ASTRON

Netherlands Institute for Radio Astronomy

NWO

AAI challenges within a European SKA Regional Centre environment

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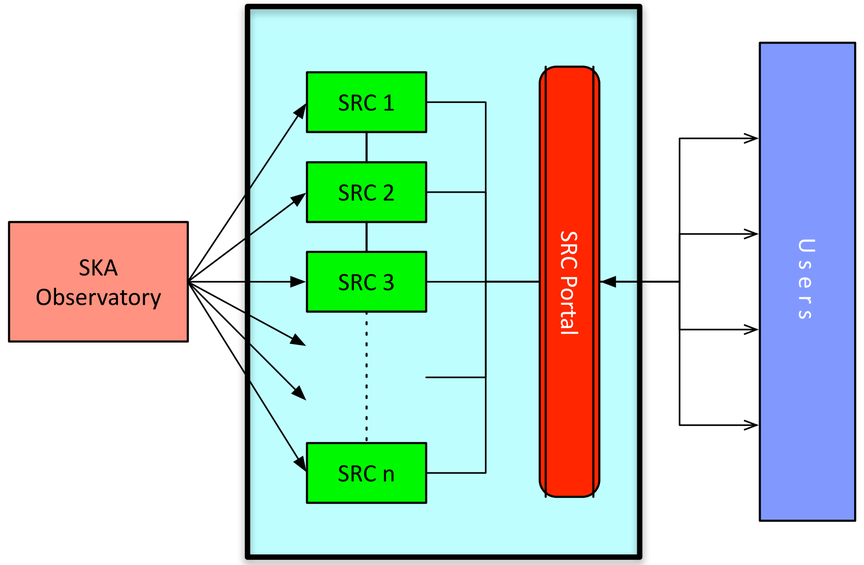
PRACE-CERN-GÉANT-SKAO kick-off workshop on High Performance Computing

On line - Tuesday 29 September 2020

SKA Regional Centres

- SKA Observatory Data will be exported to a network of ~10-15 Regional Centres
- ~700 PB/year of Observatory Data Products
- SRCs will host the SKA Science Archive
- Users will only be able to access SKA data in the SRCs
- Further processing, Science Analysis and Interpretation will take place in the SRCs
- SRCs will implement access restrictions during proprietary period
- SRCs locally resourced and staffed



Primary interface for SKA data analysis

- Archive
- Data Discovery
- Distributed Data Processing
- User Support
- Interoperability

Advanced European Network of E-infrastructures for Astronomy with the SKA

Design and specification of a distributed, European SKA Regional Centre to support the astronomical community in achieving the scientific goals of the SKA

EC Horizon 2020 (€3 million)

13 countries, 28 partners, SKAO, host countries, e-infrastructures (EGI, GÉANT, RDA), NREN's

Three year project (2017-2019)

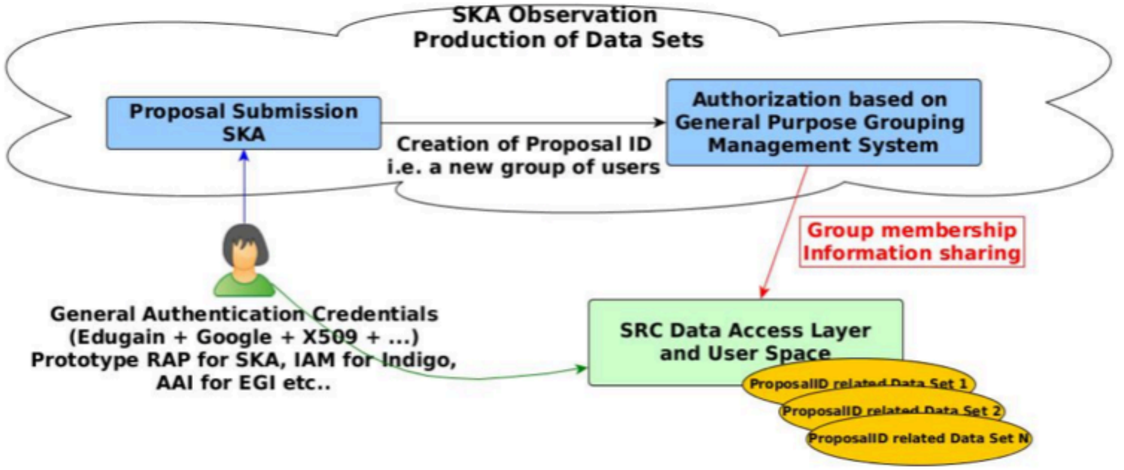
- Computing and Processing Requirements
- Data Transport and Optimal European Storage Topologies
- Data Access and Knowledge Creation
- User Services - Federated Service Management
  "Federate the SRC services with existing e-Infrastructure federated services (Identity Provisioning, Authentication and Authorization, tools for federated service management) to ensure interoperability between community and generic e-Infrastructure services."

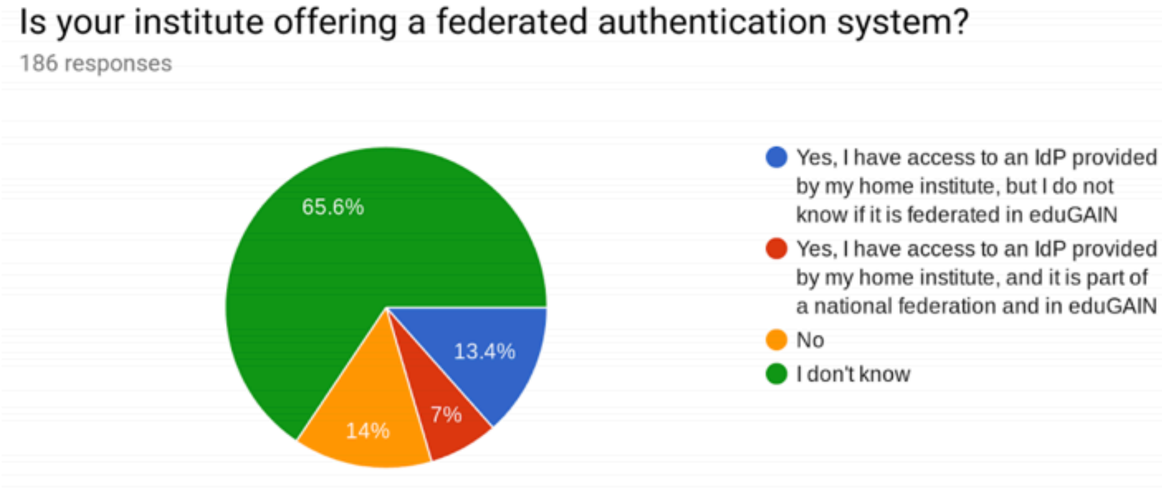
Results available through web site: www.aeneas2020.eu

WP6: User Services

- Authentication and Authorisation Infrastructure
  - Federated Access for Research
  - Exploration of Technologies
  - Proposed AAI Architecture

- Framework for designing and implementing a Service Portfolio for the ESDC and SKA
  - validate users' requests for data access;
  - keep accounts of computing and storage resources for each user or user group;
  - minimise data movement between sites.

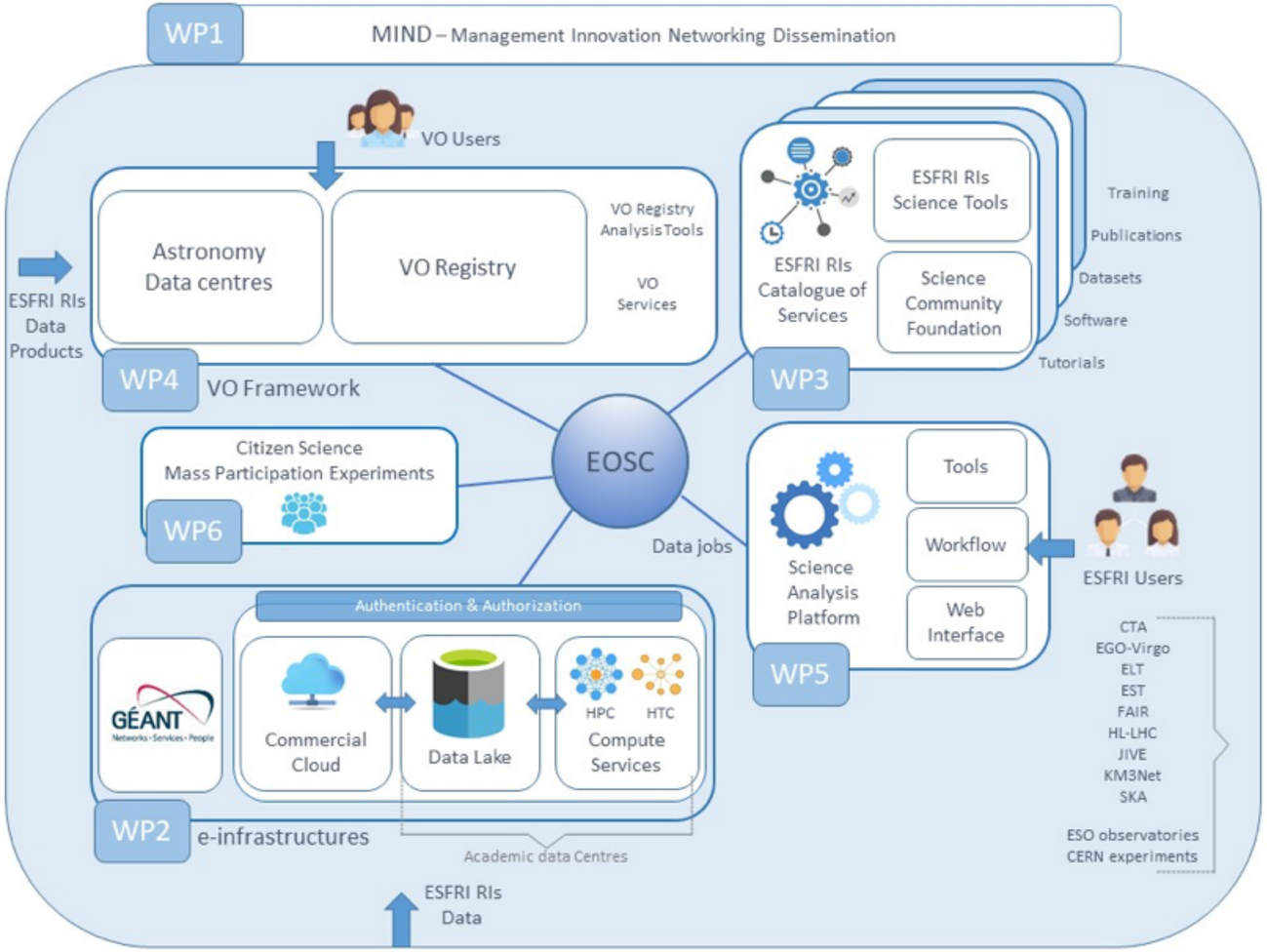




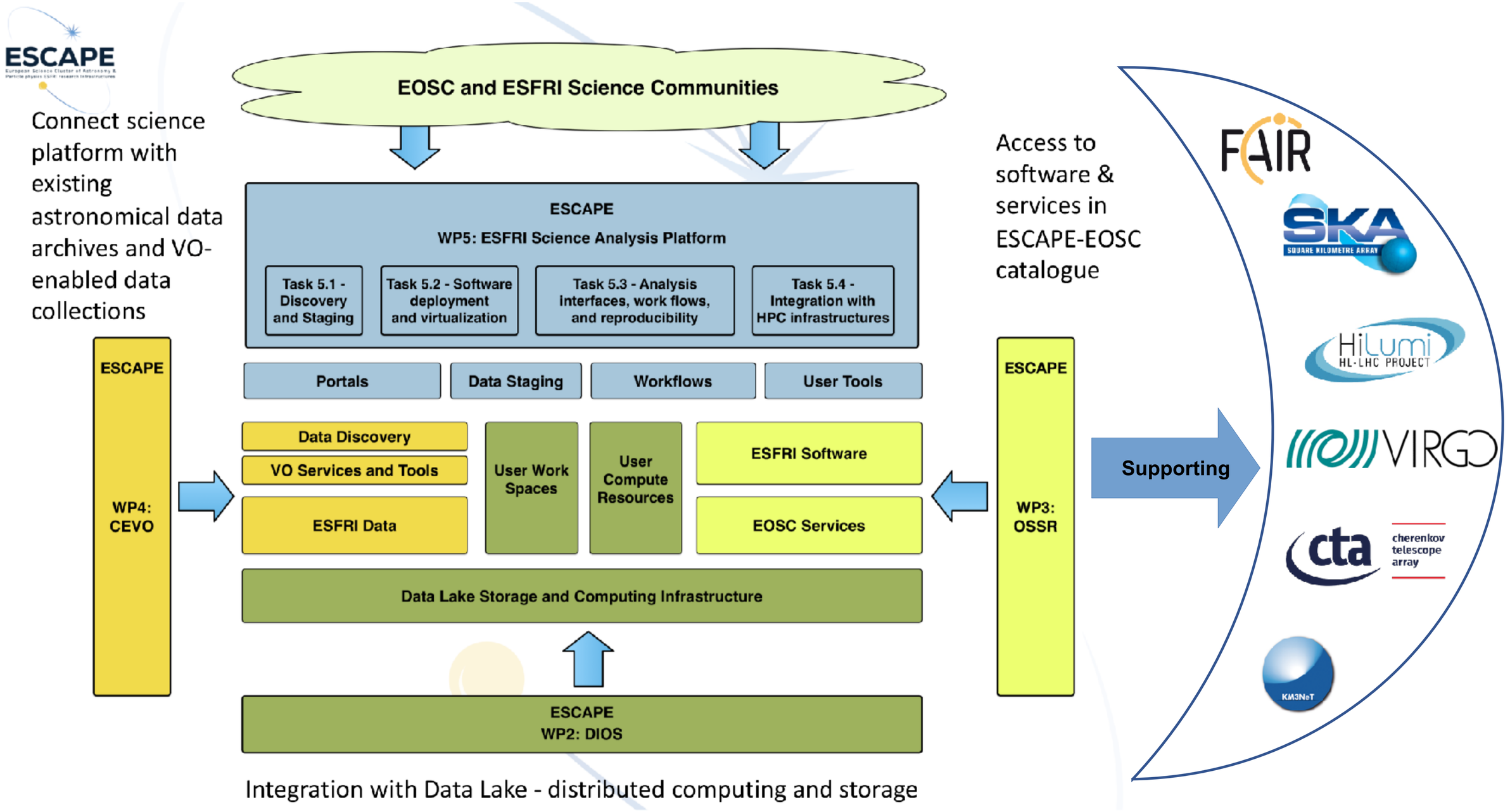
ESCAPE

European Science Cluster of Astronomy & Particle physics
ESFRI research infrastructures

ESCAPE aims to address the Open Science challenges shared by ESFRI facilities as well as other pan-European research infrastructures in astronomy and particle physics



- EC H2020 (16 M€, 2019-2023)
- Partners include SKA, CTA, KM3Net, EST, ELT, HL-LHC, FAIR, CERN, ESO, JIVE
- Led by CNRS, 32 different EU institutions
- ASTRON leading Science Analysis Platform WP


ESCAPE
Connect science platform with existing astronomical data archives and VO-enabled data collections
EOSC and ESFRI Science Communities
ESCAPE
WP5: ESFRI Science Analysis Platform
Task 5.1 - Discovery and Staging
Task 5.2 - Software deployment and virtualization
Task 5.3 - Analysis interfaces, work flows, and reproducibility
Task 5.4 - Integration with HPC infrastructures
ESCAPE
WP4: CEVO
Portals
Data Staging
Workflows
User Tools
Data Discovery
VO Services and Tools
ESFRI Data
User Work Spaces
User Compute Resources
ESFRI Software
EOSC Services
Data Lake Storage and Computing Infrastructure
ESCAPE
WP2: DIOS
Integration with Data Lake - distributed computing and storage
Access to software & services in ESCAPE-EOSC catalogue
ESCAPE
WP3: OSSR
Supporting
FAIR
SKA
SQUARE KILOMETRE ARRAY
HiLumi
HL-LHC PROJECT
VIRGO
cta
cherenkov telescope array
KM3NeT

ESCAPE ESFRI Science Analysis Platform

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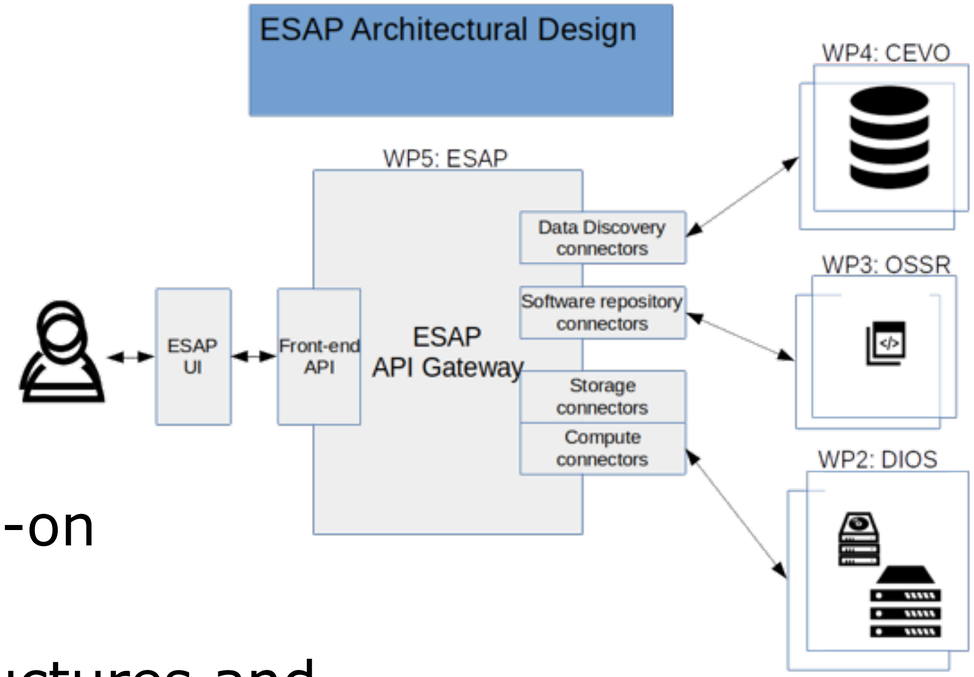
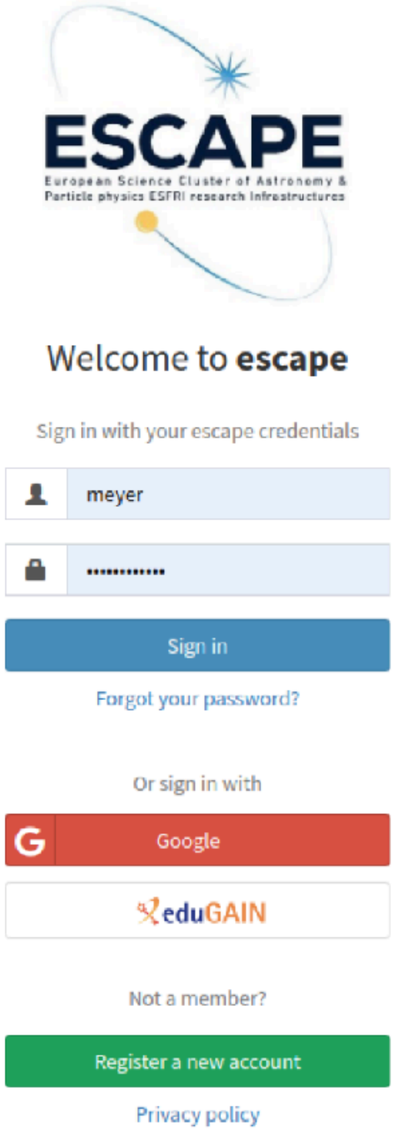
- Objective: to provide users with easy access to data, compute infrastructure and storage
- Approach: develop a web-based science analysis platform (SAP), which provides these services:
  - finding data,
  - staging data,
  - processing data,
  - analysing results, and
  - publishing/sharing results,
  - preferably all through a federated single sign-on mechanism
  - Demonstrate for a range of research infrastructures and data collections (CTA, ESO, EST, FAIR, JIVE, LOFAR,…)



Authentication: login with ESCAPE credentials

- Integrate with ESCAPE IAM
- Allow ESAP users to create an account with their ESCAPE credentials
  - User register at ESCAPE IAM
    - ✦ Use their institution credential through eduGAIN
    - ✦ or their social account, e.g. Google
  - User register at ESAP
    - ✦ Use their ESCAPE credentials through ESCAPE IAM



Authorisation: Access to services

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- Compute infrastructure
  - Authenticated users have valid access token from ESCAPE IAM
  - Token-based authorisation must be supported by:
    - infrastructure providers
    - researchers institutes/universities
    - research infrastructures