



Position Description

College/Division:	Research and Innovation Portfolio
Faculty/School/Centre:	National Computational Infrastructure (NCI)
Department/Unit:	Innovative Compute Environments
Position Title:	Senior HPC Systems Specialist
Classification:	ANU Senior Manager 1
Responsible to:	HPC Systems Manager

PURPOSE STATEMENT:

NCI is Australia's leading national provider of high-end computational and data-intensive services, with a highly respected reputation for its services, expertise and innovation. It forms an integral part of the Australian Government's research infrastructure strategy, and is engaged with, and embedded in research communities, high-impact research centres, and research institutions nationally. NCI is an operating unit of the Australian National University and is built on and sustained by a formal collaboration of national research organisations, ANU, CSIRO, Bureau of Meteorology, Geoscience Australia, other research-intensive universities, and medical research support organisations nationally.

The Senior HPC Systems Specialist will play a key role in the planning, configuration and implementation of a large scalable HPC facility, show leadership in the design, development and implementation of systems software for a petascale HPC and HPD systems, and play an essential role in enhancing the provision of HPC services at NCI, and in the identification, analysis and mitigation of risks associated with HPC and HPD operations at the petascale.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Senior HPC Systems Specialist at the NCI National Facility (a) focuses on the delivery of efficient, effective and secure HPC operations, (b) takes a leading role in the design and planning of HPC and HPD systems software (operating and file systems software), and (c) contributes to strategy development in infrastructure planning and sustainable deployment practices.

The position will be part of a team and work closely under the direction HPC Systems manager and the Associate Director HPC. The position will also work closely with other members of the Innovative Compute Environments team as well as colleagues across NCI in particular the HPC Systems Team, Cloud team and Storage Systems Team. There will also be significant working relationships with the staff of the ANU Division of Information, in the areas of networking, security and data centre management.

Role Statement:

Reporting to the NCI HPC Systems Manager, the Senior HPC Systems Specialist will perform the following duties:

1. Lead the design (together with the HPC Systems Manager), development and implementation of system software management on HPC and HPD systems, and, as applicable, to other NCI National Facility systems.
2. Contribute in a substantial way to the planning, configuration and implementation of large, preformat scalable HPC and HPD systems (i.e. at the petascale) by focusing on tuning operating system kernels and large file system development in order to meet the NCI longer term strategies for sustainable deployment practices.
3. Undertake ongoing investigation and detailed analysis of the overall HPC and HPD system performance, and reliability and develop and implement strategies that improve the provision of HPC services.
4. Identify risks associated with petascale operations, and develop and implement technical policies and processes to manage risk.
5. Together with the HPC Systems Manager, provide expert technical advice and assessments on HPC and

HPD system matters to NCI's management team and its national collaborators, and provide guidance and mentoring to NCI technical support staff.

6. Maintain detailed knowledge of best-practices in petascale system integration and management, and an awareness of relevant state-of-the-art technologies that might be applied to current and future HPC or HPD systems.
7. Other duties as appropriate to this classification and as directed.

See the [classification descriptors for professional staff](#) and [minimum standards for academic staff](#)

SELECTION CRITERIA:

8. Preferably a postgraduate degree, with extensive relevant experience, or an equivalent combination of education, training and experience demonstrating the capacity to undertake the role
9. Demonstrated high level of knowledge and extensive experience in the core aspects of very large scale HPC systems (including cluster file systems, high performance interconnects, and operating systems).
10. Demonstrated high level of knowledge and experience in planning, configuring, deploying, operating and maintaining petascale HPC and HPD systems that provide high-level computational services to researchers nationally.
11. High level of understanding, and ability to manage, the issues and risks of HPC, HPD and system operations including reliability and high level security and complex fault management.
12. Demonstrated knowledge and extensive experience of performance issues and tuning operating system kernels for large-scale systems, particularly system scalability and parallel file systems.
13. Solid understanding of the needs and priorities of contemporary research that relies on computational science techniques and methods, and particularly for large-scale parallel applications.
14. Demonstrated high level oral and written communication skills; including a proven ability to: plan and write high quality reports, assessments and documentation; work within a team; and adapt to change as infrastructure and service requirements evolve.
15. A demonstrated high level of understanding of equal opportunity principles and a commitment to the application of EO policies in a university context.

The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the [Background Checking Procedure](#) which sets out the types of checks required by each type of position.

Supervisor/Delegate Signature:		Date:	
Printed Name:		Uni ID:	

References:

[Professional Staff Classification Descriptors](#)

[Academic Minimum Standards](#)