EGI-Engage: The AAI Strategy for the EGI Infrastructure

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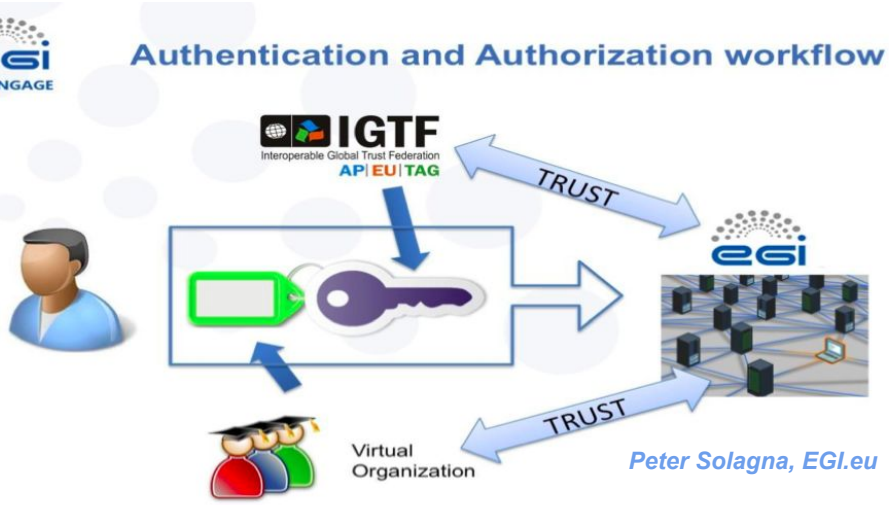
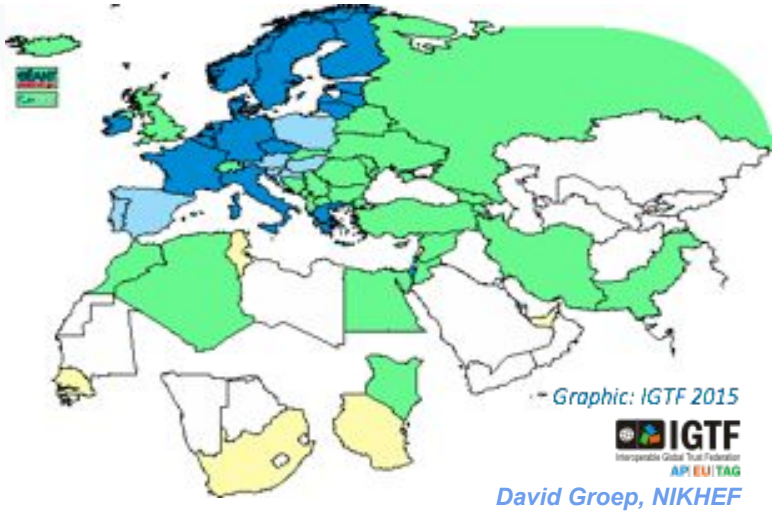
AAI in EGI Today

- EGI Trust Fabric is based on IGTF
- Services require X.509v3 certificates and proxies for user authentication
- Identity vetting and user traceability provided by the IGTF providers
- Authorization is based on VO groups and roles
- VO registration process is fairly lightweight





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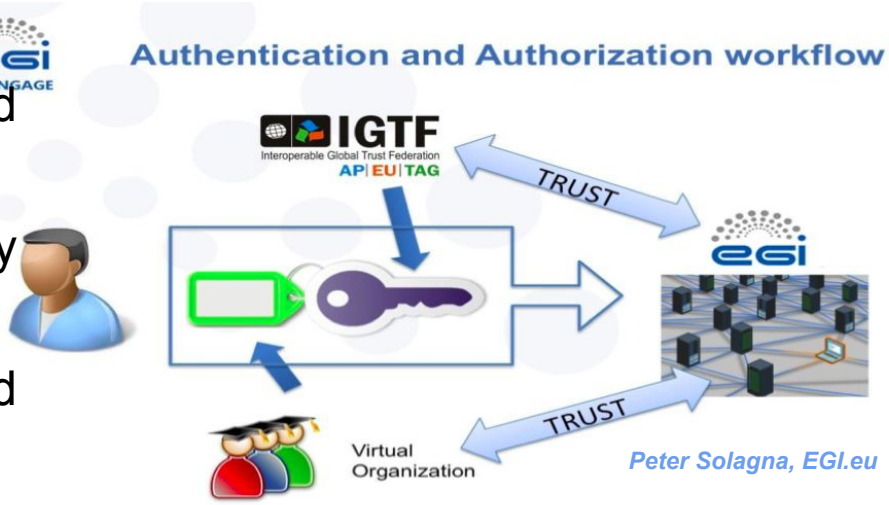
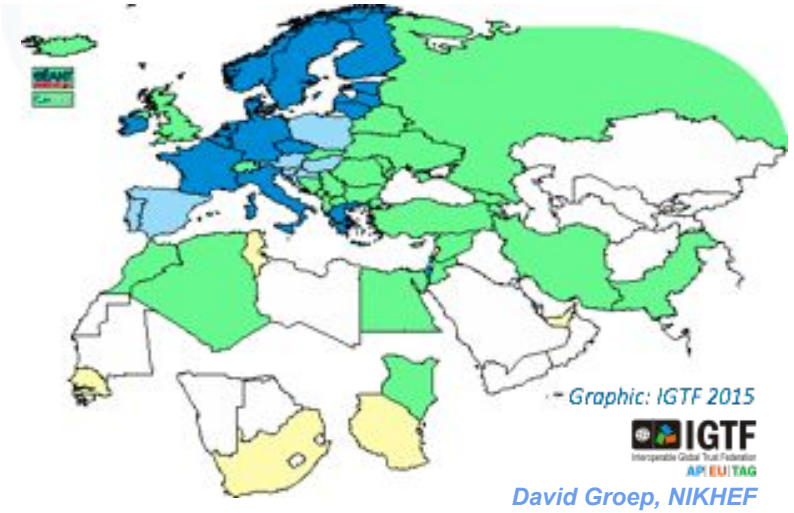
- Authorization is based on VO groups and roles
- VO registration process is fairly lightweight
- Provides solution for web and non-web access, with delegation built-in, clear separation of authn and authz and has been working/evolving for the last 15 years
- But a fairly low number of users understand X.509 certificates





Source: "Developments in the Trust Fabric" - David Groep, NIKHEF

Why move to FedAuth

Cross-national federated access progressed tremendously

- eduGAIN: more federations, with technical interop across countries
- Increased awareness of research & scholarship use cases
- 'the will to make it happen': demonstrated by SirTFi, AARC, VOPaaS, …

A great promise for easier collaboration

- Move to authenticators 'closer' to the user understanding – mainly home organization credentials
- Ability to 'hide' end-user PKIX technology – and offer simpler authentication for web-based services through 'OpenID Connect' and 'SAML'

And there are bridges – since for non-Web, command-line and brokerage 'SAML2Int WebSSO' does not work

- STS, CILogon, TCS, SSH-to-MyProxy tokens, Moonshot, …

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Issues hindering the adoption of FedAuth

Although many production federations are pretty good, and quite a few IdPs have good processes …

- public documentation, self-assessment and peer-review are missing
- it's **not consistent** across IdPs

and processes are not designed for collaboration use cases

- **re-use of identifiers** occurs (also an issue for social IdPs)
- the identity providers provide no identity … or it's non-consistent
- identifiers generated are specific to each SP (defeating brokering)

and may not provide traceability needed for valuable resources

- some allow **users to change their own data** (including e.g. their email address and all contact data), or do not collaborate in case of issues

EGI FedAuth Activities

Proof-of-concepts started in the predecessor of EGI-Engage:

- **Cloud AAI Pilot**
  https://wiki.egi.eu/wiki/AAI_pilot
- **EGI User Platform LTOS**
  https://wiki.egi.eu/wiki/Long-tail_of_science_pilot

Cloud AAI Proof of Concept

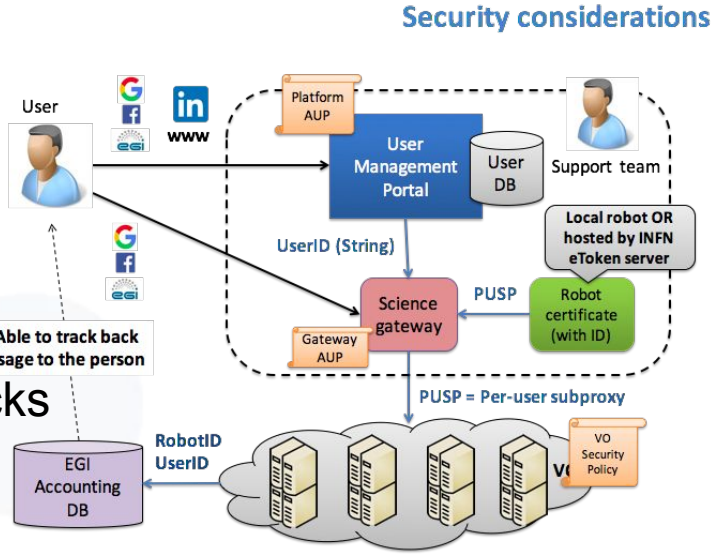
https://wiki.egi.eu/wiki/AAI_pilot

- **Goal 1:** Connect cloud services to the SURFnet OpenConext service to retrieve SAML assertions containing user identities and attributes that describe the user capabilities
- ~~**Goal 2:** Provision account and groups/projects on the cloud service providers~~
- Cloud stacks to be integrated: OpenNebula, OpenStack (Juno/Icehouse), Synnefo
- Identity Providers: SURFnet IdP, GRNET, EGI, OpenConext Proxy IdP, Hexxa, EduGAIN
- Attribute Providers: OpenConext, Perun

EGI User Platform LTOS Proof of Concept

https://wiki.egi.eu/wiki/Long-tail_of_science_pilot

- **Zero-barrier access:** any user who carries out relevant research can get a start-up resource allocation
- **100% coverage:** anyone with internet access can become a user
- **User-centric:** User support for platform users is available through the NGIs
- **Realistic:** Reuse existing technology building blocks as much as possible, require minimal new development
- **Secure:** Provide acceptable level of tracking of users and user activities (Not necessarily f2f vetting)
- **Scalable:** Can scale up to support large number resource providers, technology providers, use cases and users
- **Valuable:** Produce tangible outcomes

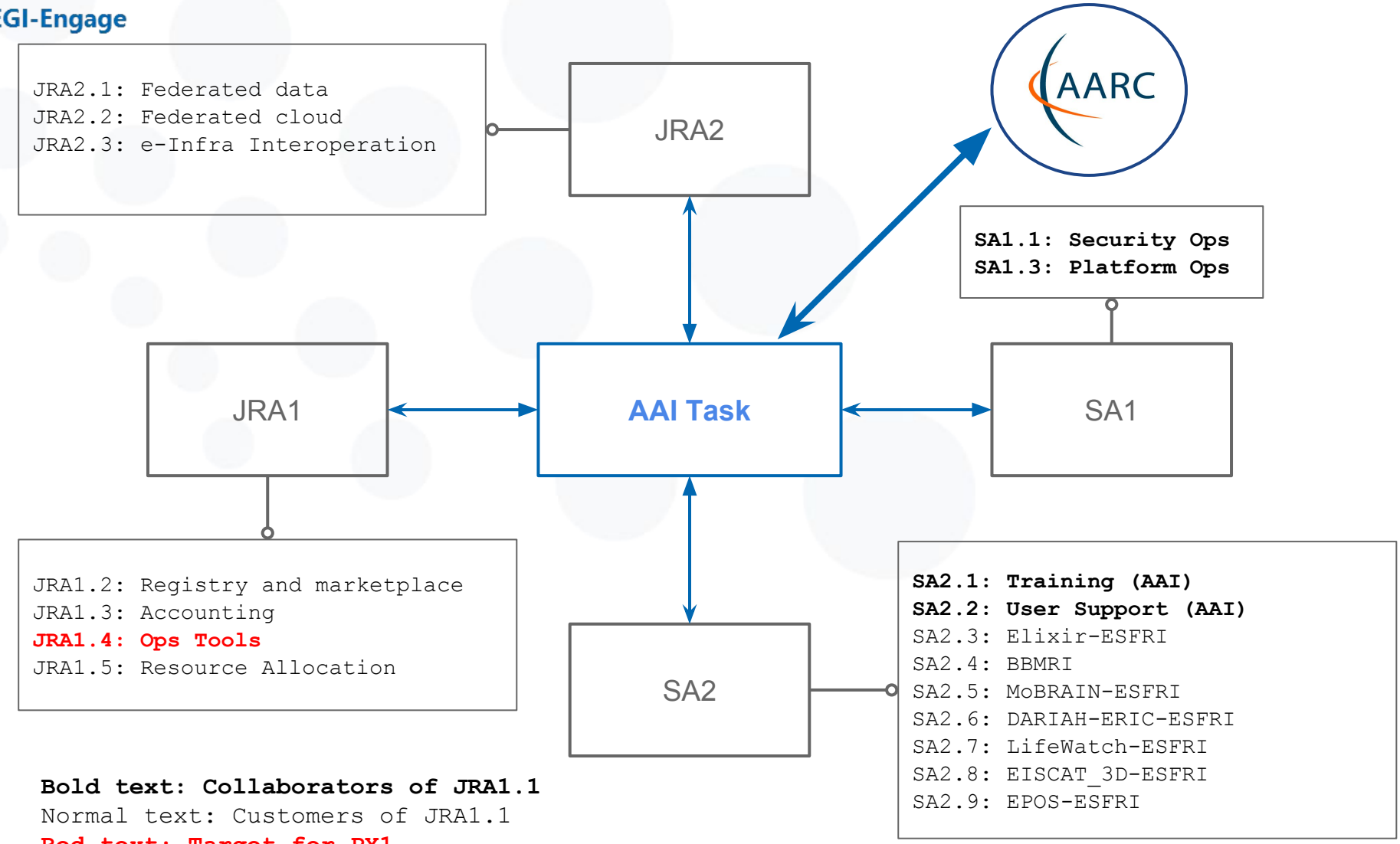


Source: *A new platform from EGI for the LTOS - https://goo.gl/IT99tx*

EGI-Engage Targets

- Explore approaches to **easier safe management of user credentials**
- Identify possibilities and requirements for user authentication against both **web and non web-based applications**.
- Identify **user registration and management requirements** from a VO perspective. **Engage with the CCs**, capture workflows and develop solution prototypes.
- **Explore current technical possibilities** and the usability of existing infrastructures covering identity management
- Develop **authentication solutions for use cases**
- Investigate **alternative identity-vetting approaches** to current practices
- **Liaise with other projects** focusing on AAI to share know-how and best practices.

Links to other activities



Bold text: Collaborators of JRA1.1
Normal text: Customers of JRA1.1
Red text: Target for PY1

EGI-Engage Roadmap

#	Task name	Start date	Release date
1.1	**Identification of and liaison with stakeholders** • WP3 F2F and EGI Conference ✓ • Liaise with AARC ✓ • Connections with GN4, EUDAT2020 and PRACE ✓ • Identification of initial set of tools ✓	**05/2015 (PM3)**	**06/2015 (PM4)**
1.2	**Requirements capturing** • Use FIM4R as the starting point and allign with AARC DJRA1.1 ✓ • Identify the most important use cases (CC) ✓ • Technical guidelines for enabling federated access in the initial set of tools ✓	**05/2015 (PM3)**	**08/2015 (PM6)**
1.3	**Technical architecture and pilot implementation** Phase 1: • Which AA services are needed ✓ • Collaboration with the AAI pilot and the user portal activity for the LTOS • Pilot: Connection of the first set of EGI tools to the EGI IdP proxy	**09/2015 (PM7)**	**12/2015 (PM10)**
	Phase 2: • Expansion to EGI Tools and selected CCs • Interaction with SA2 (Training & User support)		**04/2016 (PM14)**
	Phase 3: • Technology reassessment • Pilot services and best practices to enable federated AAI solutions released		**07/2016 (PM17)**
	Phase 4: • Architecture and solution for the production EGI AAI services • Identity Management for Distributed User Communities report		**02/2017 (PM24)**

Goals and Challenges 1/3

- **Users should be able to use any (web and non-web) EGI Service using federated access.**
  - Leverage National Federations via eduGAIN
  - Support for external IdPs like the EGI SSO
- **Federated access should be the enabler and not the barrier**
  - Users that do not have account on one of the IdPs in the eduGAIN Federations, should still be able to access the EGI services as it is the case now.
  - Support for multiple technologies (SAML, OpenID Connect, X509)
- **Users should be identified uniquely and persistently**
  - EGI should require from the IdPs at least an identifier that uniquely identifies the user in the scope of that organization.
  - Within the EGI environment, a user should have one **persistent non-reassignable unique identifier**.
  - Work with AARC on the problem of globally unique identifiers.

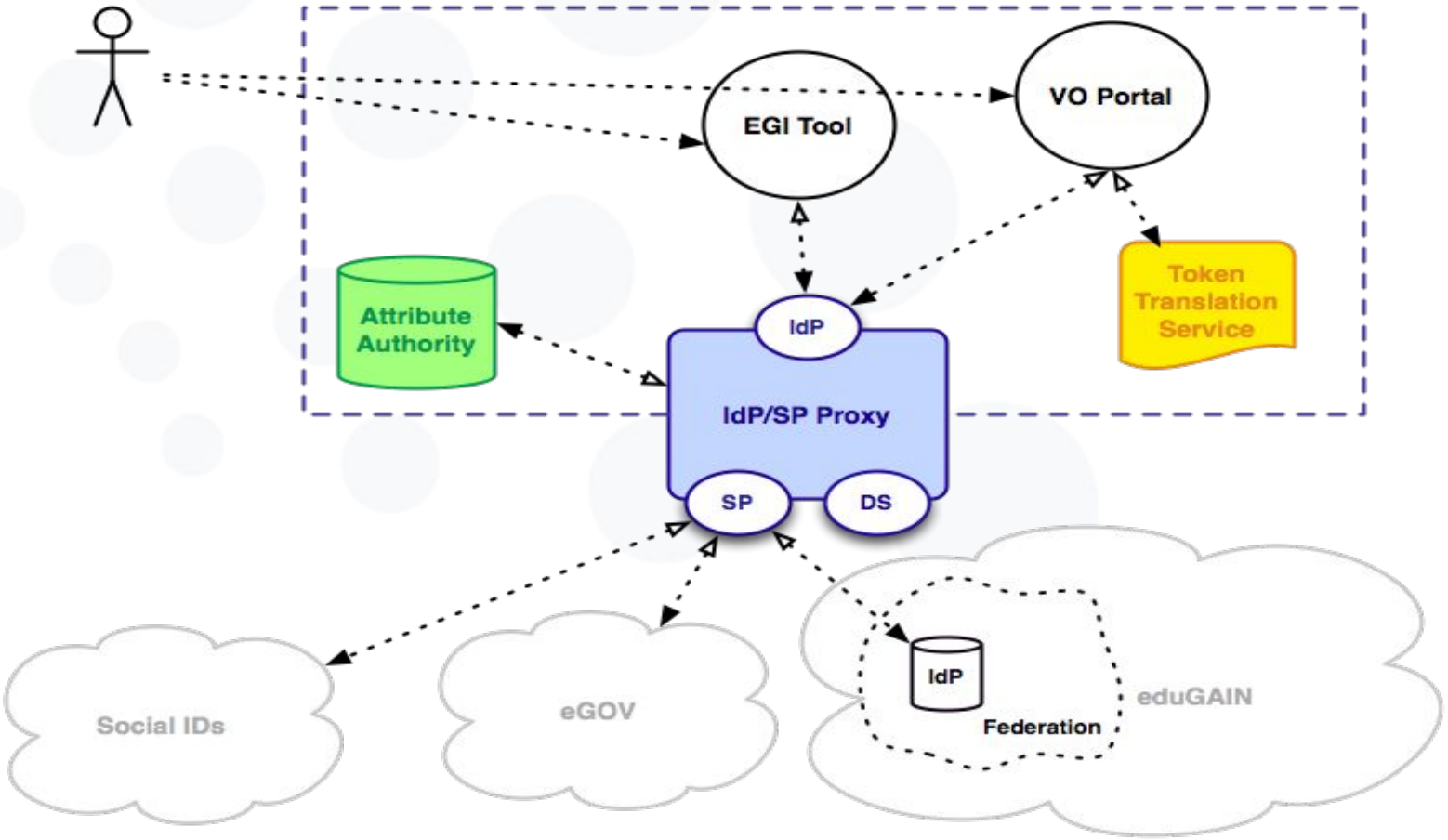
Goals and Challenges 2/3

- **Flexible support for Attribute Retrieval**
  - Define the minimum set of required attributes
  - Attribute sources: Home organizations, VOs/Scientific Communities, the users themselves
- **Multiple Levels of Assurance**
  - e.g. there should be a distinction in the LoA between self-asserted attributes and the attributes provided by the Home Organization/VO
  - Work in collaboration with AARC Policy Task
- **Support for "differentiated assurance"**
  - Retrieve just an opaque ID from the IdP
  - Questions about real names or pseudonyms, enrolling users to communities, auditability and tracing, inident response must be taken up by somebody else (Infrastructure, VO, Peer collaborators etc)

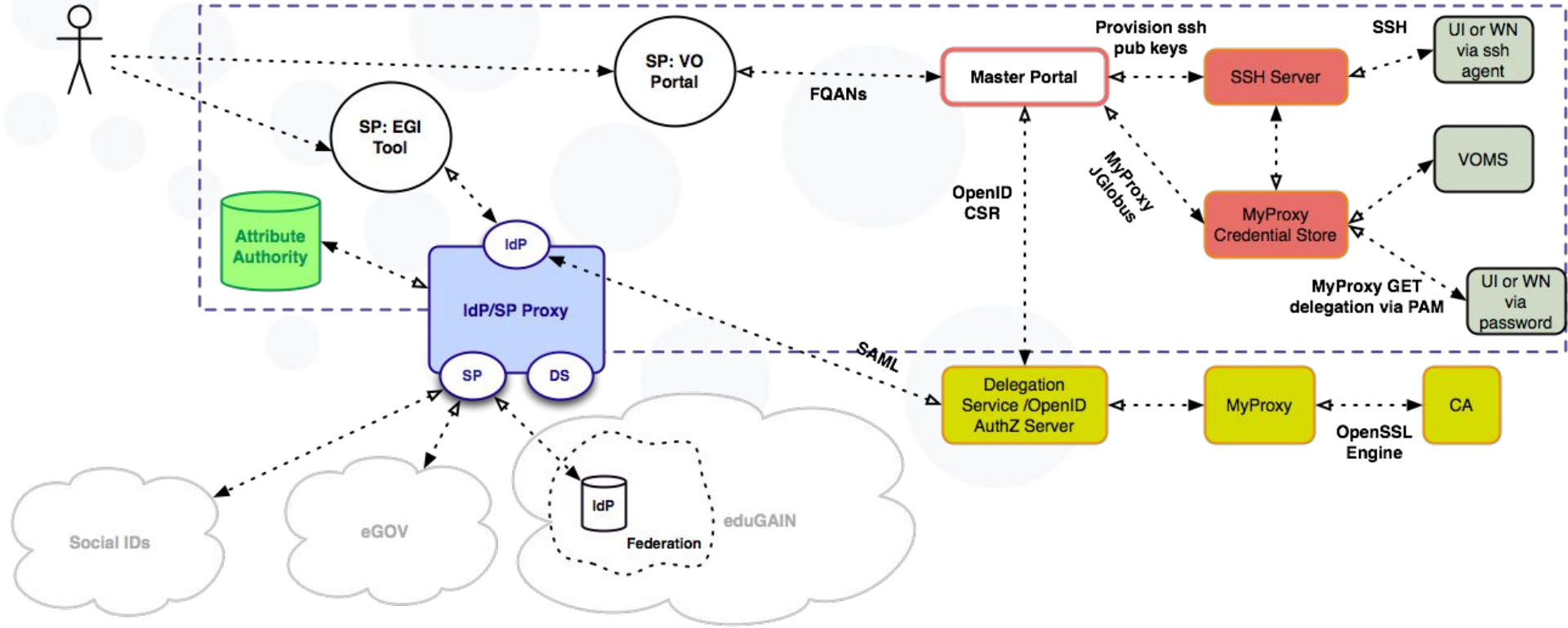
Goals and Challenges 3/3

- **User authentication does not imply access rights**
  - Access to the various services should be granted based on the VO/EGI roles the user have
- **Service Provider onboarding should be easy and secure**
  - Service providers should not have to deal with the complexity of connecting to multiple AAIs. Connect once with the infrastructure and leverage multiple AAIs seamlessly
  - Service providers should be free to choose one of the available technologies that best meet their needs (e.g. SAML, OpenID Connect, X509 etc)
  - Service providers should not have the burden to implement services that can be provided centrally (e.g. Discovery Services, Token Translation services)
  - Work in collaboration with the AARC Architecture and Pilot tasks
- **Ensure support of and compliance to existing policies**
  - Work in collaboration with the AARC Policy Task

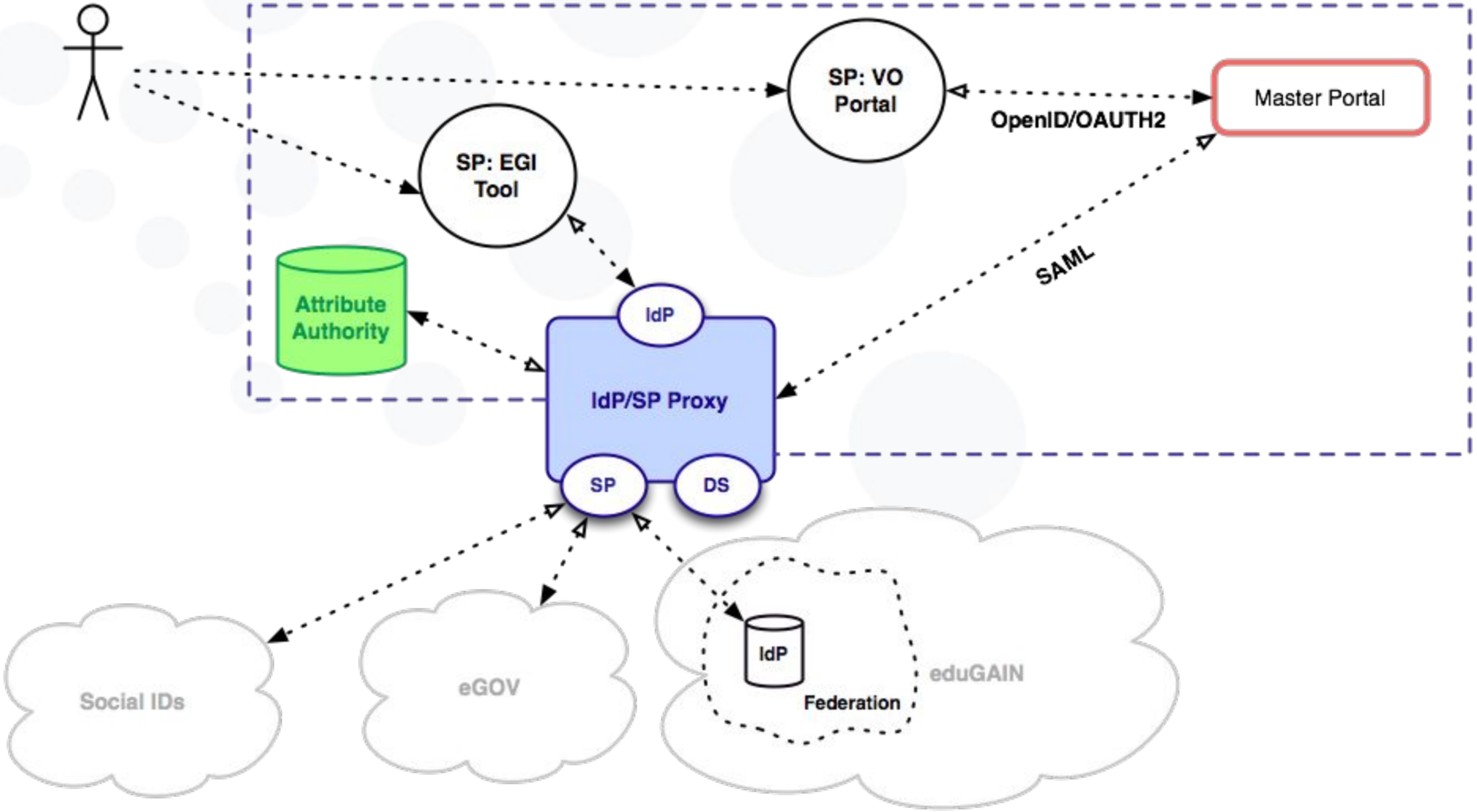
EGI AAI Architecture



EGI AAI Architecture with the AARC Token Translation Pilot



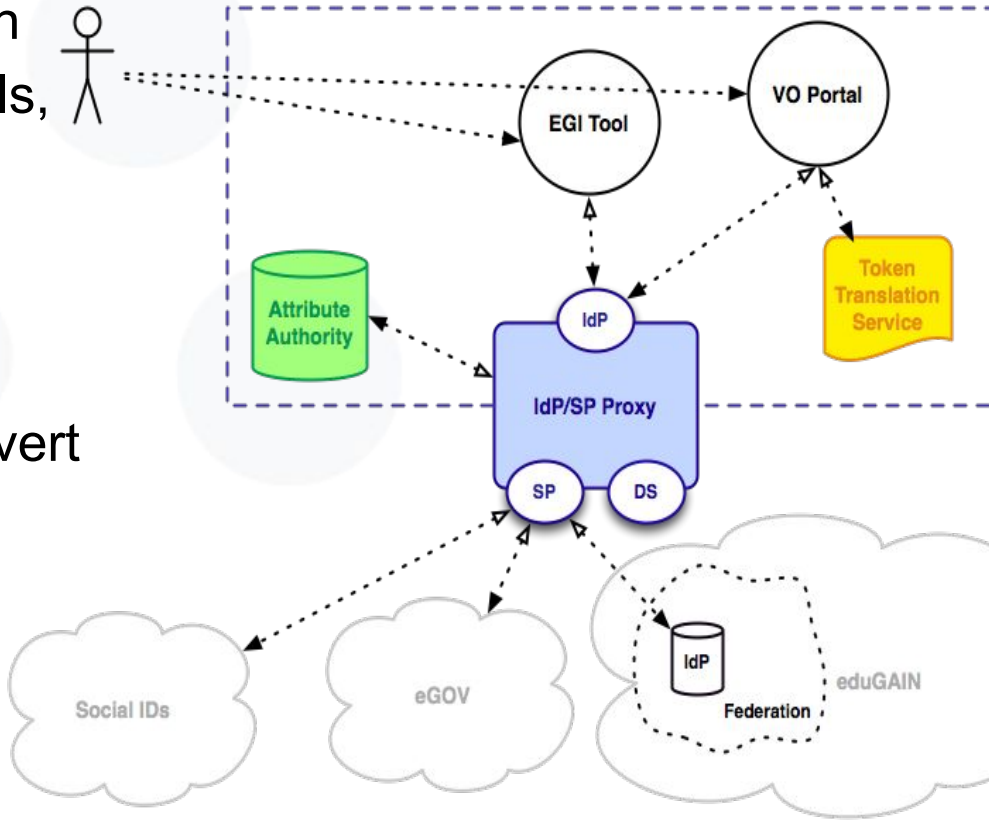
EGI AAI Architecture supporting both SAML and OpenID/OAuth2



New AAI Services

From X.509 certificates to a multiple identity tokens

- Users will access EGI services with their Home Organisation credentials, which will be mapped to one persistent EGI unique identifier
- Different levels of Assurance
- Token Translation Services to convert users' credentials:
  - Online CA, PUSPs, etc.
- Pilot implementation ready by **QR2 2016**



Thank you for your attention.

Questions?

www.egi.eu