

NSTC

國家科學及技術委員會

National Science and Technology Council



Taiwan Access Federation (TWAF)

<https://twaf.grid.sinica.edu.tw>

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Academia Sinica Grid Computing Centre (ASGC)

7 Aug. 2025

Taiwan Access Federation 歡迎多加利用

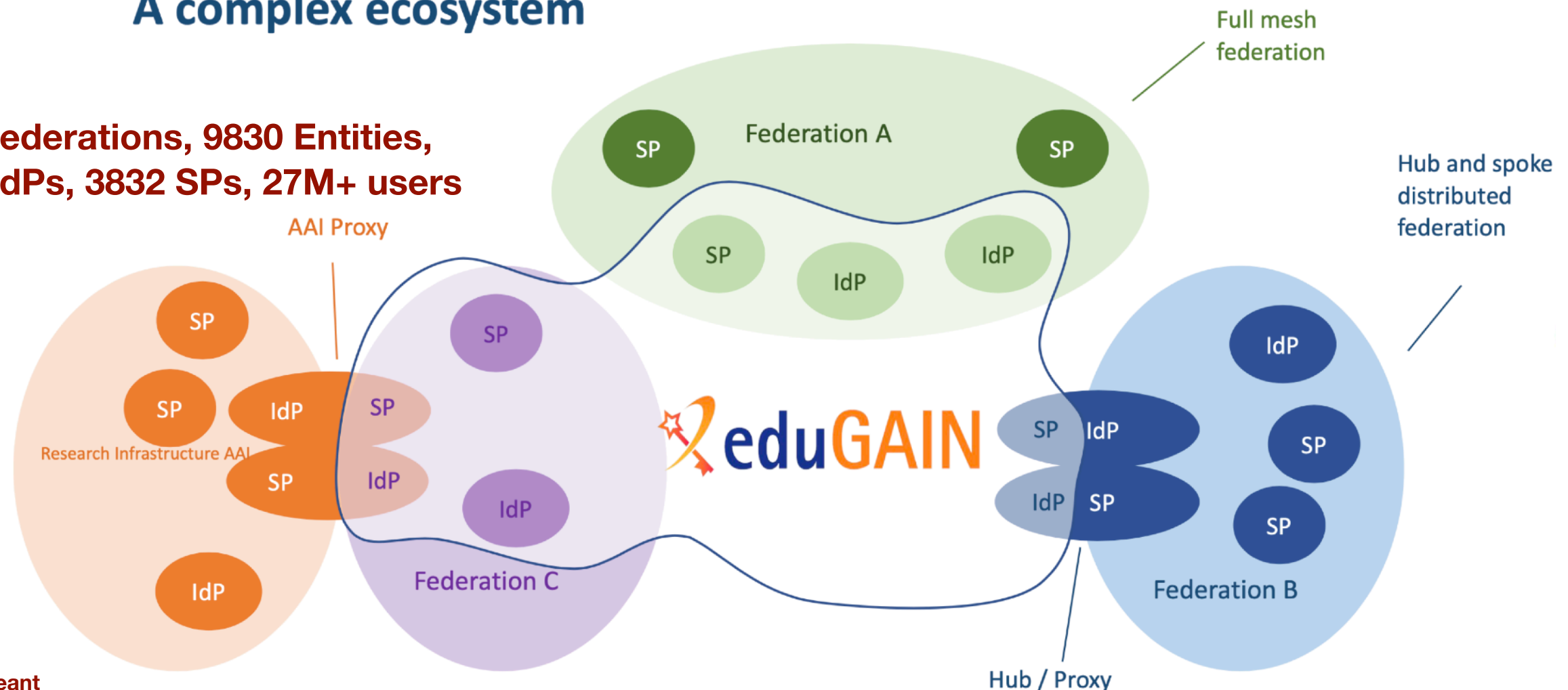
- The Taiwan Access Federation provides a framework and support infrastructure to facilitate trusted communications and collaboration within and between research and education institutions in Taiwan and overseas.
- Support data/resource sharing and collaboration infrastructure for R&E
- 即將通過 eduGAIN 認證，成為其全球網絡的一員，可提供國內便利安全的使用全球資源、參與國際合作、提供全球服務
- 提供 Identity Providers, Service Providers 整合利用，安全穩定的環境
- Shaping the enhanced NSTCCore/ASGC Authentication & Authorization Infrastructure
- Trust building and e-infrastructure are the keystones

eduGAIN Vision - To Be the Globally Trusted Infrastructure for Research and Education Identity Federations

- “eduGAIN interfederation service connects identity federations around the world, simplifying access to content, services and resources for the global research and education community”
 - eduGAIN will provide authentic, accurate and interoperable metadata and extend its trust framework to enable secure, trustworthy and fit for purpose international federated transactions.
 - eduGAIN connects research and education identity federations through the delivery of a metadata exchange point and foundational trust framework.
- Core Values - Open standards, Transparency, Digital equity, Neutrality, Trust

A complex ecosystem

**78 Federations, 9830 Entities,
6016 IdPs, 3832 SPs, 27M+ users**



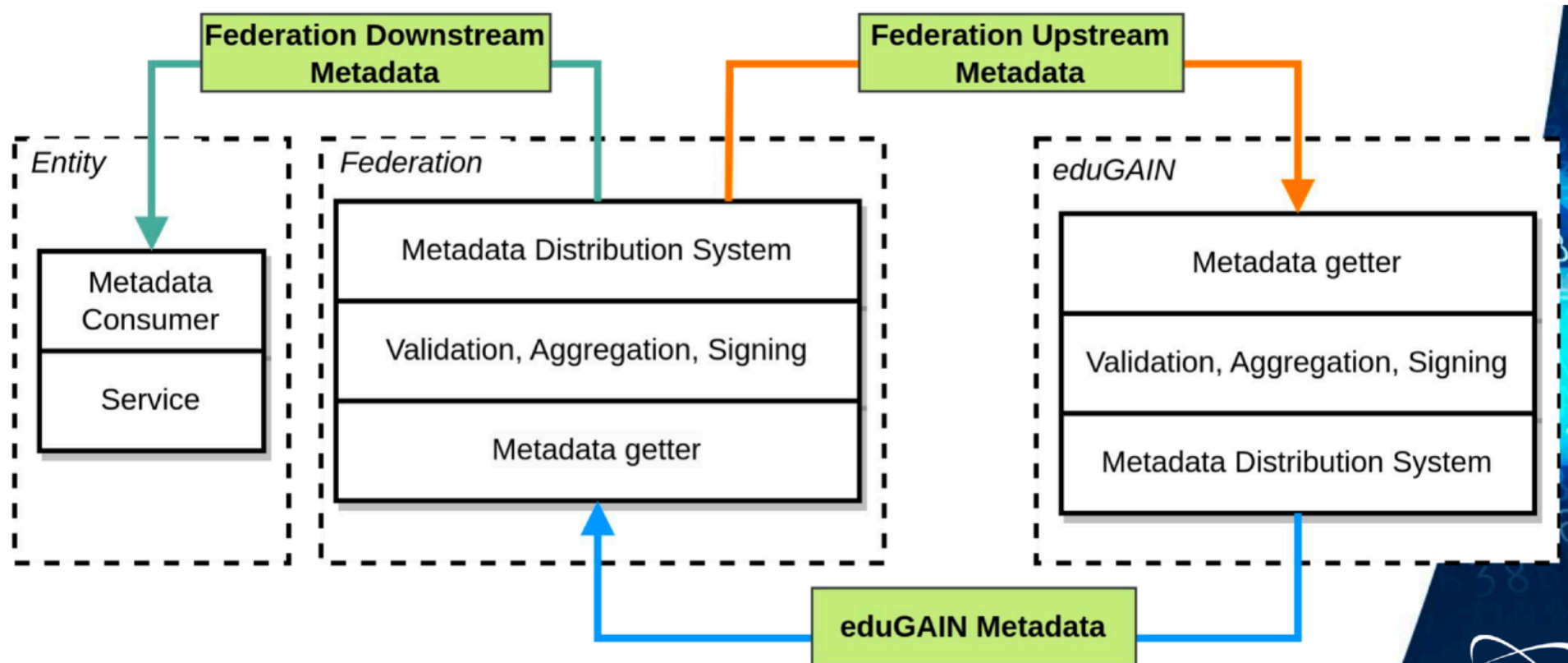
The Trust Chain

eduGAIN SAML Profile

Policy requirements	Metadata Registration Practice Statement
Metadata Requirements	SAML V2.0 Metadata Extensions for Registration and Publication Information Version 1.0, SAML V2.0 Metadata Extensions for Login and Discovery User Interface Version 1.0
Metadata Signing	Metadata for the OASIS Security Assertion Markup Language (SAML) V2.0, SAML V2.0 Metadata Interoperability Profile Version 1.0
Metadata Publication	<i>Federations MUST provide their members with trustworthy SAML Metadata about eduGAIN Entities, signed with their own signing key [..]</i>
Participant requirements	<i>Produce and register a URL to the (participant) SAML Metadata export</i> <i>Register a signing certificate and an <code>mdrpi:registrationAuthority</code></i>

ref <https://technical.edugain.org/documents>

www.geant.org



www.geant.org

Distributed AAI Services

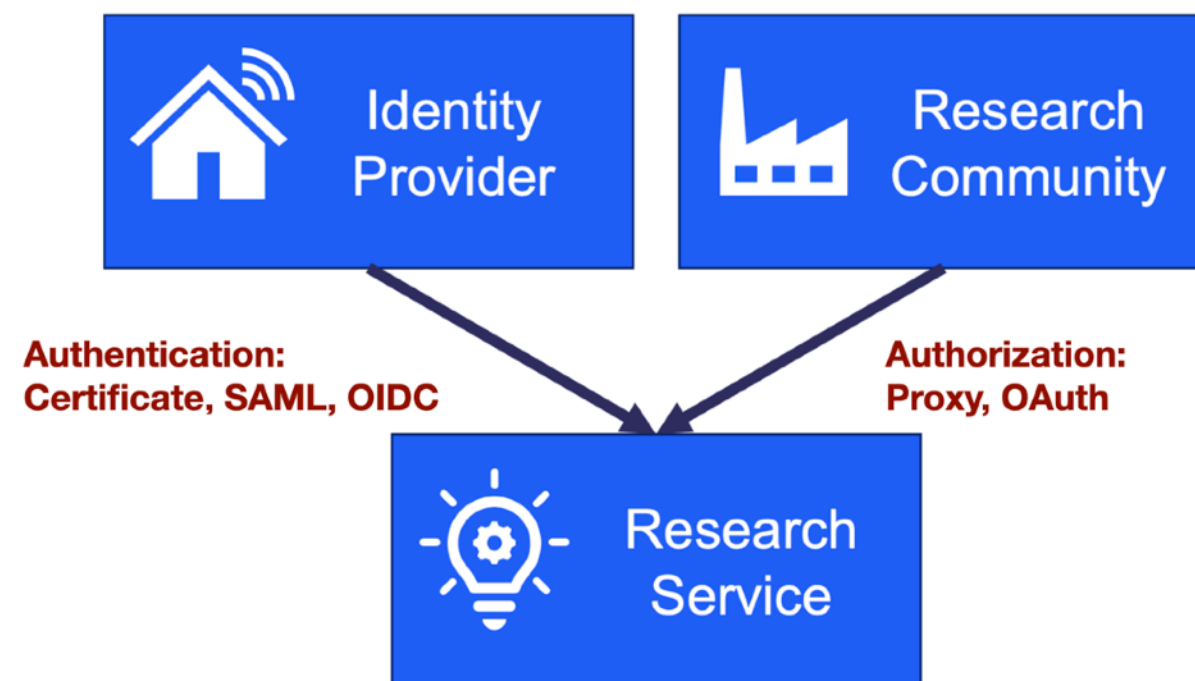
- Enabling seamless and secure access across the platform and boundary
- Transiting from SAML to OIDC/OAuth2
 - SAML supports a limited set of the intended use cases and is lacking adoption on the service provider side

ASGCCA operational since 2003 (IGTF), as “Catch-All” CA in Asia

TWAF will be available from Aug. 2025

OIDC/OAuth Services are possible, up to the SPs

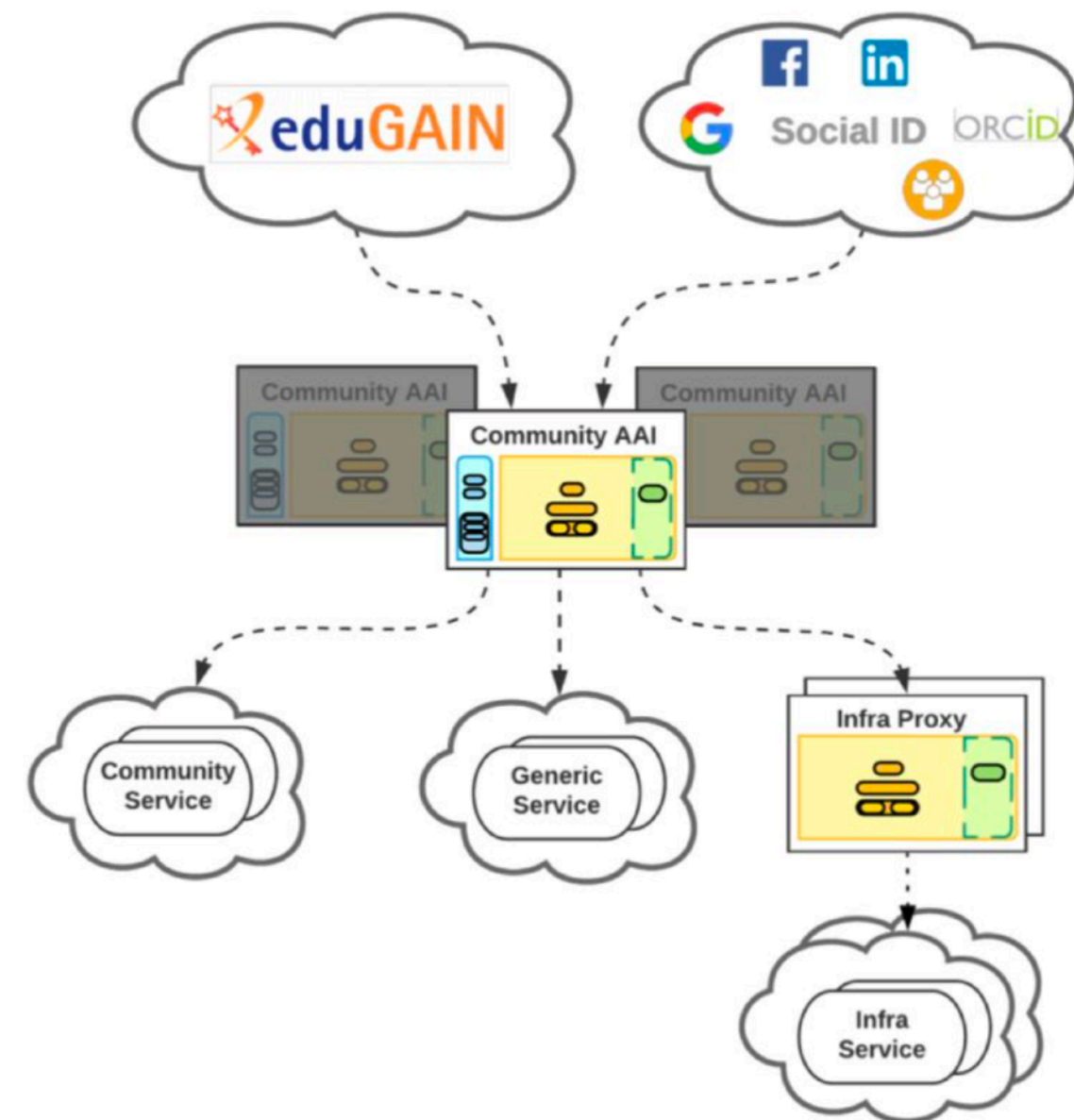
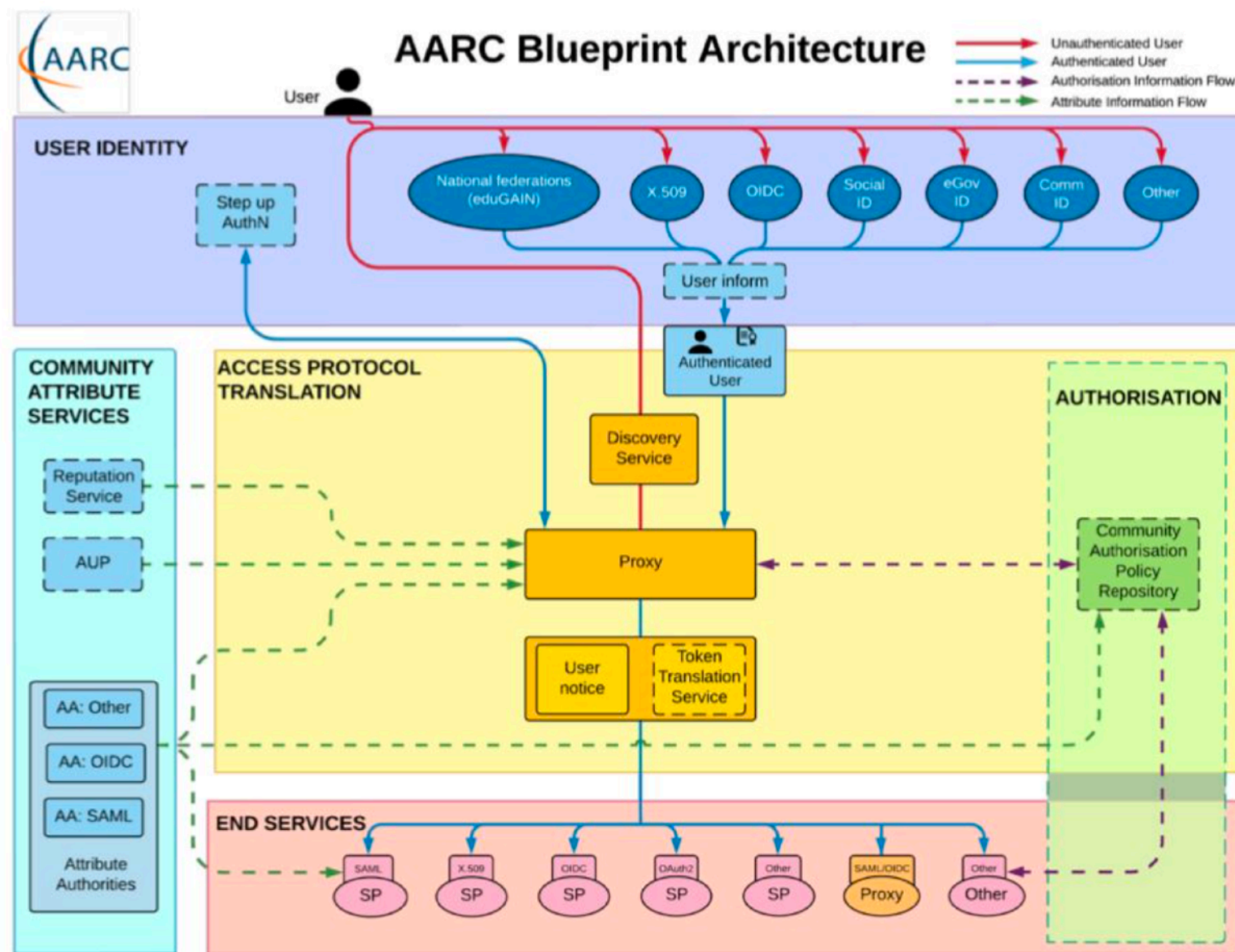
	Certificates	SAML	OAuth2
Web?	Yes	Yes	Yes
Command Line?	Yes	No	Yes
Advantage?	Established	Scalable	Widely accepted
Disadvantage?	Security & Usability	Usability, Non-web	Scalability
Example	Grid Certificates	Your Home Organization, via eduGAIN	ORCID, Github



IGTF: Interoperable Global Trust Federation, <https://www.igtf.net>

Use Case: EOSC AAI Baseline Architecture

- **Community AAI:** streamline researchers' access to services
- **Infrastructure Proxy:** enables Infrastructures with a large number of resources, to provide them through a single integration point, where the Infrastructure can maintain centrally all the relevant policies and business logic for making available these resources to multiple communities

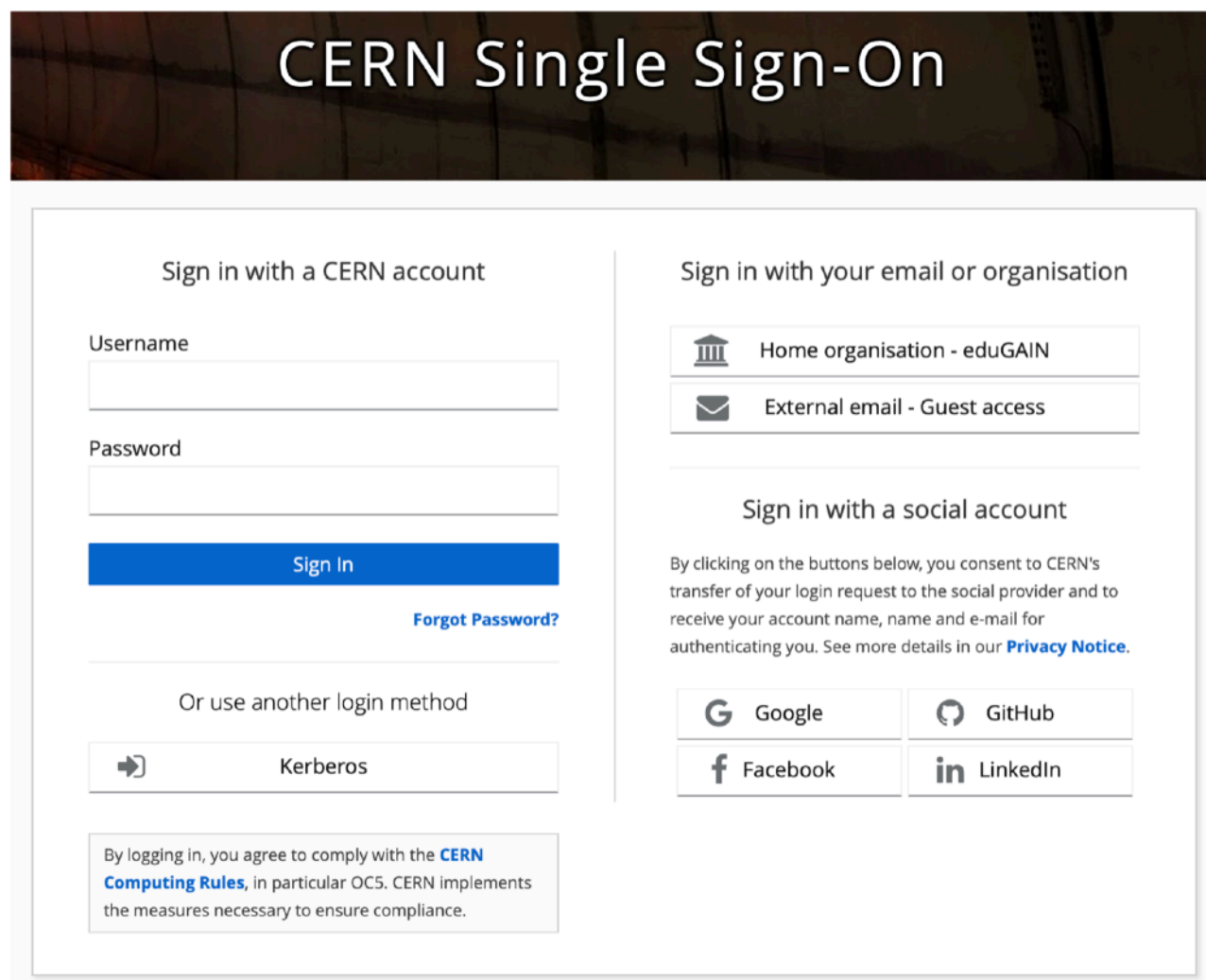


Source:

1. EOSC Authentication and Authorization Infrastructure (AAI) : report from the EOSC Executive Board Working Group (WG) Architecture AAI Task Force (TF) <https://data.europa.eu/doi/10.2777/8702>,
2. AARC Blueprint Architecture 2019 <https://doi.org/10.5281/zenodo.3672784>

Use Case - CERN

- User could get access by CERN account, eduGAIN, or OIDC-based credential



CERN Single Sign-On

Sign in with a CERN account


Username

Password

[Forgot Password?](#)


Sign In


Or use another login method

 Kerberos

By logging in, you agree to comply with the [CERN Computing Rules](#), in particular OCS. CERN implements the measures necessary to ensure compliance.



Sign in with your email or organisation



 Home organisation - eduGAIN

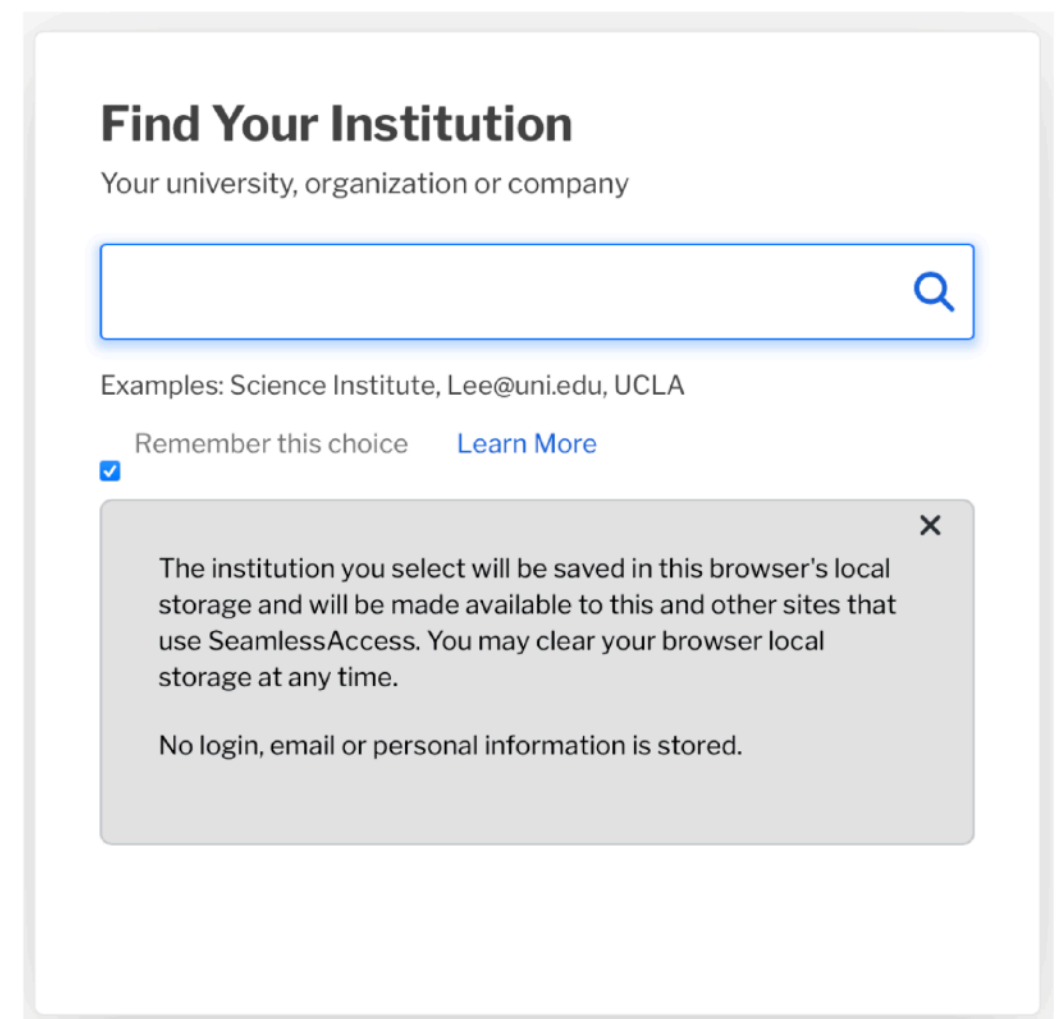
 External email - Guest access

Sign in with a social account

By clicking on the buttons below, you consent to CERN's transfer of your login request to the social provider and to receive your account name, name and e-mail for authenticating you. See more details in our [Privacy Notice](#).

 Google  GitHub

 Facebook  LinkedIn



Find Your Institution

Your university, organization or company

Examples: Science Institute, Lee@uni.edu, UCLA

☒ Remember this choice [Learn More](#)

The institution you select will be saved in this browser's local storage and will be made available to this and other sites that use SeamlessAccess. You may clear your browser local storage at any time.

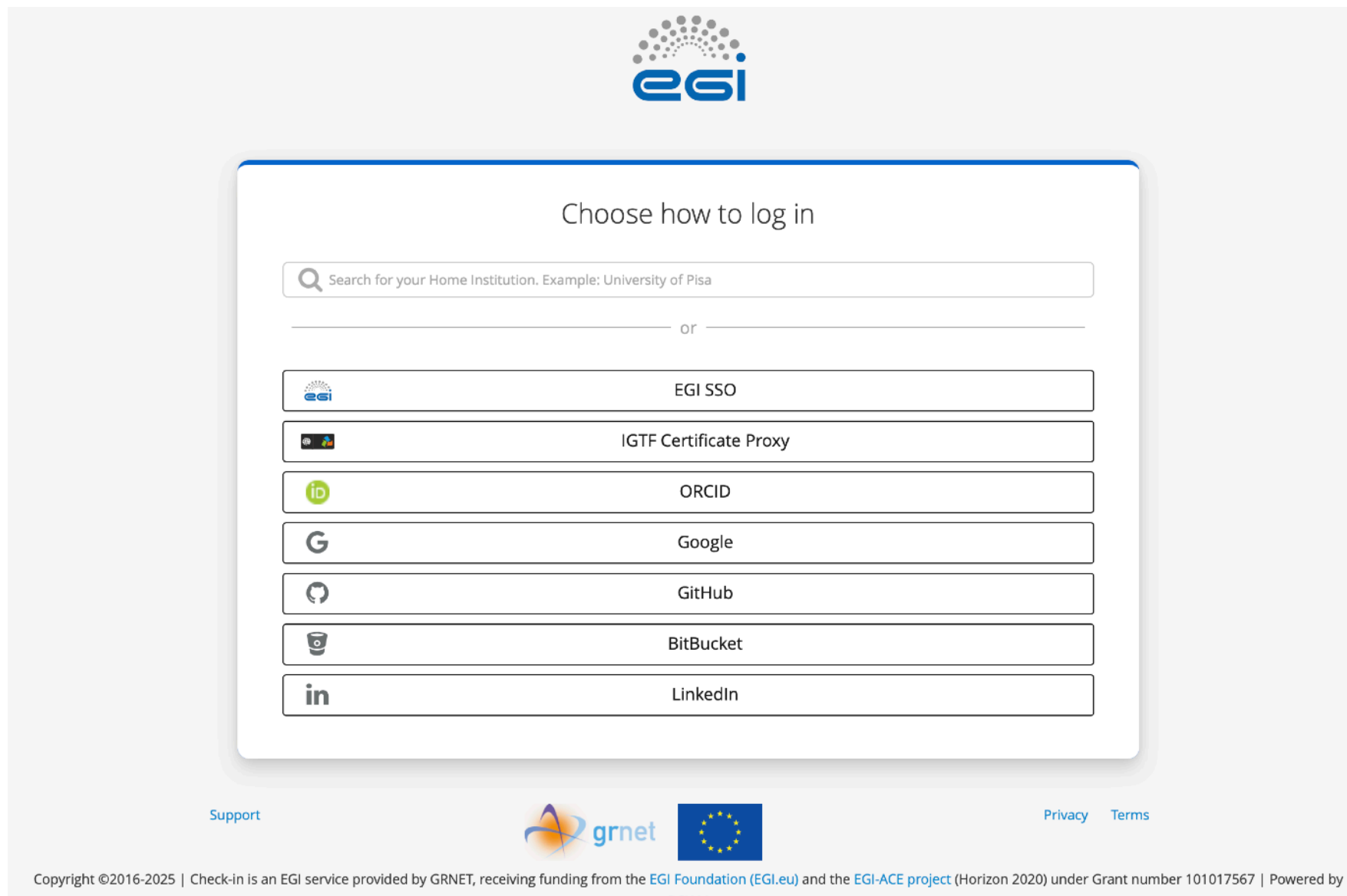
No login, email or personal information is stored.

ORCID + eduGAIN

- **ORCID: Persistent Identifier**
- **eduGAIN: Inter-Federation of IdP/FedIdP and SP**
- **Streamlined Authentication and Authorization:**
 - eduGAIN interfederate SPs (e.g., ORCID) and IdP
 - ORCID could support users to access to ORCID services through eduGAIN
- **Enhanced Data Accuracy and Consistency:**
 - ORCID provides a unique identifier that connects researchers to their work (publications, grants, etc.) throughout their careers, regardless of changes in name, institution, or affiliation.
 - eduGAIN allows ORCID to verify the researcher's affiliation with their institution, ensuring that the information in their ORCID record is accurate and up-to-date.
- **Improved Research Visibility and Impact:**
 - ORCID helps researchers track and showcase their research outputs
 - eduGAIN enhances the discoverability & visibility of researchers and their work through ORCID
- **Reduced Administrative Burden:**
 - ORCID automates the process of collecting and sharing research information, reducing the need for manual data entry and form filling.
 - eduGAIN simplifies the login process, further reducing administrative overhead for researchers.

WLCG GGUS Ticketing System Through EGI Check-in

- **EGI Check-In supports log in by EGI SSO, x.509 EEC, ORCID and OIDC-based credential**





台灣物理學會
The Physical Society of Taiwan



Plan of TWAF

- **Easier access to NSTCCore Services**
- **推廣 TWAF 服務，建立與推介成功案例**
- **與各類學研服務提供者合作，擴展 eduGAIN 的可用資源**
- **了解學研機構圖書館服務與 ORCID 網路的整合支援需求**
- **提供更便利的 NSTCCore 計算資源擷取服務**
- **參與相關國際合作(包含標準化與規範等的制定)，讓國內學研界參與國際合作，以及使用國際資源更便利 (trust and convenient)**

Welcome to TWAF

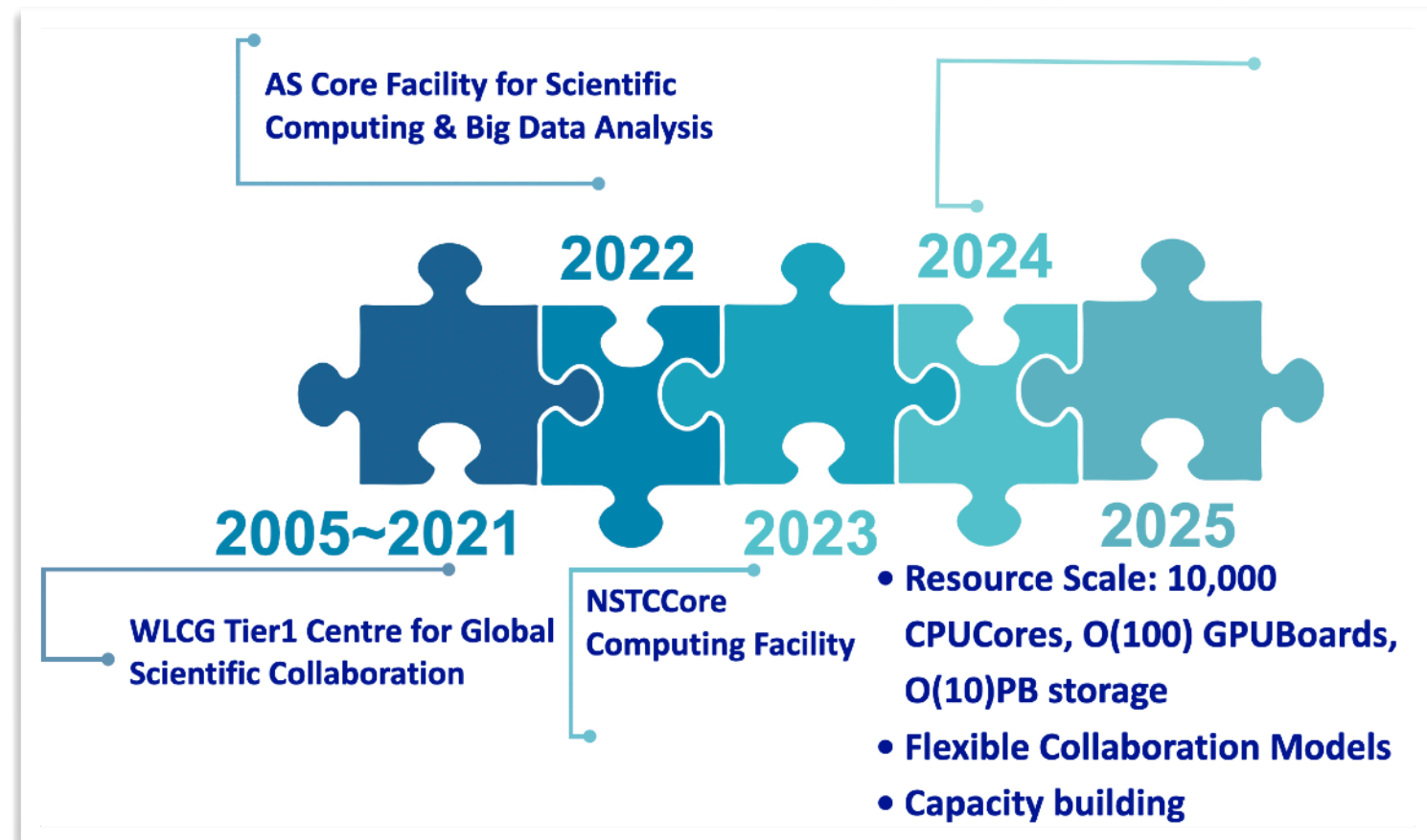
- We are more than happy to work with local user communities. Please let us know your needs
 - Support service integration, application platform, API, etc.
 - Support policy and best practices, in collaboration with Geant, AARC, etc.
 - Improve TWAF services and efficiency
- Collaboration is always open & welcomed !
- <https://twaf.sinica.edu.tw>

Organization Name				
entityID				
Required and Optional Attributes	organizationName	-----	surName in English	-----
	OrganizationName in Mandarin	-----	SurName in Mandarin	-----
	organizationalUnitName	-----	givenName in English	-----
	OrganizationalUnitName in Mandarin	-----	GivenName in Mandarin	-----
	eduPersonPrincipalName	-----	displayName in English	-----
	eduPersonTargetedID	-----	DisplayName in Mandarin	-----
	eduPersonAffiliation	-----	E-mail	-----
	eduPersonScopedAffiliation	-----		-----
	eduPersonEntitlement	-----		-----
Service Name				
Service URL				
Service Description (Please describe it in no more than 100 letters.)				
Administrator Contact Information	Name			
	Title			Telephone
	E-Mail			
	Postal Address			
Technical Operator Contact Information	Name			
	Job Title			Telephone
	E-Mail			
	Postal Address			

If there are more than one Technical Operator, please write the details in Notes section.

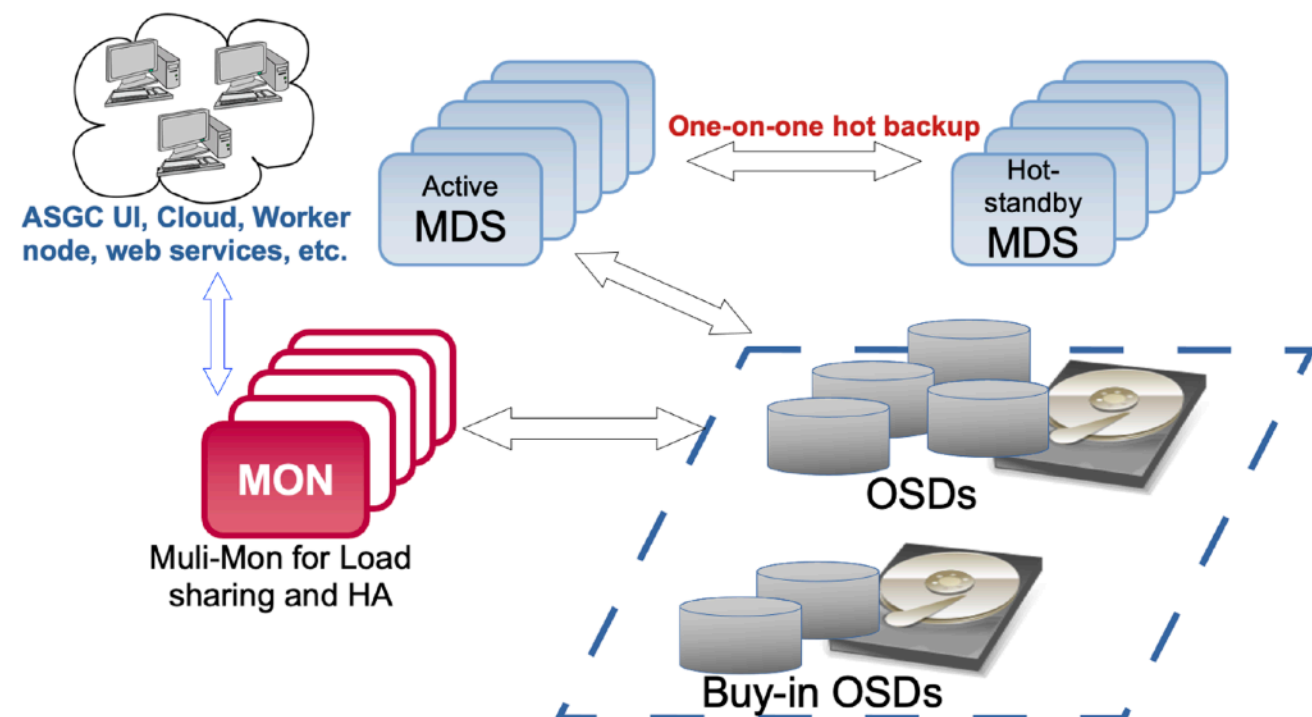
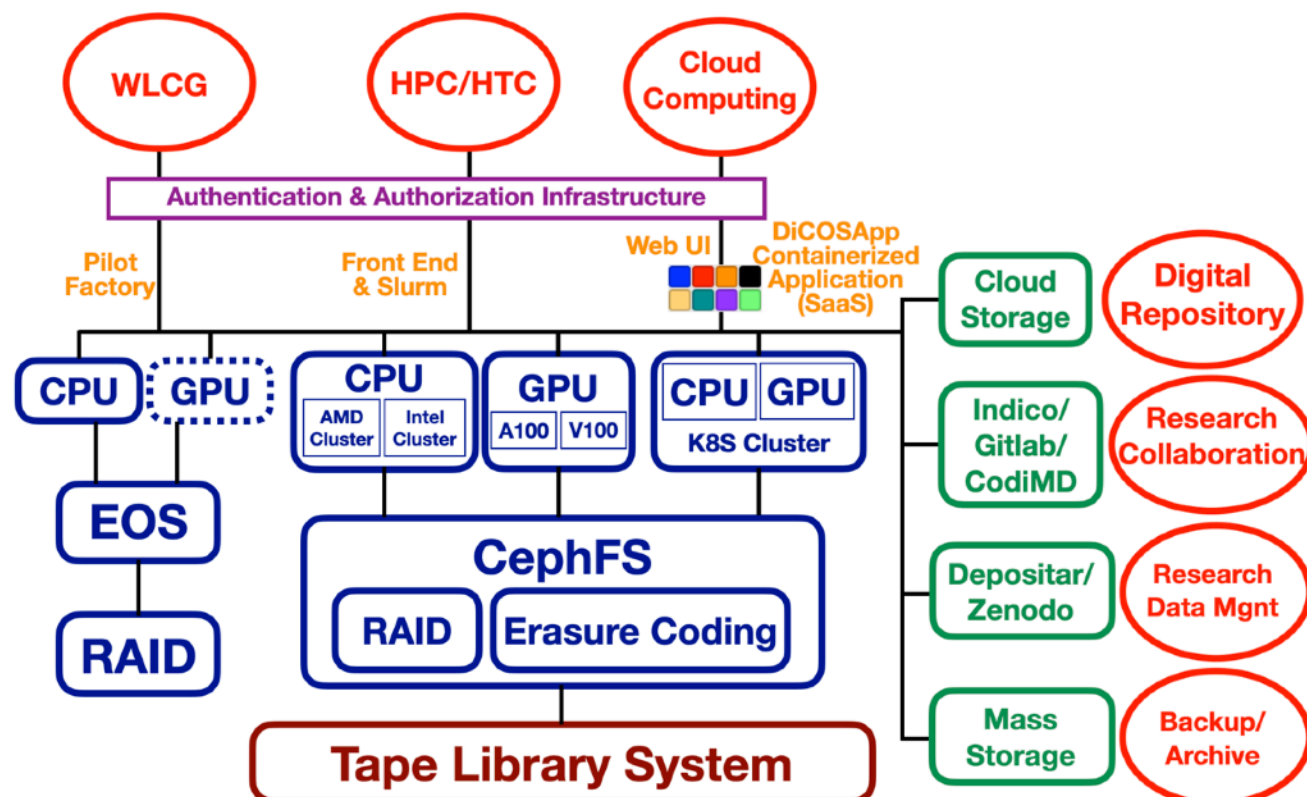
NSTCCore and ASGC - Leveraging Science Cloud for Accelerating Discovery & Innovation

- **Mission of Academia Sinica Grid Computing Centre (ASGC): Medium-scale scientific computing with customized services**
 - funded by both National Science & Technology Council and Academia Sinica
 - 24x7x365, part of the AS research infrastructure
 - Collaborating with scientific community/ Labs of all disciplines
- **Scope: large-scale vs long-tail, HTC, HPC, BDA, AI, and research data management etc.**
 - Applications could overflow to the Large-scale HPC resources - e.g., National Center for High-Performance Computing (NCHC) in Taiwan or international collaboration research infrastructure
- **Let scientists focus on sciences - Science Cloud provides customized services by integrating computing model (algorithms), data and computing facility**
- **Vision - Sustainability**
 - Reliability and Efficiency are the key objectives
- **Challenges: complex and rapidly evolving ecosystems**



ASGC Science Cloud Architecture

- Common infrastructure based on WLCG core technology
 - Keep evolving alongside with ICT and User Requirements
- Common distributed infrastructure: NSTCCore and AS Science Cloud
 - Federation of distributed institute resources
 - Federation of core facilities (including CryoEM, NSRRC, NMR, computing centre, etc.)
- Web-based Cloud services & Slurm clusters are provided
- Ceph distributed storage system is serving as the common data pool
 - Scalable from O(10)TB in 2012 to 14PB in 2025
 - Tape storage (8 PB) is mainly for long-term backup and rarely used datasets
- Finished 5M CPU jobs and 54K GPU jobs in 2024
- Resource: 16K CPU Cores, 213 GPU, 27 PB Disk, 500+ host, 5PB transferred/yr





Information Services

- **TWAF**
 - <https://twaf.grid.sinica.edu.tw>
 - Contact: twaf@twgrid.org
 - TWAF-Support@list.grid.sinica.edu.tw
- **NSTCCore Facility Services**
 - <https://nstccore.twgrid.org>
- **ASGC**
 - Web Site: <https://www.twgrid.org>
 - Access to ASGC Resources
 - <https://dicos.grid.sinica.edu.tw/>
 - Contact point: DiCOS-Support@twgrid.org
- **Resources**
 - Geant eduGAIN
 - APAN IAM Working Group: support of buildup of SAML2 and other federation services in Asia joining with eduGAIN and based on the REFEDS profiles.