



Federated Identity Management for Research Collaborations

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Background

- Issue of identity management raised by IT leaders from EIROforum labs during their IT working group meeting in January 2011
- These laboratories, as well as national and regional research organizations, are facing similar challenges
 - Scientific data deluge means massive quantities of data needs to be accessed by expanding user bases in dynamic collaborations across organisational and national boundaries
 - “Facebook” generation demands all the tools (work & social) integrate smoothly





Fed Id Mgmt Workshops

- Three Federated Identity Management workshops already held:
 - **June 2011, CERN (High Energy Physics)**
 - Identified needs of users communities
 - Current state of usage explored
 - Scope for commonality and willingness to work together expressed
 - **November 2011, RAL (Climate Science)**
 - Uses cases presented
 - Common vision developed
 - Architects/contacts from each community agreed to produce a common paper
 - **February 2012, Taipei (Asian input)**
 - Input from Asian colleagues
 - Vision, recommendations and position paper refined
- Next workshop: 21-22 June 2012, Nijmegen (Humanities)
 - <http://www.clarin.eu/events/3501>

Federated Identity Management for Research Collaborations

Paper Type: Research paper

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Abstract

Federated identity management (FIM) is an arrangement that can be made among multiple organisations that lets subscribers use the same identification data to obtain access to the secured resources of all organisations in the group. Identity federation offers economic advantages, as well as convenience, to organisations and their users. For example, multiple institutions can share a single application, with resultant cost savings and consolidation of resources. In order for FIM to be effective, the partners must have a sense of mutual trust.

A number of laboratories including national and regional research organizations are facing the challenge of a deluge of scientific data that needs to be accessed by expanding user bases in dynamic collaborations that cross organisational and national boundaries.

Driven by these needs, representatives from a variety of research communities, including photon/neutron facilities, social science & humanities, high-energy physics, atmospheric science, bioinformatics and fusion energy, have come together to discuss how to address these issues with the objective to define a common policy and trust framework for Identity Management based on existing structures, federations and technologies.

This paper will describe the needs of the research communities, the status of the activities in the FIM domain and highlight specific use cases. The common vision for FIM across these communities will be presented as well the key stages of the roadmap and a set of recommendations intended to ensure its implementation.

Keywords

federated identity management, security, authentication, authorization, collaboration, community

You can provide feedback here <https://cdsweb.cern.ch/record/1442597/comments>

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- Requirements from the research communities
- Status of the activities & use cases
- Common vision across these communities
- Key stages of a roadmap
- Set of recommendations

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User Communities Represented

- Representatives from a number of research communities:
 - photon/neutron facilities
 - social science & humanities
 - high-energy physics
 - atmospheric science
 - Bioinformatics
 - fusion energy

See David Foster in session
9A Wednesday 14:00

See Andrew Lyall in session
9A Wednesday 14:00



The Vision

A common policy and trust framework for Identity Management based on existing structures and federations either presently in use by or available to the communities.

This framework must provide researchers with unique electronic identities authenticated in multiple administrative domains and across national boundaries that can be used together with community defined attributes to authorize access to digital resources.



Recommendations

- For each stakeholder group
 - Research Communities
 - Technology Providers
 - Funding Agencies



Recommendations: research communities

- **Risk Analysis**
 - Needed to reassure the security officers at participating sites
 - Prioritise the various risks and hence focus available effort
 - The research communities should work with technology providers, IdP and SPs to perform such a risk analysis and the results used to improve the deployed FIM
 - Particularly important for the Life Sciences community
 - early stage of FIM uptake, unfamiliar with FIM technologies
 - Low Level of Assurance concerning people's identities is not going to be legally acceptable if the service distributes sensitive data
- Pilot projects – see later



Recommendations: technology providers

- **Separation of AuthZ and AuthN**
 - The need for external attribute authorities managed by the research community
 - formal separation of the AuthN by the IdP and the AuthZ on behalf of the SP
- **Credentials revocation**
 - The credentials issued by the IdP to the user or the SP should be revocable
- **Attribute delegation to the research community**
 - Need for personal information to be aggregated with community defined attributes in order to grant access to digital resources and services
 - Semantic harmonisation of federated attributes and local attributes and metadata is needed
- **Levels of Security**
 - *A one size fits all* model for levels of security will not scale
 - E.g. the biomedical community where there is a wide range of security levels needed
 - Essential for FIM systems are re-used across multiple domains and communities
 - More work is required on the standardisation efforts for Levels of Assurance – its communication and enforcement



Recommendations: funding agencies

Funding model and governance structure

- **A clear funding model is required with an appropriate governance structure**
 - Who pays for what, who manages the services and who decides?
- **Sensitive data in Life Sciences**
 - Critical that infrastructure technology pilots start a dialogue with a recognised ethical committee
 - Pilots should try to find a set of attributes and metadata that are adequate for granting access to sensitive data, and can then propose a template policy to the ethical committee
- **Focus of this work has been usability and deployment aspects with a desire to stay technology neutral**
 - But technology which can simplify the administration of policies for IdPs will definitely contribute to the acceptance and uptake of FIM systems
 - Funding for FIM technologies should be focused on solving the described needs of the research communities



FIM and European Policy

- Vital to engage with the national and international infrastructures that provide identity related services, standards forums
- Potential Wider Impact:
 - European E-infrastructure Forum report (2010) on the requirements for Pan-European e-infrastructure resources and facilities:
<http://www.einfrastructure-forum.eu/documents/EEF-report>
 - Gathered input from **28 ESFRI projects**
 - Highlighted **consistent identity management and single sign-on** as a fundamental **requirement for all the ESFRI projects**



FIM and European Policy (cont.)

e-Infrastructure Reflection Group (e-IRG) white paper, 2011

- Includes a section on AAI with objectives that are consistent with those in the FIM paper:
- *“The overall objective is to establish and maintain the level of mutual trust amongst users and service providers that is needed for an open ecosystem to function. As an e-Infrastructure matures and its user community grows, requirements for aligning authentication and authorisations grow as well. This must translate into:*
 - *Improved usability, lowering the threshold for researchers to use the services.*
 - *Improved security and accountability, which often conflicts with the usability requirement.*
 - *Leveraging of existing identification systems, such as that of the employing organisation.*
 - *Enhanced sharing, allowing willing users to minimise the burden of policy enforcement.*
 - *Reduced management costs, freeing resources for other service or research activities, and providing a sound basis for accounting.*
 - *Improved alliance with the commercial Internet, which also improves interaction between scientists and society.”*

<http://www.e-irg.eu/publications/white-papers.html>



FIM Pilot Projects

- Several pilot studies are underway or planned:
 - Neutron/proton facilities community: Umbrella project
 - Life sciences and medical research: ELIXIR/BioMedBridges projects
 - CLARIN humanities project
- Pilot projects will
 - Explore the requirements on FIM services in more detail
 - Provide feedback on the technologies and services available
 - Engage more potential stakeholders to FIM
- This approach should be adopted across all the research communities



Relevance of this work for the network community

e-IRG's reaction to the findings and recommendations of the report of the GÉANT Expert Group

Editor: Kees Neggers

Foreword

Through the successful development of GEANT, Europe has a good starting position, but now needs to adapt to a rapidly changing global environment through embracing the vision of the GÉANT 2020 end-to-end, inclusive commons as proposed by the GEANT Expert Group (GEG). To realize this vision, Europe needs to adapt the governance structures as advocated by the GEG. Furthermore, it will be essential to accelerate innovation activities through increased funding, diverse consortia, and dedicated project management, as recommended by the GEG.

The final FP7 call, to be issued this summer, is an excellent opportunity to prepare for the HORIZON 2020 period and stimulate the further development and innovation of the research network services needed for the coming generation of researchers. e-IRG offers to contribute as a broad stakeholder's platform for facilitating the implementation of the GEG report.

*Gudmund Høst
e-IRG Chair
March 2012*

http://www.e-irg.eu/images/stories/e-irgs_reaction_geg_a5.pdf

The requirements, recommendations and programme of work shown in the FIM paper provide:

- Clear, coordinated and researched input for fed id mgmt from a range of research communities
- Input for REFEDs
- Feedback on eduGAIN
- Opportunity for network community to work with the research communities on pilot projects