ESMO Project

eIDAS-enabled Student Mobility for Identity Federation

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www.ESMO-project.eu

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GRANT AGREEMENT UNDER THE CONNECTING EUROPE FACILITY
(CEF) - TELECOMMUNICATIONS SECTOR
AGREEMENT No INEA/CEF/ICT/A2017/1451951

Contents

ESMO Project

- CEF Project.
- 15 months. April 2018 – June 2019
- Partners

Atos

UNIT

UJI UNIVERSITAT JAUME I

UNIVERSITY OF THE AEGEAN

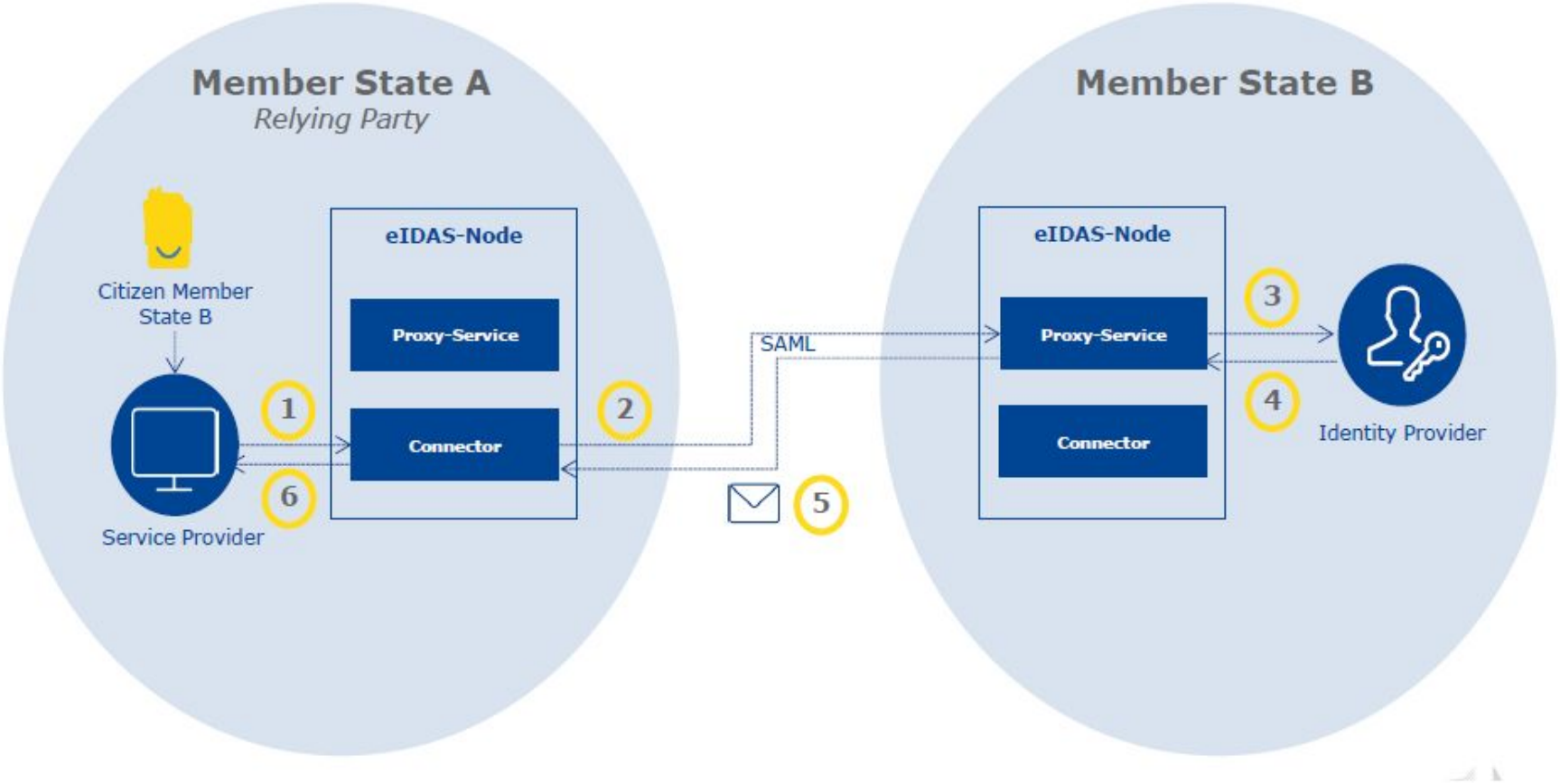
Objectives

- Promote **eIDAS adoption** through the CEF eID.
  - By minimising adoption costs for SPs.
- Facilitate **learning mobility**.
  - By enabling **eIDAS** cross-border electronic authentication.
  - By enabling cross-border exchange of **sector specific attributes**.
  - Promote **streamlined administrative procedures** (using trusted data transfer between institutions).
- **Ease** management of **trust** and data requirements.
- Promote **convergence** with **eduGAIN**, cooperation with other CEF and Erasmus+ projects based on common objectives.

eIDAS

- **European regulation** on eID and Signature
- Establishes **Mutual recognition** of **eID schemes**
  - Levels high and substantial: **mandatory**
  - Level low: **optional**
- Member states have sovereignty over:
  - Which **schemes are notified**
  - Organisation of the **federation at national level.**
- **Mandatory** for **public services**
  - Which accept at least substantial or high authentication mechanisms
- CEF released building blocks to support its enforcement
  - We use CEF eID infrastructure network

eIDAS Interoperability Architecture



Slide by: EC DG CONNECT

eIDAS eID Notification Status

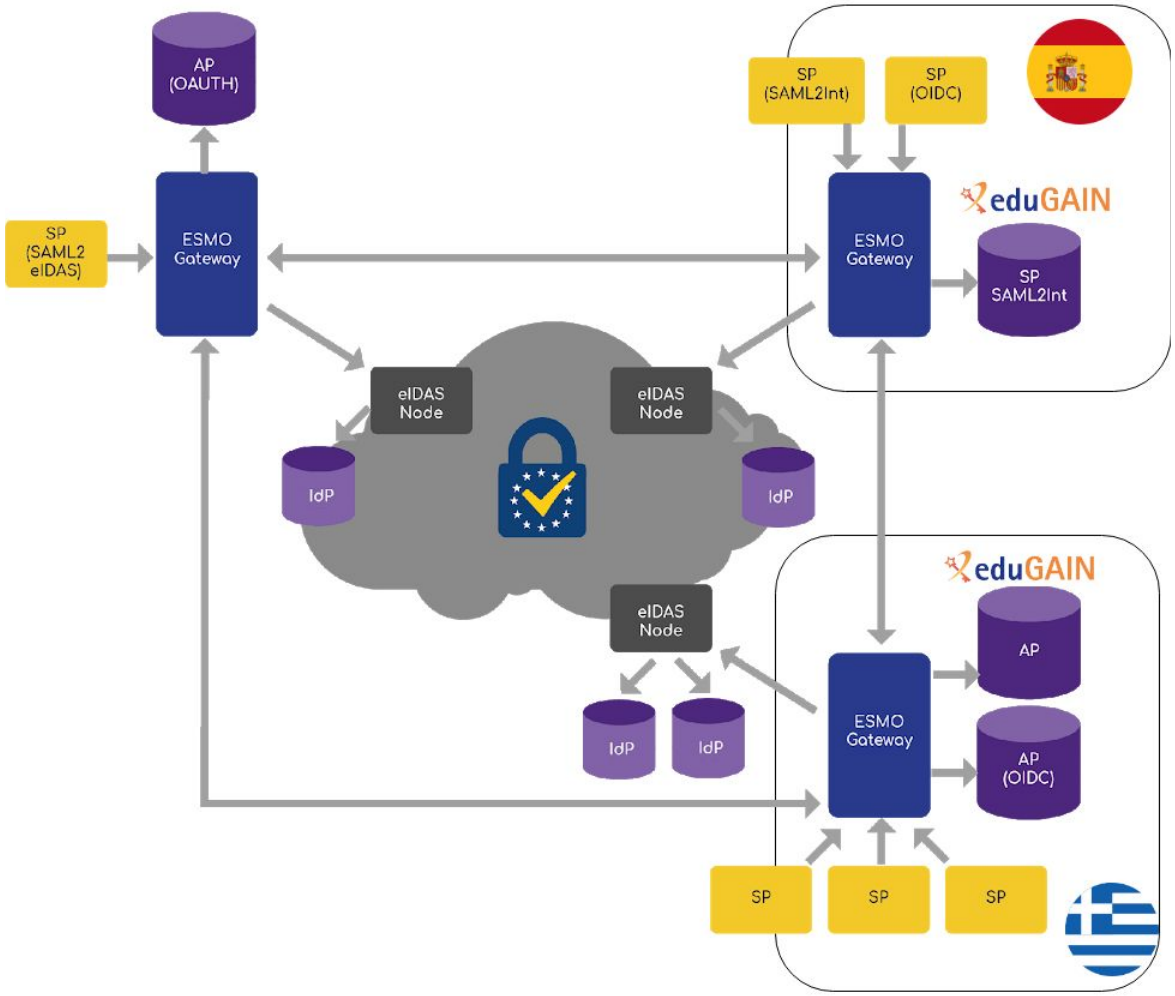
Croatia	High	NOTIFIED
Germany	High	NOTIFIED
Estonia	High	NOTIFIED
Luxembourg	High	NOTIFIED
United Kingdom	Low - Sub	NOTIFIED
Portugal	High	NOTIFIED
Belgium	High	NOTIFIED
Spain	High	NOTIFIED
Italy	Low -High	NOTIFIED

ESMO Gateway: Goals

- **Goals:**
  - **Proxy** functionality to support **eIDAS adoption**
    - By minimising adoption costs
    - **Convergence with eduGAIN**
  - With **attribute aggregation capacity**
  - Which allows the SPs/APs&/IDPs **delegate** the management of **trust**
  - With **Multi-protocol support** both for SPs, IdPs and Aps
    - SAML2Int, SAML2-eIDAS, OIDC, OAUTH2

Infrastructure: Architecture

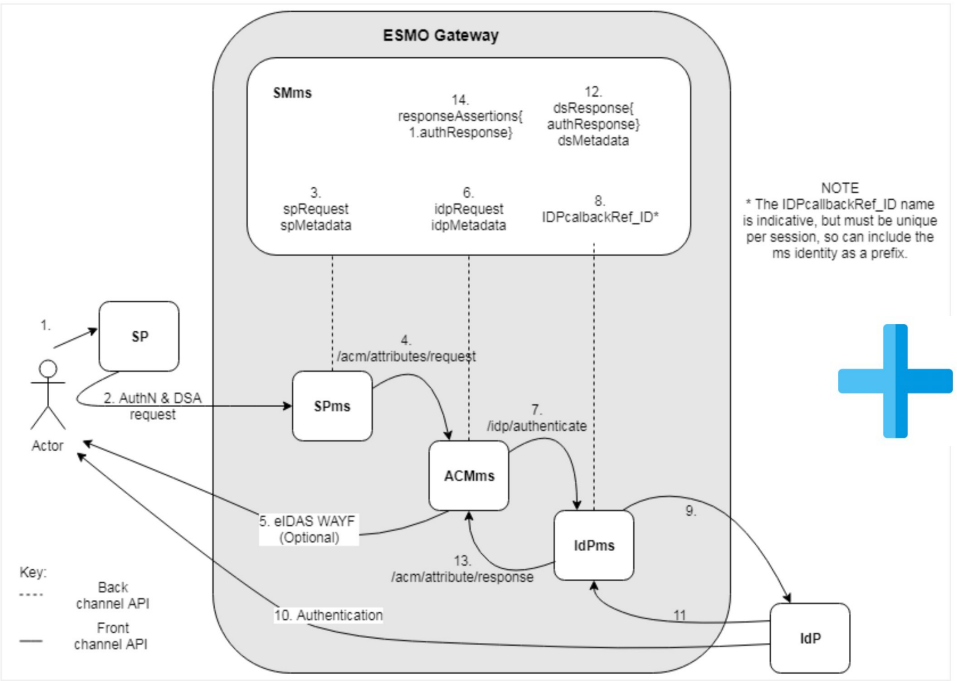
- **Personal Identification Attributes** (PII):
  - eIDAS
- **Academic Attributes :**
  - **eduGAIN** (Connection to Spanish and Greek EduGain Federations)
  - Academic APs

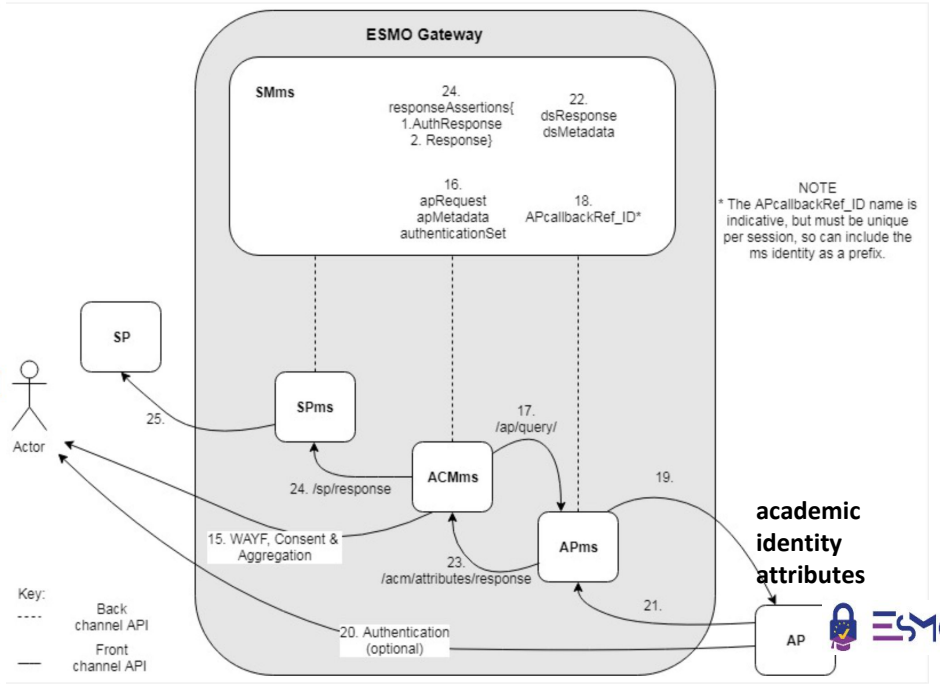


ESMO Gateway: Design Result

- **Result:**
  - **Microservices** architecture
    - With **protocol translation** capabilities
      - Cover features mismatch between protocols with additional metadata
    - **Security** model: Based on JWT/JWE and HttpSignatures
    - **Flexible** (allow multiple topologies)
    - **Scalable**
      - Adapt to demand and offer high availability
    - **Modularity** and extensibility
      - Facilitates hot-plugging of new modules or replicated instances

Infrastructure: Architecture





Gateway: Achievements

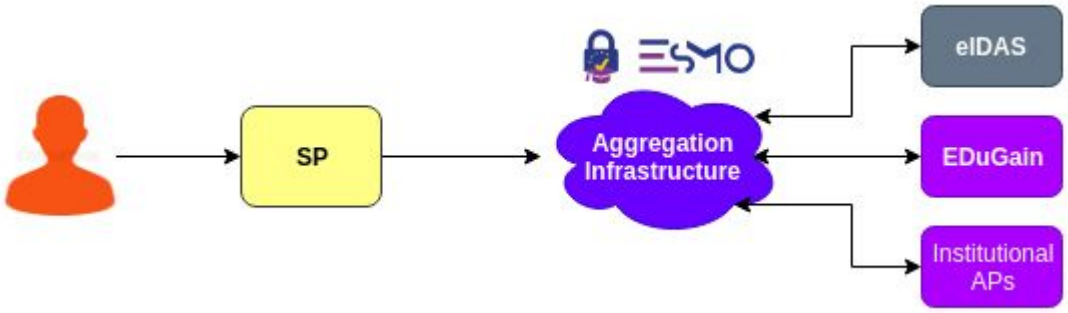
- Accepts requests for **eIDAS authentication** in: SAML2Int, SAML2eIDAS, OIDC
- Requests can include **additional academic attributes** to be retrieved from HEI APs.
- **Acts as a proxy** for the **relying parties**
- **Acts as a proxy** for the **data sources**, acting as a single point of entry
- Supported attribute set based on eduPerson, SCHAC to promote standards.
- Does not store user information, user centred application flow. Which facilitates **GDPR compliance.**
- Easy deployment (Docker images)

Project Sustainability: Challenges

- **Identity reconciliation**
  - Not matching or even targeted identifiers
  - Trusting the user claim, but risk of attr lending
  - **SEAL Project**
- **Attribute sources scarce** (except for **eduGAIN**)
- Offered attributes: reduced and simple set
- Technological gap for common users (both eIDAS and federations in general)

Beyond ESMO | Three models for attribute aggregation

1/ Centralized (**ESMO**)

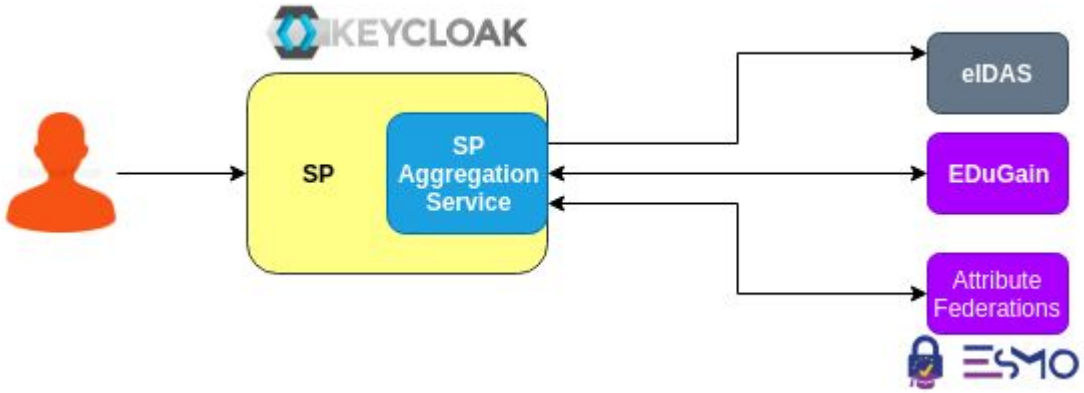


- Round robin design
- SP agnostic of aggregation
- User experience

- Attributes transfer through an Attributes Aggregating Service (STORK 2.0 - ESMO ACM)
  - **Linking Service on the fly**

Beyond ESMO | Three models for attribute aggregation

2/ Edge (**ESMO +**)

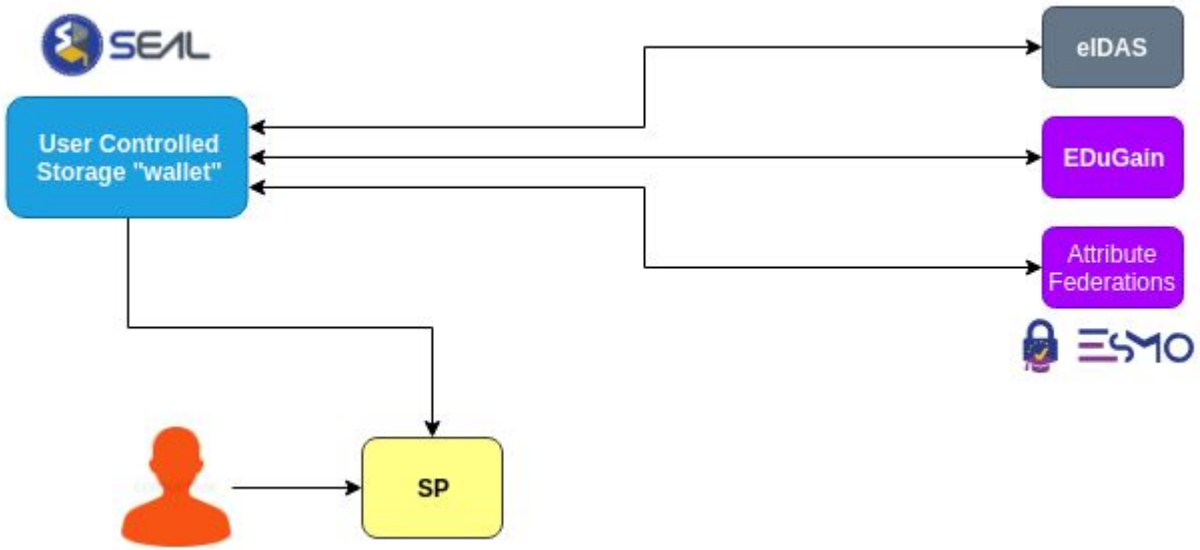


- User initiated process
- SP handles aggregation
- Better user experience
- Not standardized aggregation process

- Attributes transfer through a locally deployed Linking Service (SP-side)
  - Mobility Identity and Access Management (UAegean Keycloak)

Beyond ESMO | Three models for attribute aggregation

3/ Decentralized **(SEAL)**



- User initiated process 👍
- User handles aggregation 👍
- No honey pots 👍
- Standardized aggregation 👍

- Attribute transfer through a Self-Sovereign Identity Service (SSI Service)
  - **SEAL Project** (2019-2021 - CEF funding)

Thank you for your attention

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