



**National Federated
Compute Services**
NetworkPlus

Spring Conference
26-27 February 2026

Job Orchestration on Heterogenous systems

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Project team

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Goals:

Simplify access to multiple heterogenous systems (for example DiRAC).

- Access currently via separate login on each system.
- Each system has own authentication/authorisation/policies – how do we unify these?

Understand requirements for commercial/industrial access to systems:

- Security, confidentiality
- Ease of management – delegate management of project membership across systems to project PI?
- Reporting – easy reporting of usage to project PIs, system managers.
- Use cases – fit small jobs into dead time on nodes, provide allocations for full access where needed.

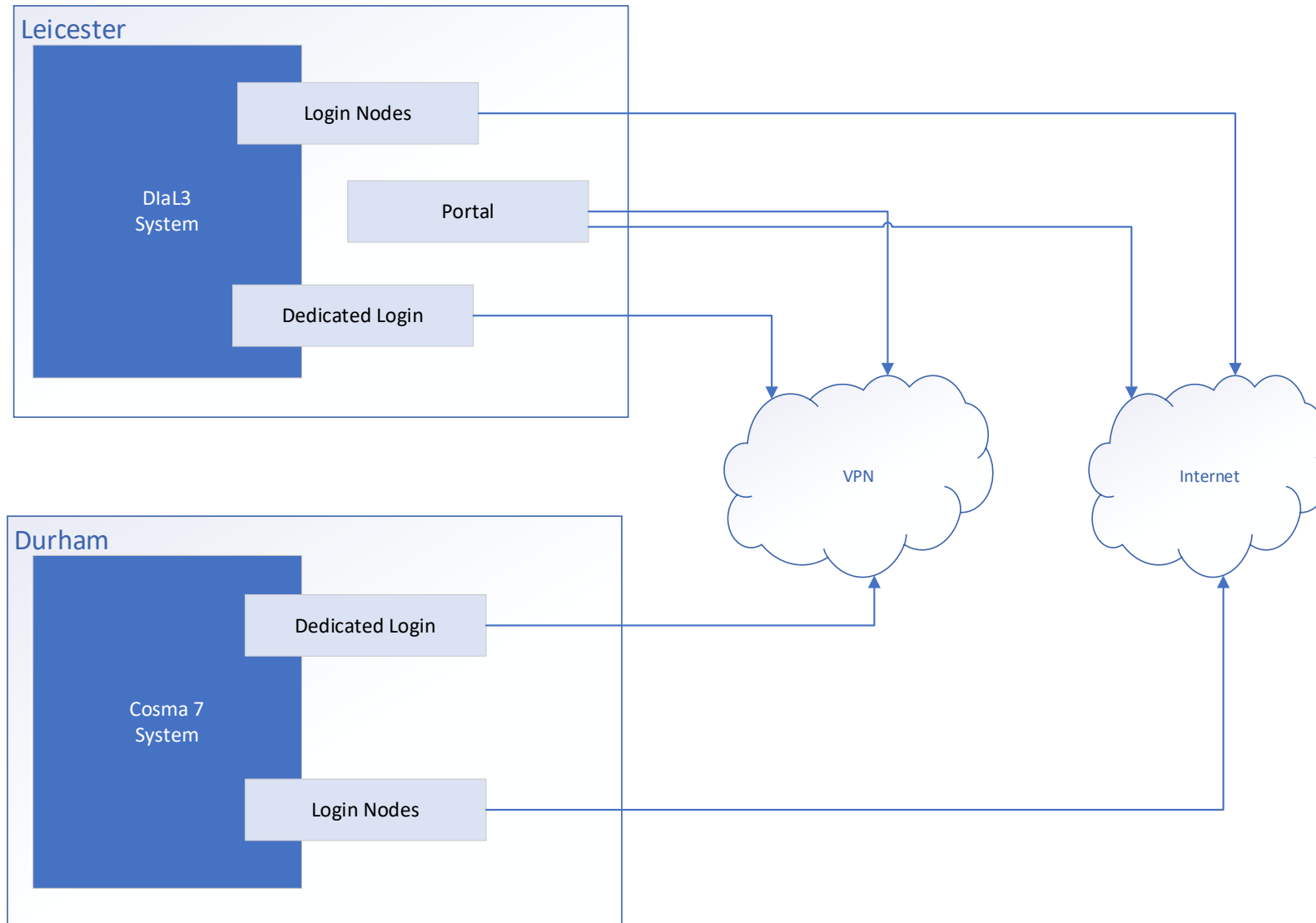


Proof Of Concept System

PoC Federated submission and management of jobs

- Initial PoC to provide access to DiRAC Data Intensive and Memory Intensive systems (at Leicester and Durham, respectively).
- Demonstrate unified sign in, submission and management of jobs across multiple systems through a single shared portal (using ConstelCom's Constellation® software).
- Demonstrate visualisation capability without needing client software beyond a web browser.
- Authentication delegated to the access portal, authorisation retained at system level
- Demonstrate project management capabilities: PIs need to be able to manage user access to their projects and have access to usage and allocation reports.
- Test cases – user stories from both commercial and academic research projects.

PoC - design





Outcomes

PoC demonstrating:

- Improved ease of access to multiple HPC systems via single sign-on portal.
- Management and visibility of access and usage for project PIs.
- Reduced barriers to access to HPC systems. Quick turnaround for getting jobs running.
- Visualisation of results via web portal.
- Demonstrate project management capabilities: PIs need to be able to manage user access to their projects and have access to usage and allocation reports.



Outcomes

Additional Reports:

- Review of available open source and commercial options.
- Security considerations.
- User stories.
- Requirements for integration into SAFE

Stretch goals:

- Integration of file transfer into PoC.
- Investigate integration into OpenStack cloud for researcher services at Durham and Leicester.



Progress

Complete:

- Virtualised login node/constellation server set up at Leicester
- Constellation installed and tested at Leicester using test account/project.
- Agreement between stakeholders on how users and projects will integrate into SAFE and map to local users and projects and how authorisation will be handled.

In Progress:

- Installation of virtualised login node and Durham and VPN to connect sites.
- Get SAFE groups set up and test user/group creation/removal/change procedures
- Installing software for test cases.