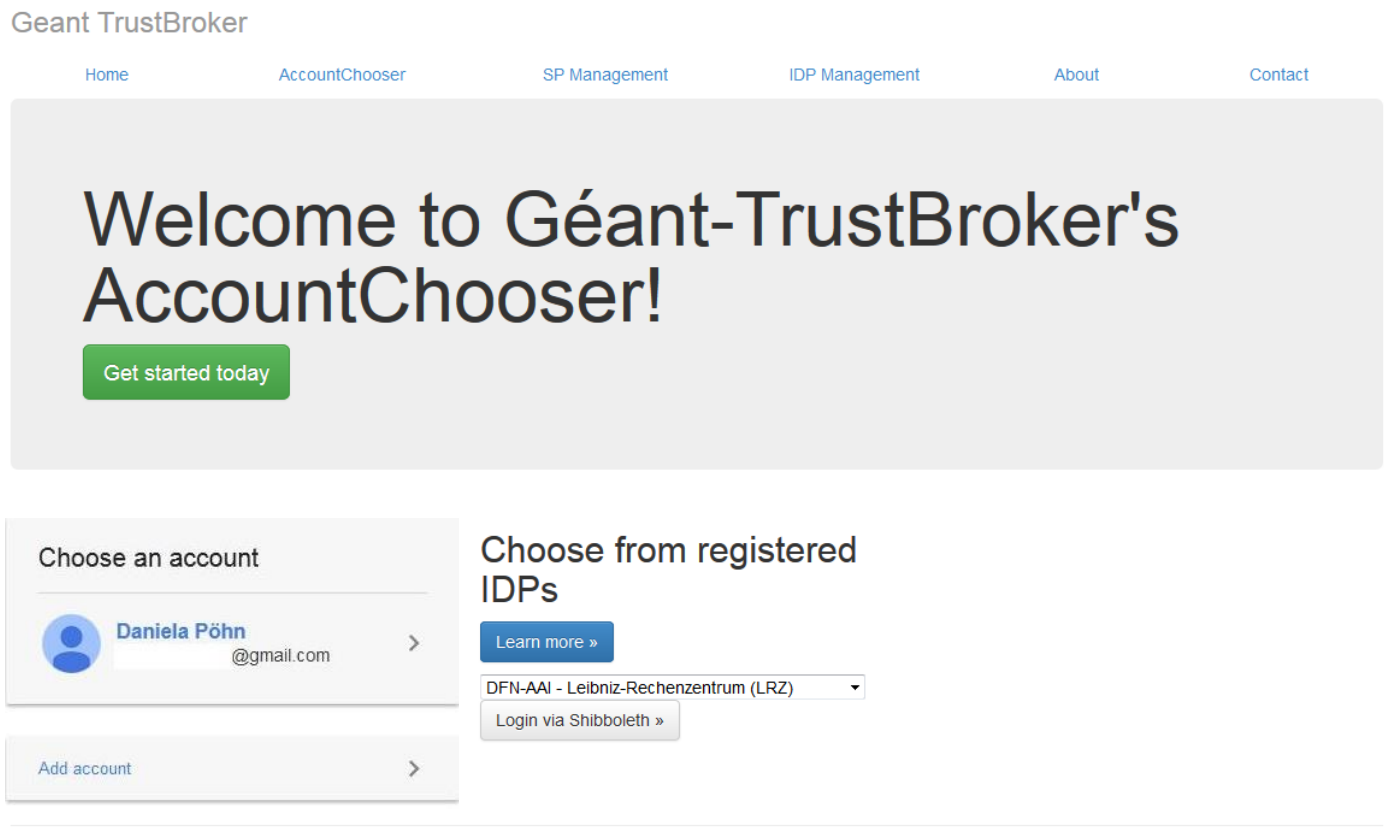
GNTB Initiation - Mockup

User R wants to make use of a service.
Since he cannot find his IDP in the list, he chooses GNTB.



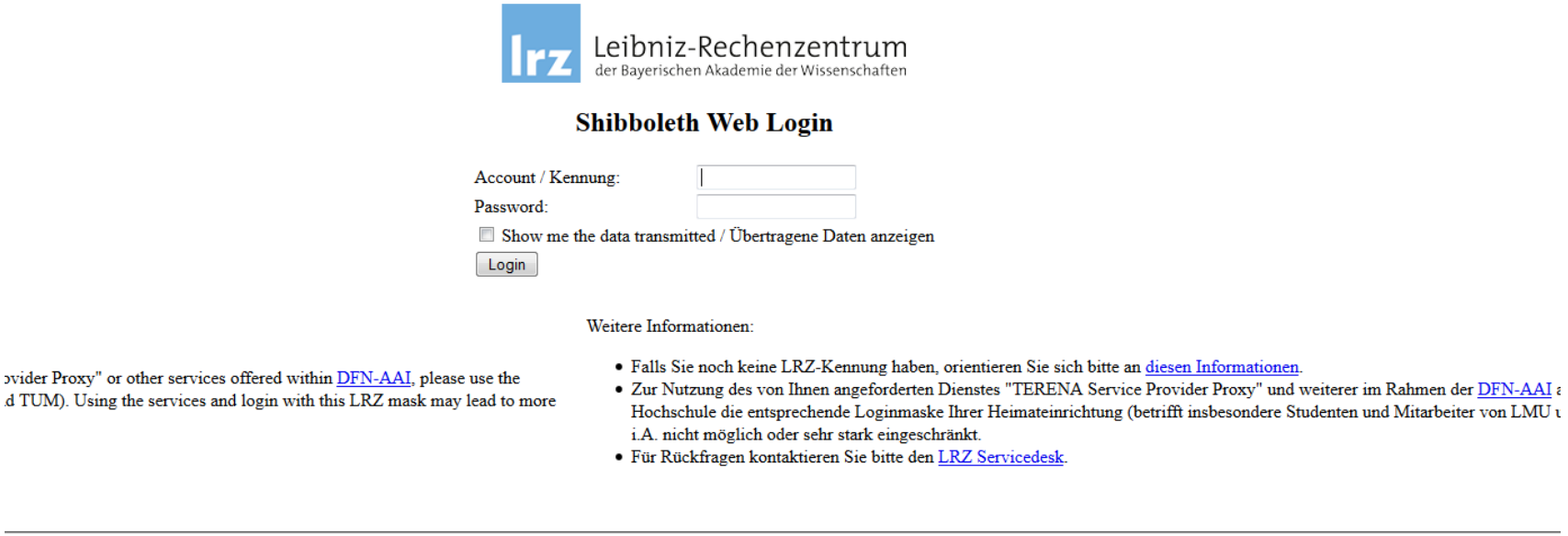
GNTB Initiation - Mockup

User R chooses his IDP at GNTB.



GNTB Initiation - Mockup

User R is redirected to his IDP for authentication.



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  - Attribute Repository
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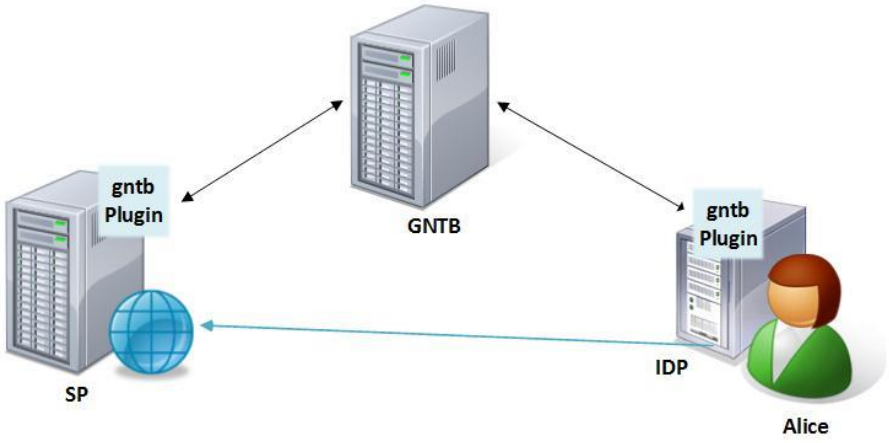
GNTB Metadata Registry

- IDP/SP first needs to register at GNTB and install the plugin.
- Ownership and metadata are validated.

- Exchange of metadata on demand.
  → Automatically added to the local configuration.
  → Technical trust relationship established.



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GNTB Attribute Repository

Typical conversion rules:

- Renaming:
  attribute is named differently,
  e.g., Gecos → displayName
- Transforming:
  attribute transformed into another format,
  e.g., using yyyymmdd instead of dd.mm.yyyy
- Splitting / Merging:
  - source attribute needs to be split by a regex,
    e.g., attribute role (“Administrator”) of a given DN entry
    “cn=Administrator, ou=Groups, ou=application, o=lrz, c=de”
  - Merging two source attributes,
    e.g., givenName and surname, into a new one, e.g., commonName.

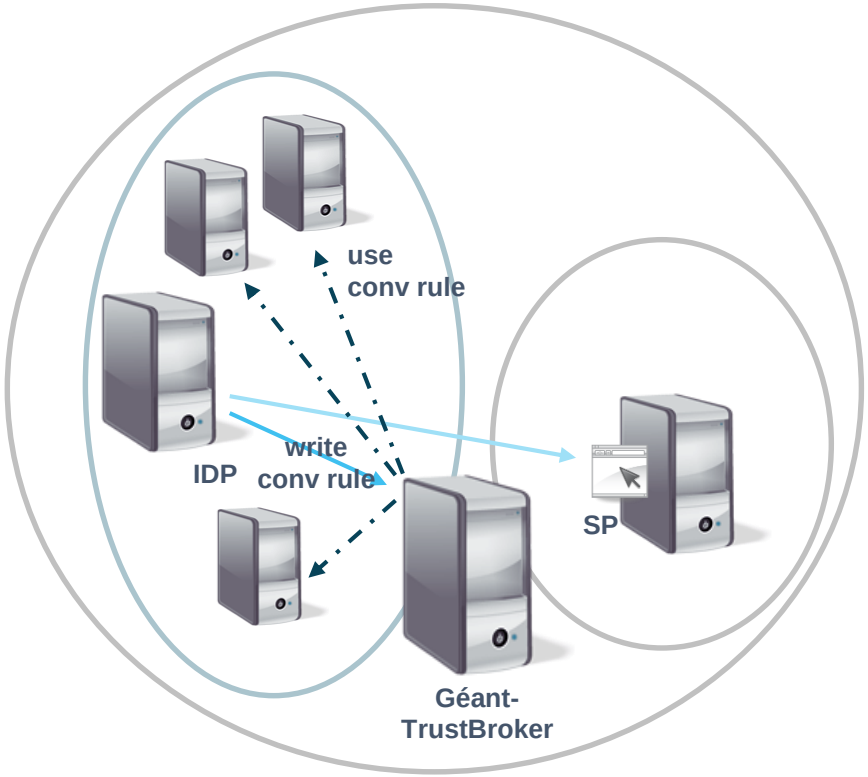
GNTB Attribute Repository

- Rules can be searched and re-used, e.g., within a federation
- Rules can be fetched by API calls by plugins
- Rule automatically added to local configuration

→ Only one IDP has to create rule

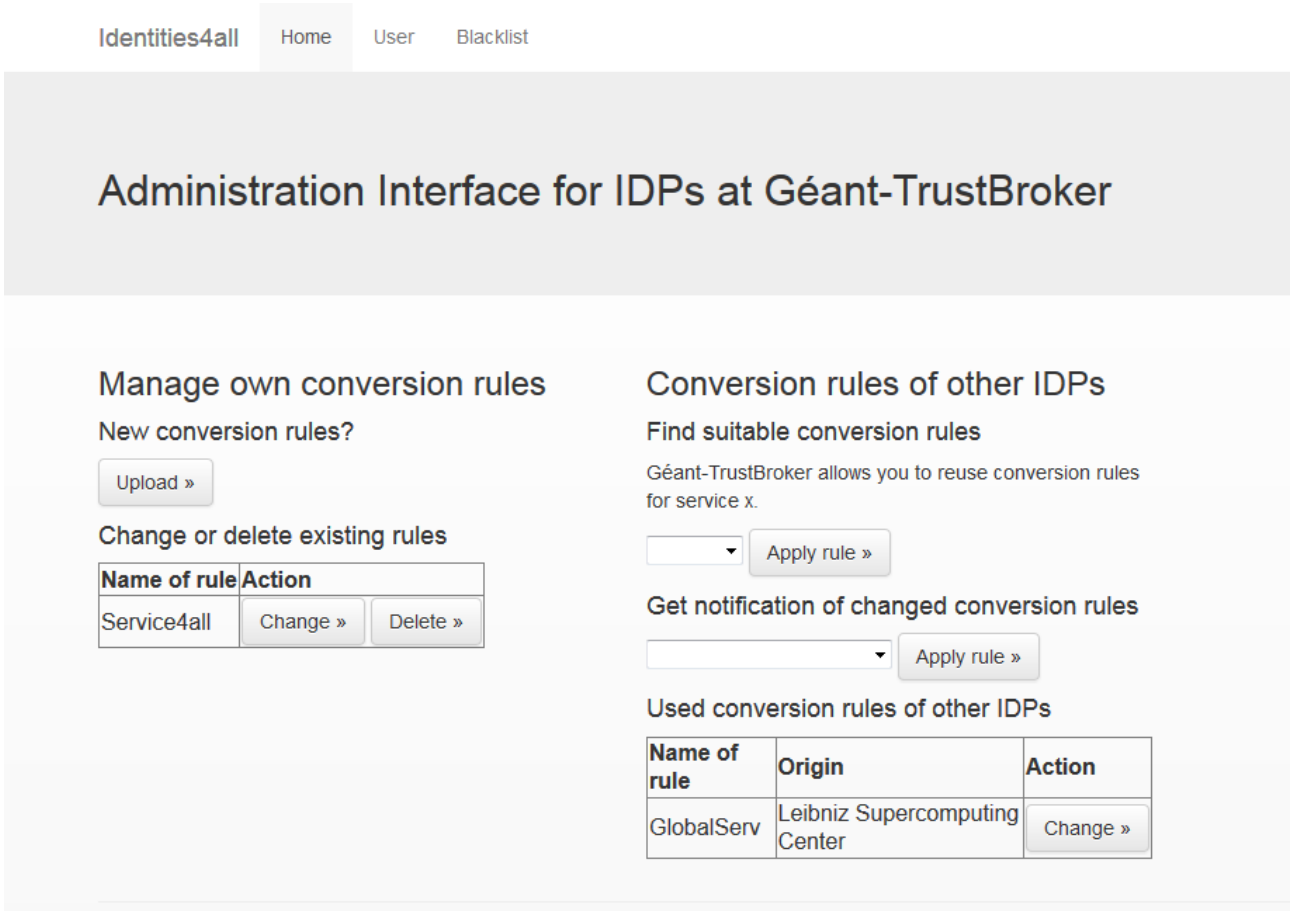
→ SPs receive all requested attributes

→ Rules could be used by other services, e.g., Attribute Authorities



GNTB Attribute Repository - Mockup

Possible Administration Interface for managing conversion rules



GNTB Conclusion

Advantages of GNTB:

- **Metadata registry**:
  SPs and IDPs can download metadata.
- **User attribute conversion rule repository**:
  IDPs can share and re-use conversion rules.
  → Reduces manual work of IDPs.
  → Conversion rules automated integrated into local configuration.
- **Virtual IDP and SP**:
  GNTB workflow seamlessly integrates into standard SAML workflows to “connect” SPs and IDPs on demand.
  → SPs / IDPs only need a plugin.

GNTB Conclusion

- Shibboleth-based prototype
- Further development of GNTB in GN4
- Pilot operations hopefully start in GN4

- What have we done so far:
  - Workflows and Requirements
  - Data Model and Data Access Layer
  - Started with Protocols
- What we still need to do:
  - Protocols
  - Implementation
  - Internet-Draft to IETF in summer 2014
  - Documentation

For more details, please see the documents published on TrustBroker's Géant Intranet website:

https://intranet.geant.net/JRA0/GEANT-TrustBroker

To contact the project team, please email

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