

Simplifying the researcher experience at peak HPC facilities with federation

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Several international federations have developed tools to connect HPC services to their national federation. Uptake is limited since solutions are often complex, only partially address the problem and require significant change to researcher's workflows.

In 2019 the Pawsey Supercomputer Centre and the Australian Access Federation partnered to improve the integration of high performance computing facilities with other federated services, and identify how researchers would benefit. The activity was expanded in the course of the project to include NCI and QCIF.

PROJECT SCOPE

The project:

1. Identified and documented a series of researcher use cases

The team first developed a clear picture of how researchers use HPC facilities and determined where introducing federated authentication will assist researchers. Data was collected from interviews with 20 researchers at various stages of their research careers. The researchers represented a diverse range of organisations, research areas, and information technology proficiency levels.

2. Identified potential solutions

The project team identified solutions that will streamline one or more identified use cases. In this process, we investigated solutions used by other Australian HPC service providers and European eResearch facilities. The project team created an evaluation matrix. This matrix was then applied to candidate solutions to determine the best options.

3. Developed an action plan

The final stage of the project developed recommendations for the most promising solutions. The assessment included costings and estimates for implementing the solutions in a national HPC facility. Recommended solutions will be considered as part of future implementation projects.

CONCLUSIONS

We found several HPC-related services are straightforward to connect to the AAF and doing so will simplify workflows for researchers.

But as is often the case, the initial proposition is not always the right place to start addressing the problem. We found several improvements are technically straightforward to implement but will require a coordinated approach across service providers if the benefit to researchers is to be realised.

This presentation will:

- Explain the most common use cases gathered from researchers using national HPC facilities
- Describe the most promising solutions other providers have used to integrate HPC services with research and education federations (nationally and internationally)
- explore broader initiatives that could improve HPC service provision for researchers; and
- outline Pawsey's plans to pilot and adopt the most promising solution candidates (such solutions may be applicable for other eResearch service providers)