
# Authentication & Authorisation Infrastructure

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on behalf of Andrea Ceccanti, Bas Wegh and Marcus Hardt.

(with many slides taken from Andrea's earlier talks)

INDIGO-DataCloud is co-founded by the Horizon 2020Framework Programme

# Architecture: a quick reminder

**Marcus**

Access service

**INDIGO Service**

Marcus wants to access some service at INDIGO service

**Home IdP**

**Indigo IAM**

# Architecture: a quick reminder


**Marcus**

Access service

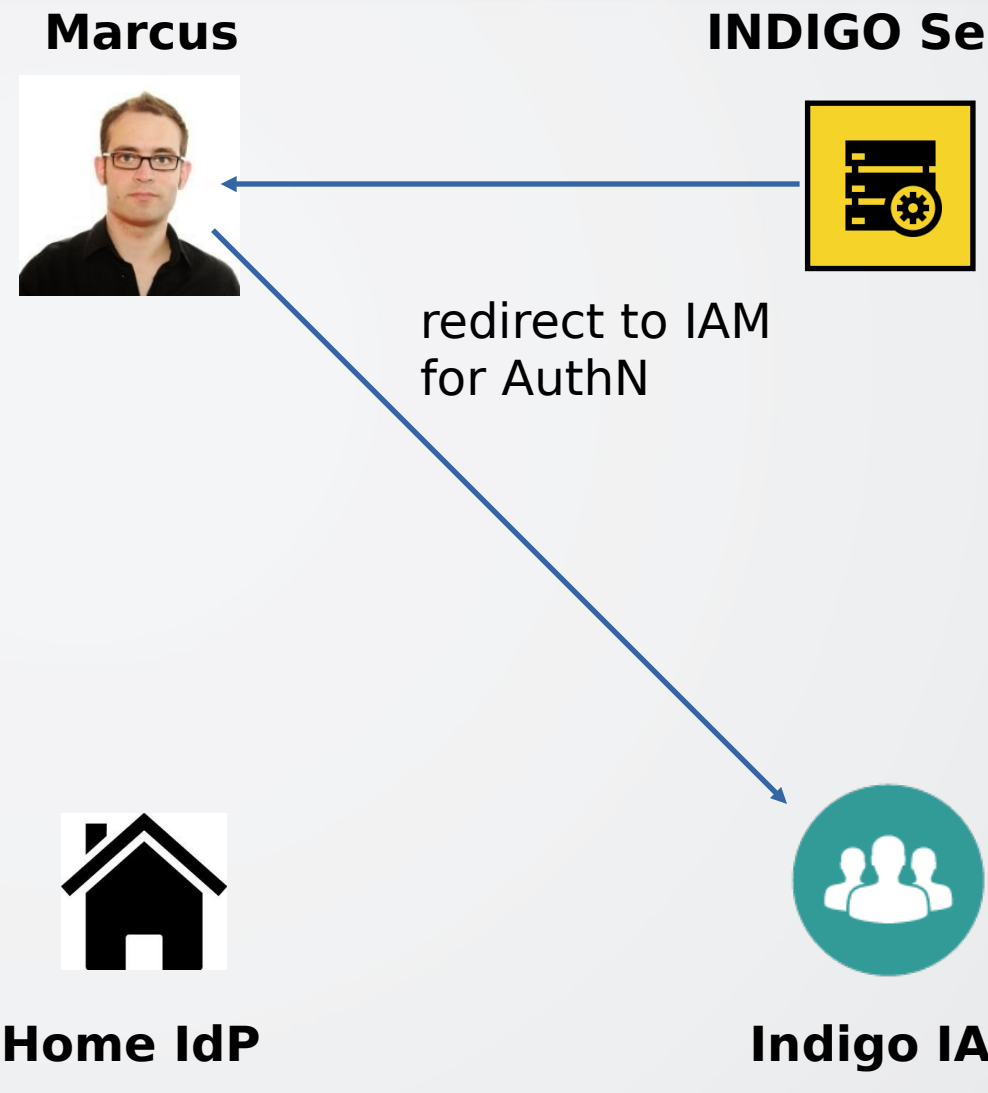
**INDIGO Service**

INDIGO Services sees that Marcus is not authenticated, and redirects him to INDIGO IAM for authentication

**Home IdP**

**Indigo IAM**

# Architecture: a quick reminder



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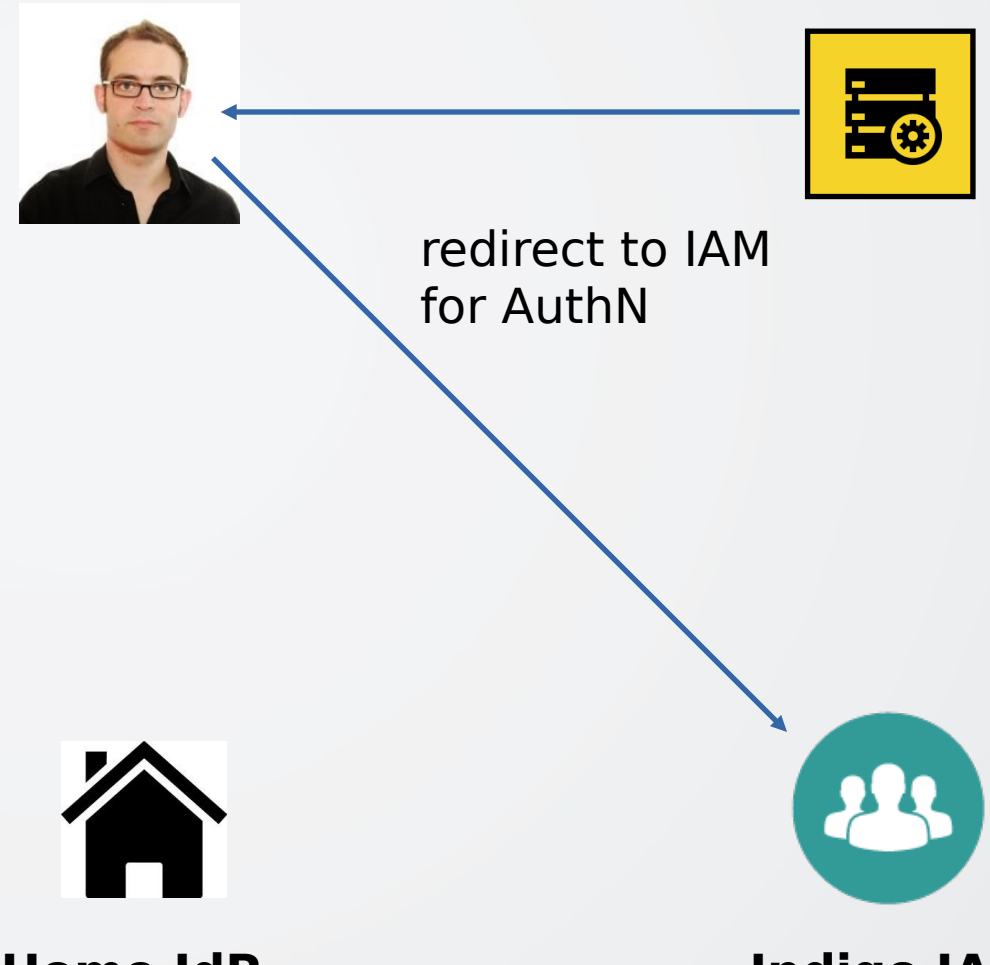
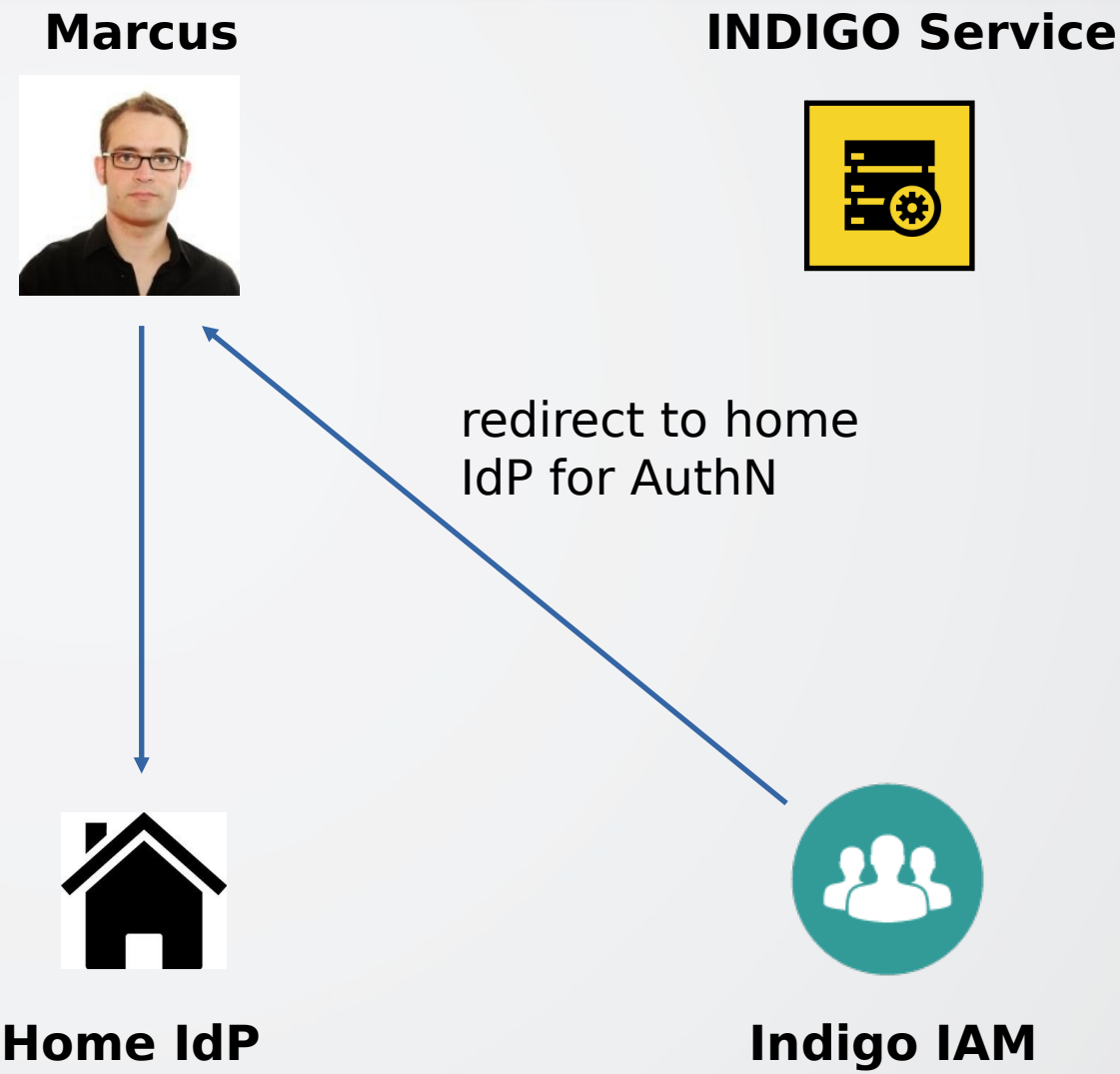



IAM lets Marcus choose how he wants to authenticate

Marcus chooses his Home IdP

# Architecture: a quick reminder



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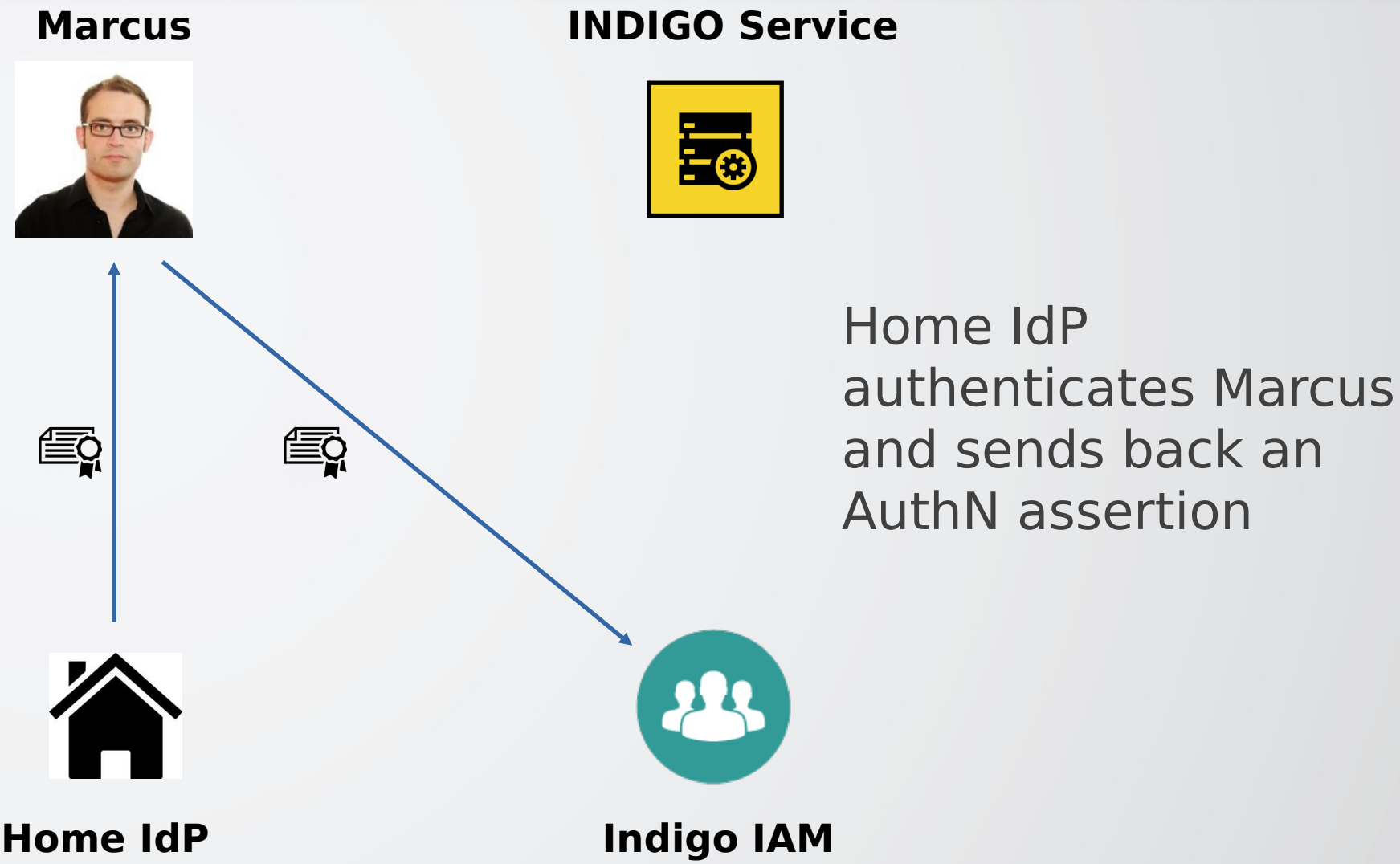



Home IdP authenticates Marcus and sends back an AuthN assertion

# Architecture: a quick reminder

**Marcus**

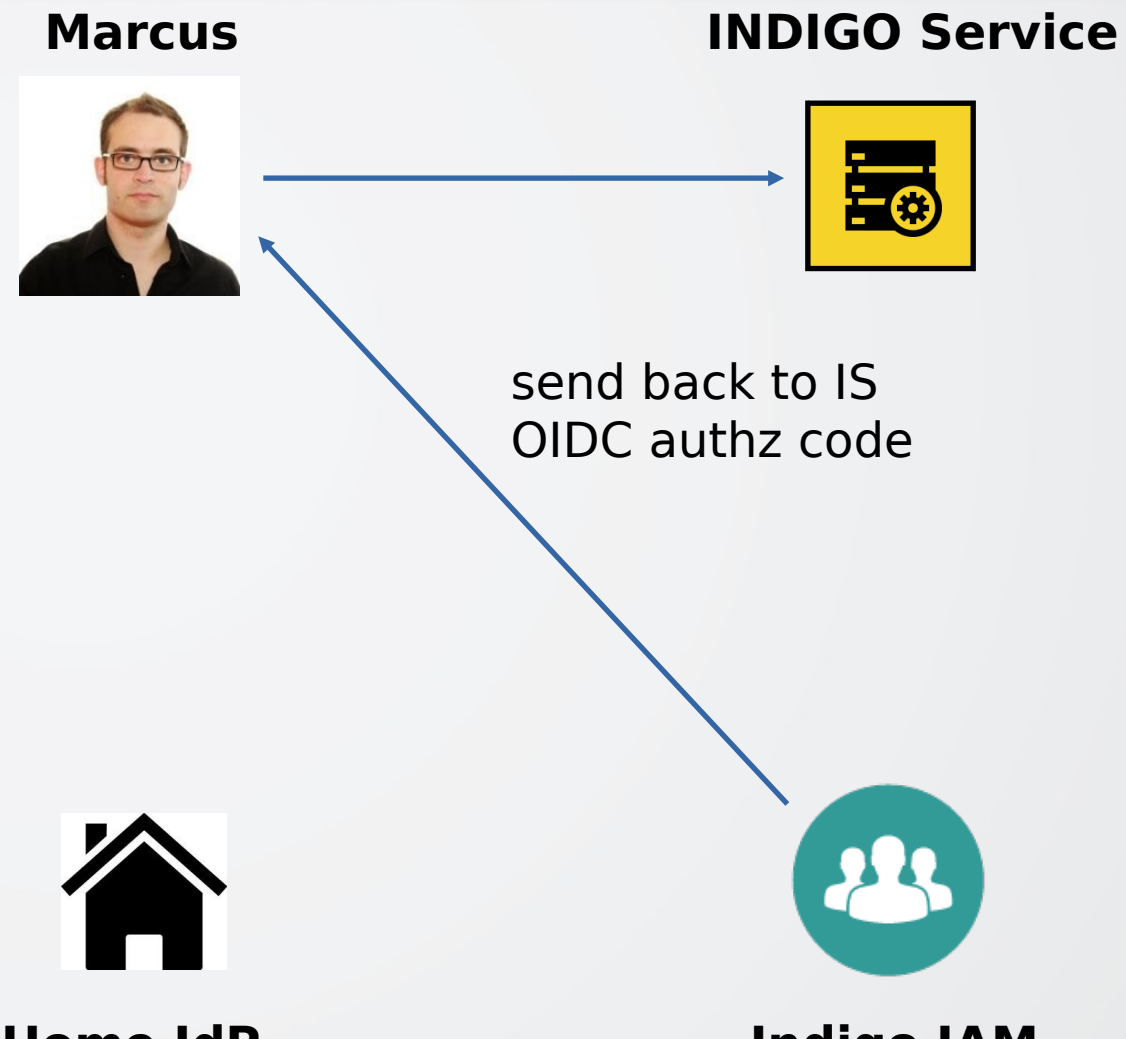
**INDIGO Service**

IAM validates assertion. Marcus is now authenticated at IAM.

**Home IdP**

**Indigo IAM**

# Architecture: a quick reminder



# Architecture: a quick reminder

**Marcus**

**INDIGO Service**

exchange
authZ code
for OIDC ID-token
access token



**Home IdP**

**Indigo IAM**

# Architecture: a quick reminder

**Marcus**

**INDIGO Service**

IS validates ID-Token.
Marcus is now authenticated at IS

**Home IdP**

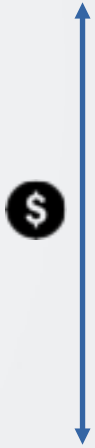
**Indigo IAM**

# Architecture: a quick reminder


**Marcus**

**INDIGO Service**





IS requests additional profile information about Marcus from IAM user info endpoint

**Home IdP**

**Indigo IAM**

# Group membership

- Once logged in, a user can add 3rd party group membership information.

  (group membership not asserted by IdP/OIDC/...)

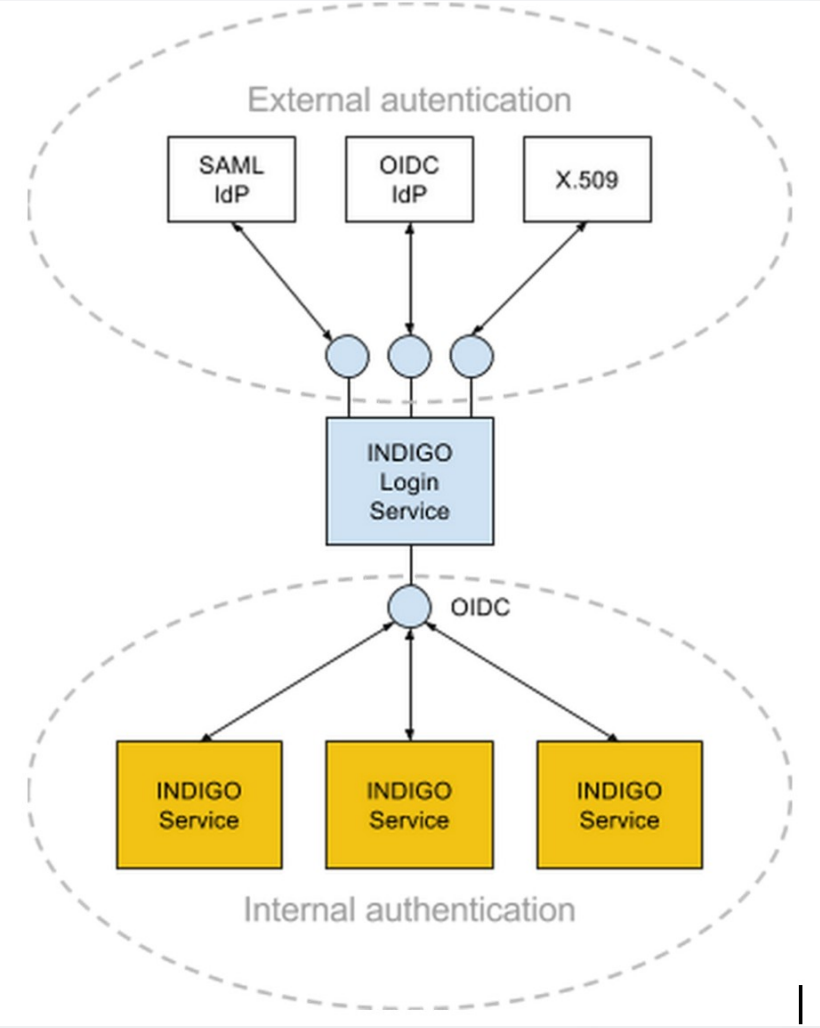
- IAM can act as a group service.
- User is redirected to the group server, authenticates (any IAM supported mechanism), and is asked which groups they wish to assert membership:
  - Support selective assertions (e.g., admin role),
  - IAM will support “hosting” multiple organisations (like VOMS supports multiple VOs),
  - IAM will support contacting multiple group-membership services.

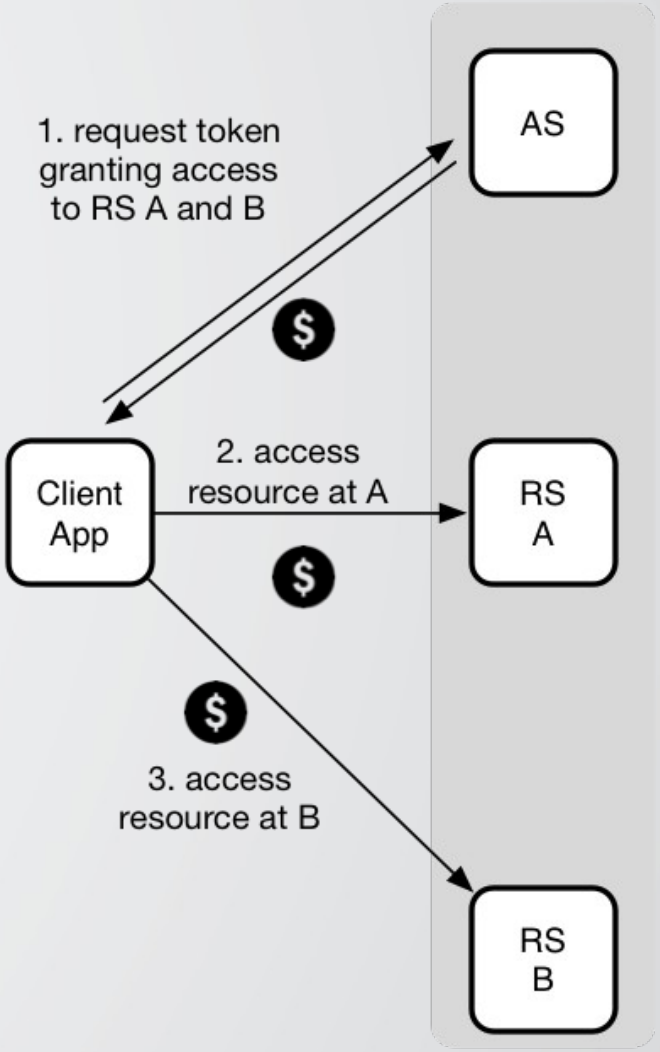
# Delegation: acting on behalf ...


- Delegation is some third-party acts on behalf on the user.
- For example:
  - web-portal acting on behalf of the user,
  - running image acting on behalf of the web-portal,
  - Storage system (3rd party transfer) staging in data on behalf of running image
- Plan to use Macaroons as OAuth access token

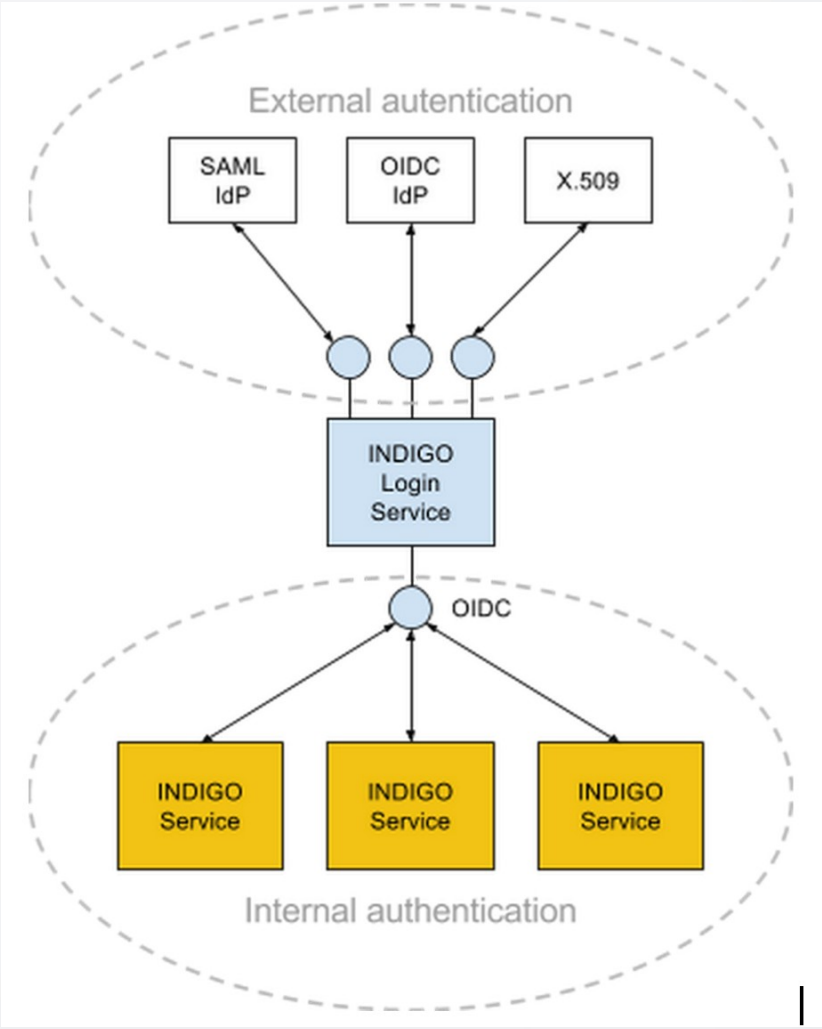
  Allows easy and safe delegation
- Additionally:
  - Supporting long-lived activity via refresh tokens,
  - Broadening of access-token, if use-cases require it.

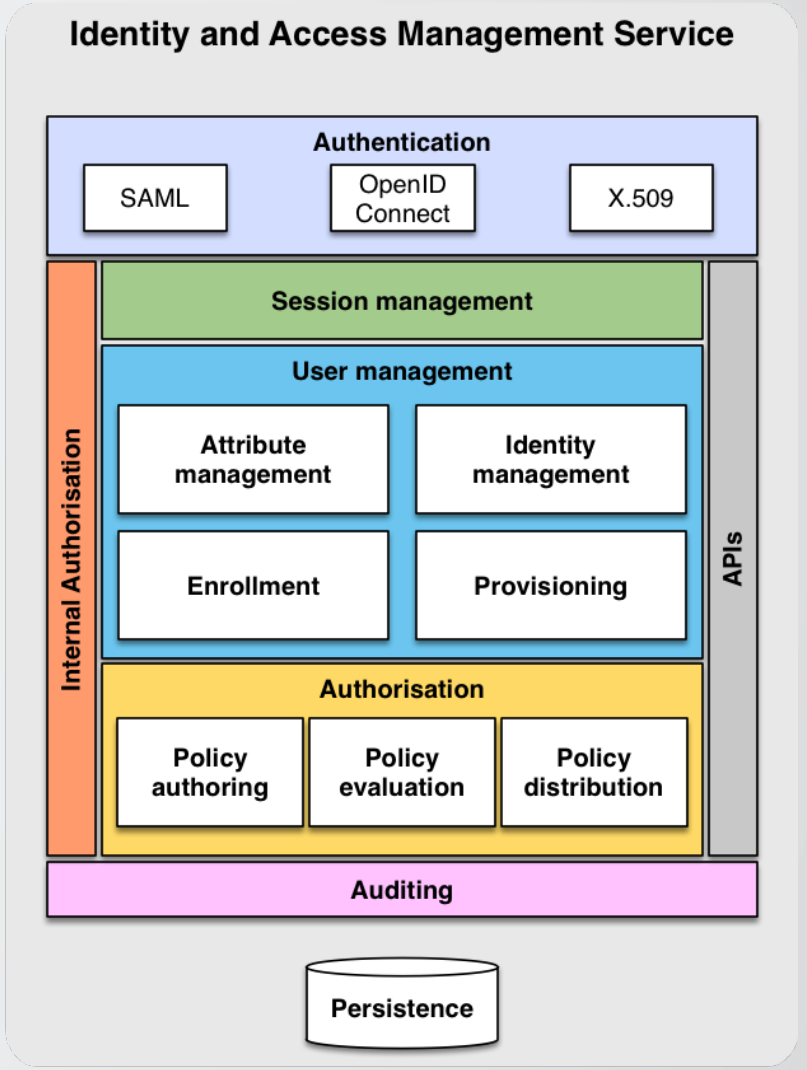
# Course-grain authorisation



# Reminder: IAM

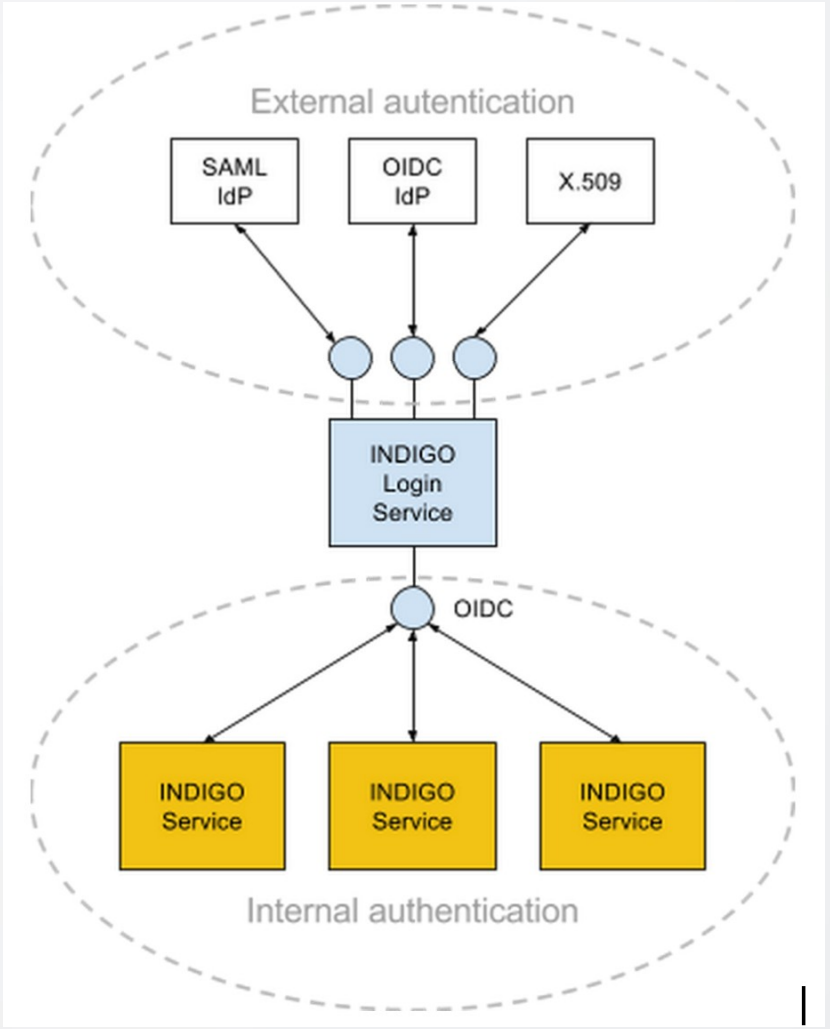


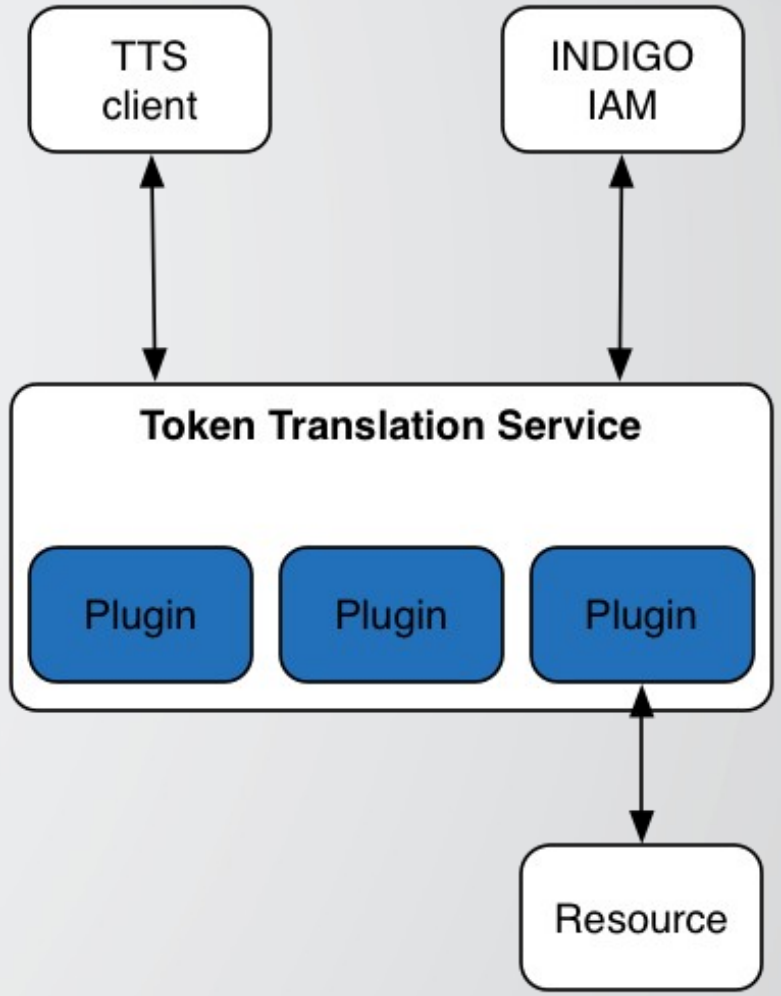



# IAM: status and future work


- Work at CNAF and CESNET
  - CESNET implements SCIM notification; CNAF implements IAM.
- Coding of IAM starting in January; targets are:
  - Support for SAML & OIDC authentication,
  - Basic user registration and management,
  - Basic user provisioning,
  - Basic support for delegation.
- Will deploy a test IdP (for developers)
- C.I./C.D. instance to allow integration tests
- Allow creation of users from GitHub/Google accounts, once OIDC is supported
- Currently only 1 of 2 posts filled at CNAF; discussion under on how to minimise the impact.

# Reminder: TTS



# TTS: status and future work


- Work focused at KIT
- Currently: writing low-level requirements.
  - Targeting both web service and RESTful interface.
- Initially will support:
  - ssh key-pair,
  - S3 key (locally hosted S3 app, NOT Amazon),
  - X.509 + VOMS (local use-case).
- Anticipate code ready at beginning of March
  - Test instance available for integration tests

# Idea: provide AAI support to IaaS


- LIP and Padova both provide IaaS testbed services for WP4
- Good opportunity to test AAI infrastructure

  “Eat your own dog-food”
- OpenStack / KeyStone already has OIDC support
  - Need to evaluate it, and how we can leverage it to integrate with INDIGO AAI
- Open question about Open Nebula:

  Account creation may use "autocreate" feature in OpenNebula, or use provisioning to create new accounts.
- Good opportunity to try out IAM CI/CD instance.

# DEMO-1: AAI Questions


- Where is authentication needed?
- Where is delegation needed?
- Where is authorisation needed?
- Where is user information provisioning needed, and with which granularity?
- Which different user roles are required?
- Do we need to showcase registration functionalities?

These are question **specifically** for the functionality we want to demo.

INDIGO - DataCloud

# Backup slides