

# The National AAI Pathfinder Pilot

A project funded by the Research Councils and JISC to develop a simplified access and user management service for the UK's research computing community.

March 2017

# Why are we doing this

- The UK National eInfrastructure is now in a position to greatly simplify its access control infrastructure to a range of services such as Cloud, data services, HPC and Grid computing
- **Simplified sign-on** reducing need for multiple credentials
- **Flexible deployment models** Assent can be deployed using any model (centralised, distributed, Cloud).
- **Minimal ongoing management** and specific communities are able to manage it themselves.
- **Standards based** – all protocols are international (IETF) standards

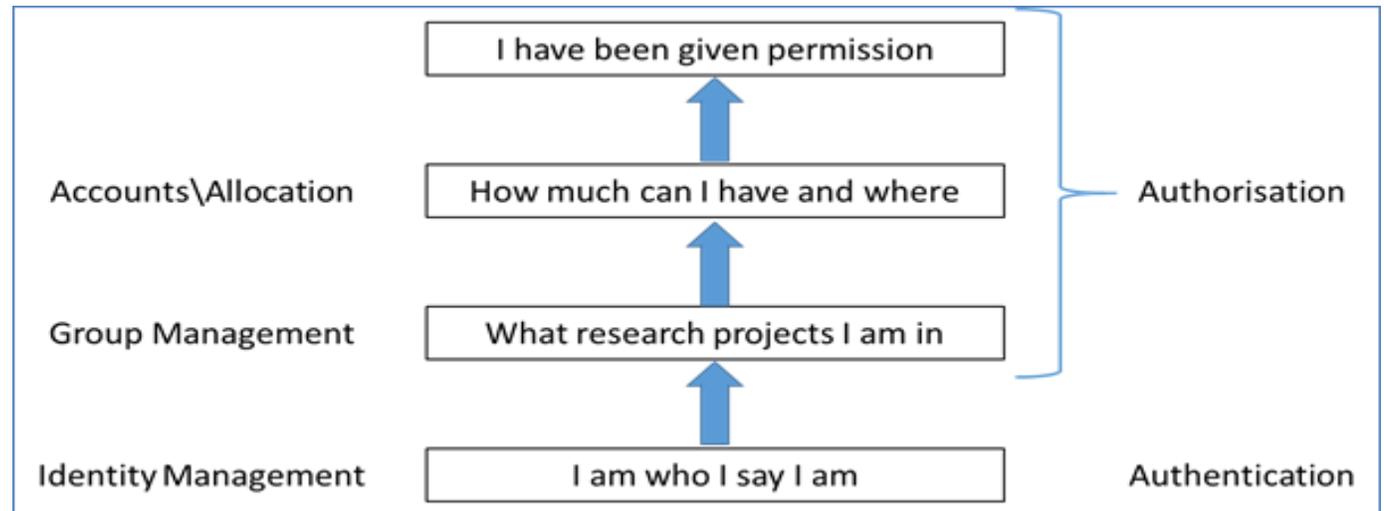
# Benefits for research communities

- **More applications and services to be accessed via a federated identity.** Assent extends the range of applications and services that can consume federated identity and improves the security of your services by controlling access to resources.
- **Lower operational costs** by using existing infrastructure to unify all of our trust technologies and drive down operational costs. This reduces the cost and time to create new services and minimises the administration associated with providing secure user access to resources.
- **Builds on existing technologies.** Assent builds on the existing technologies that underpin eduroam and the UK Access Management Federation services.
- **The UK to federate efficiently with non-UK and International projects** that use other access control technologies such as X509 certificates. The need for federated identity management to support research and promote collaborations is widely recognised

# Pathfinder AAAI Project - Sep 2016 to June 2017

Jisc's Assent service, to provide users with a common, single sign on mechanism **that integrates with institutional identity management systems to confirm a researcher's identity**; and its peer systems overseas.

A High Assurance Network and two-factor authentication, where appropriate, for secure data access and transport e.g. JISC's SafeShare service.



Existing virtual organisation (VO) systems, such as the EPPC's SAFE management infrastructure.

The outputs will be secure and very secure versions of a common AAAI application which integrates Assent and SAFE. This will also be able to federate with SAML and X.509 identity management systems which is a requirement for international collaborations.

- A series of Pilots will produce common prototype applications and services that facilitate the Authentication, Authorisation and Accounting Infrastructure (AAAI)
- These Pilots will demonstrate
  - Successful use of a common AAAI in the field for Engineering, Physical Sciences and Medical Health research
  - Successful use of a common AAAI in the context of HEI service delivery
  - Successful use of a common AAAI when federating with international services and research projects
- This common AAAI will include services to facilitate secure data access for health, government and business data.
- A technical architecture and business case will be produced to construct and operate a National AAAI Service, which will facilitate a common AAAI for all Nel Projects in the RCUK domain. It will enable secure access and use by third parties such as Government and Business.

# What is it made of?

- Users will be provided with a common interface and single-sign-on features.
- This will use institutional HR data to confirm a researcher's identity
  - **This is the Jisc Assent Service.**
- We are leveraging existing virtual organisation systems such as the National Service SAFE management infrastructure.
- Data and resources can be securely shared between projects irrespective of researcher location.
- Where information security is paramount, such as health and government records, data are automatically encrypted prior to transfer.
  - **This is the JISC Safe Share project.**
- Opens door to integration of main Nel projects
  - Single Sign on: Removes a major barrier to access for users
  - Enables hardware to be shared across domains
  - From a service provider perspective this encourages aggregation and pooling of resources
  - Allows cloud and data services to work effectively, efficiently and appropriately
    - You know who I am, what I can do, how I'll be measured, and where I live
- In addition, the EPCC SAFE framework provides the complementary capabilities of accounting and resource management of computing facilities. This makes it ideal for this pilot
- The related Jisc Safe Share project will soon provide a Higher Assurance Network and support two-factor authentication for projects requiring additional security.

# Meet the team

- Josh Howlett, Jeremy Yates, Jacky Pallas, Kostas Kavoussanakis, Stephen Booth, Richard Sanders, Gareth Francis, Stefan Paetow, Lydia Heck, Stuart Rankin, David Fergusson, Bruno Silva, Stephen Young, Dugan Witherick, Jens Jensen, Alan Real, Andrew Sansum, Mark Parsons
- JISC, EPCC, RAL, Durham, eMedLab, Sanger, QMUL, Cambridge, Oxford, Crick

# Work Packages

1. Work package 1: Integration of SAFE with Assent
2. Work package 2: Local deployment pilot
3. Work package 3: Assent integration with Virtual Organisation infrastructure
4. Work package 4: Productisation

# Outputs

1. A pilot AAI infrastructure comprising multiple sites and projects, built on existing assets and capabilities, tested in the following production settings:
  - A University HPC ecosystem – University of Oxford
  - A Regional HPC ecosystem – N8
  - A national HPC ecosystem – DiRAC
  - A Secure Ecosystem – eMedLab
2. Demonstration of interoperability with other non-SAFE and non-Assent technologies. This is necessary for gaining access to non-UK resources e.g. wLCG, Elixir, EGI, EUDAT, PRACE.
3. A route towards productisation of the outputs and findings of the pathfinder through a Technical Architecture and a Business Case for a future national AAI.

# Milestones

Reporting Point: Month End		Work Package	Outputs
	2	WP1.1	Setting up Assent for use at eMedLab, N8 and DiRAC
	3	WP1.2	Identity Provider service prototype completed. Report on use at DiRAC site
	2	WP1.3	Prototype Application that combines SAFE and Assent, Report on use at eMedLab & N8
	5	WP2	WP2: Report on Application of SAFE to managing projects at local HPC facilities
	5	WP3.1	WP3.1: Prototype SAFE+Assent that can use SAML. This will allow Virtual Organisations to manage authorisation for Assent-based authentication.
	8	WP3.2	WP3.2: Construct a working API that will bridge Assent with other authentication technologies, such as X.509. Report on 3.1 and 3.2 progress.
<b>Final Report</b>	10	WP4.1 and WP4.2	Technical Architecture and Business Case for proposed National AAI Service

# Progress (March 2017)

Work Package	Progress	What this means
WP 1.1	Completed	Set up Assent at Durham and Edinburgh. Integrated SAFE and Assent and tested at Durham
WP 1.2	Completed	Assent IdP set up by EPCC. Can generate attributes without reference to HEIs. Helpful for non academic users
WP 1.3	Delayed	Testing Assent and SAFE in a secure environment and on an OpenStack system; eMedLab, Crick, QMUL, Sanger are installing Assent, OSP upgrade delayed testing until May 2017
WP 2	Will start in May 17	Use Assent and SAFE in a HEI environment
WP 3.1	Completed	DiRAC SAFE can provide user attributes to Assent. OpenSAML attribute authority was linked to SAFE database and can be linked to Assent
WP 3.2	Started March 24th	Deliver a <i>credential conversion service</i> that enables users with sufficiently high levels of assurance (through their Assent IdP) to obtain a certificate from an IGTF CA
WP 4.1, WP4.2	Started	Consultation on business model with NeI PDG and HPC-SIG members

# Summary

- Seven Research Councils and JISC have committed funding and resource to a National AAI Pathfinder Pilot
- Benefits to the research community include simplified sign-on (users) and streamlined user management (infrastructure providers)
- The pilot integrates existing services and software and is testing this in a range of environments
  - University, regional resource, private cloud, industry, international links
- Scale-up and sustainability addressed through a robust evaluation of a business case