



**National Federated
Compute Services**
NetworkPlus

Spring Conference
26-27 February 2026

Tokenised Authentication for Research Computing

Philip Cass





Project team

Kieran Leach

Jordan Bell

Philip Cass

James Richings

William Lucas

Dave McKay

Principal Investigator

NFS Integration Developer

Slurm Integration Developer

VM Integration Tester

VM Integration Tester

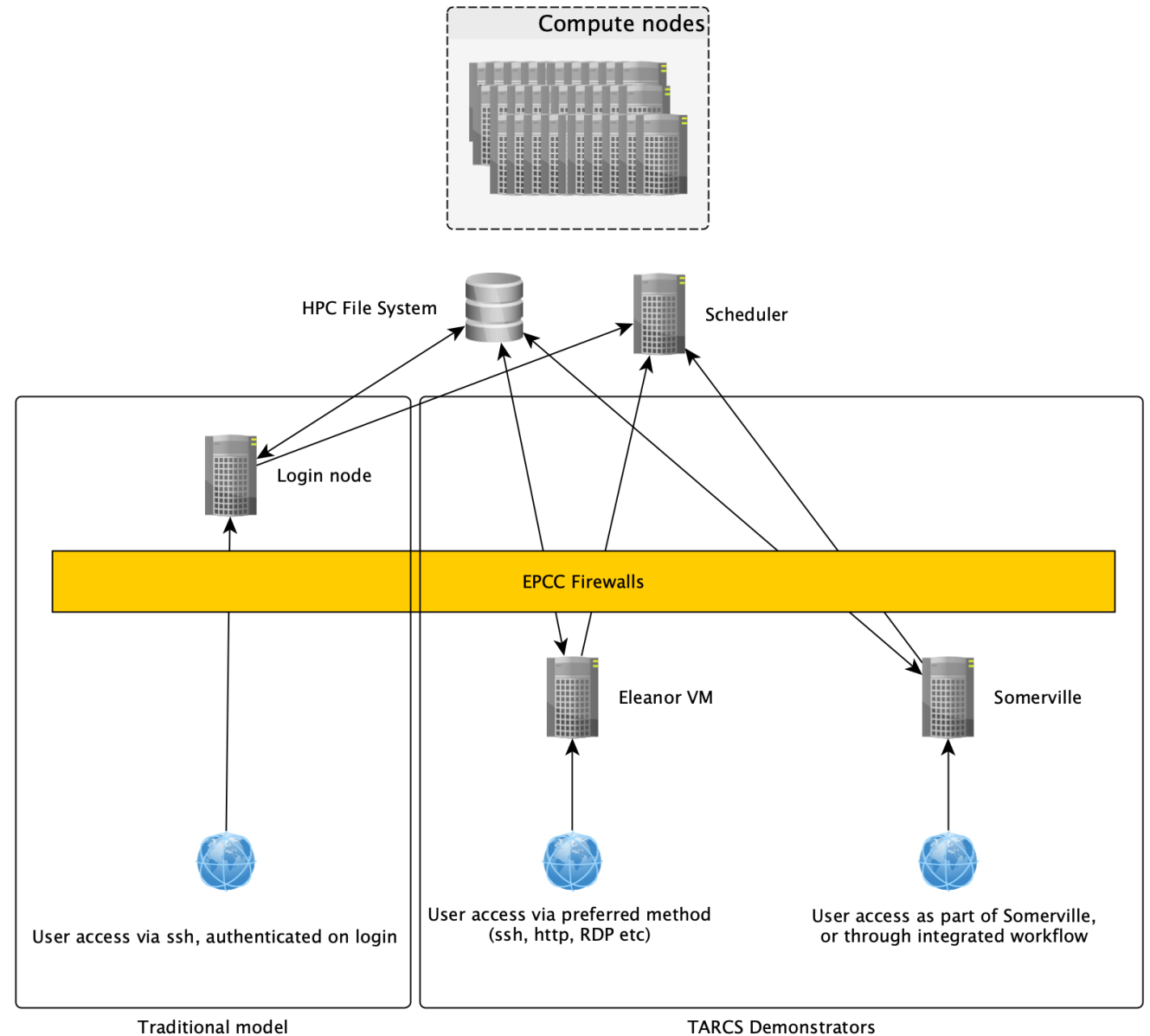
Somerville Integration Tester

Concept

We believe that using tokenised authentication we can enable novel workflows and capability

The traditional HPC model provides a login node on which a user has un-privileged access. This limits the scope of services users can deploy.

We propose to demonstrate providing the services traditionally accessed via login nodes via tokenised authentication.





Objectives

Our goals are to:

- Demonstrate provision of research computing services (file system, scheduler) via tokenised authentication across multiple infrastructures
- Capture experiences, challenges and risks
- Present recommendations for the roadmap regarding tokenised authentication, and potentially for future activities





Activities

- We are currently working to provide the file system and scheduler services of the EPCC Cirrus service via tokenised authentication
- The Lustre file system will be made available via a kerberised NFS gateway
- The Slurm scheduler will be made available via the Slurm REST API





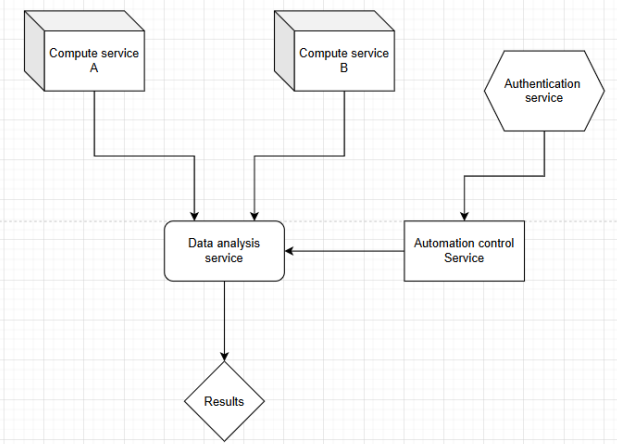
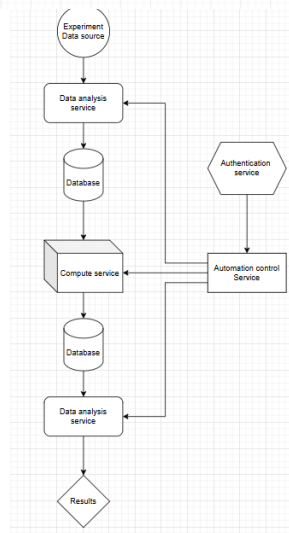
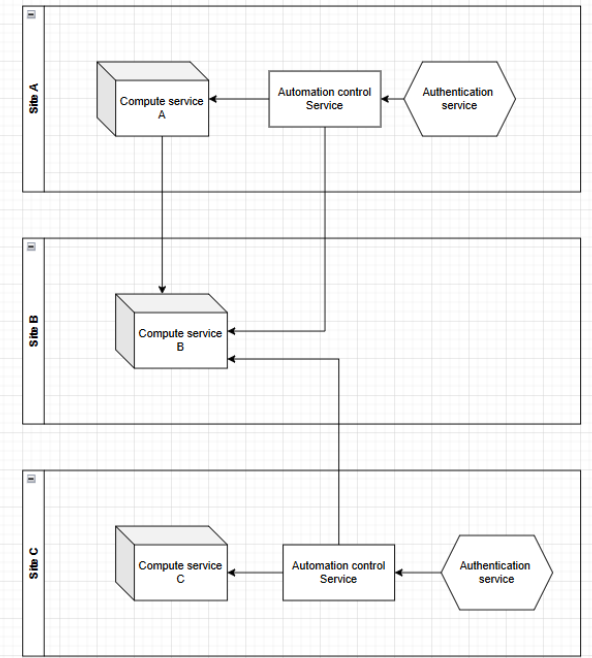
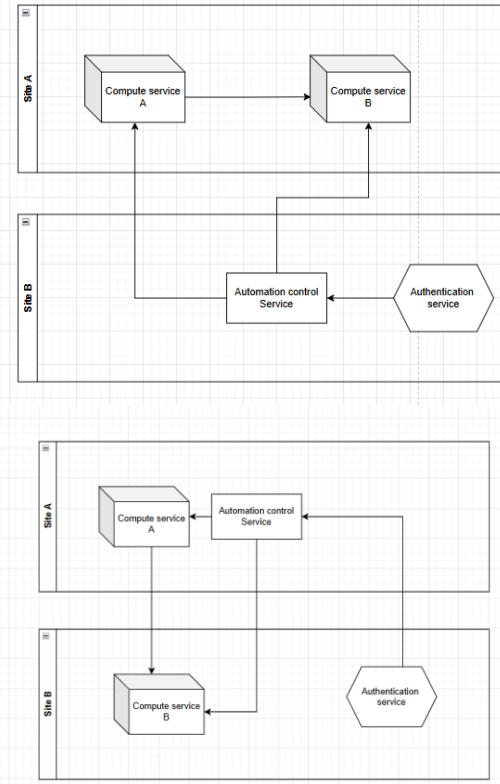
Activities

- With Cirrus services made available by tokenised authentication these will be mounted to and test against both **VMs** and the **IRIS Somerville** facility
- VMs will be hosted in the EPCC Edinburgh International Data Facility and University of Edinburgh Eleanor VM hosting services
- The IRIS Somerville facility is an on-premises cloud platform designed to support data-intensive use cases from survey astronomy, including very large databases (with trillions of records) and real-time data streaming and analysis.



Activities

- With setup complete the integration testers will explore a variety of workflows
- On Somerville this will explore the capacity for integrating HPC capability into existing cloud platform workflows
- On the VMs this is expected to explore a variety of potential user workflows and services which might be deployed
- Throughout this work integration testers will capture experiences and challenges



Questions?

