Position Description

Australian National University

College/Division:	Deputy Vice-Chancellor (Research and Innovation)
Faculty/School/Centre:	National Computational Infrastructure (NCI)
Department/Unit:	
Position Title:	Senior HPC Systems Specialist
Classification:	Senior Manager 1 (IT)
Position No:	24611
Responsible to:	HPC and Cloud Systems Manager
Number of positions that report to this role:	TBA
Delegation(s) Assigned:	TBA

PURPOSE STATEMENT:

National Computational Infrastructure (NCI) is Australia's leading national provider of high-end computational and data-intensive services, with a well-respected reputation for its services, expertise and innovation. 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 eResearch 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. The position will 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 of Senior HPC Systems Specialist reports to the Manager, HPC and Cloud Systems, within the portfolio of responsibilities of the Associate Director (Services and Technologies). In undertaking their work, the incumbent to this position will work closely with other members of the NCI team, particularly the HPC and Cloud Team, and also the Data Storage Team. There will also be significant working relationships with the staff of the ANU Information Technology Services, in the areas of networking, security and data centre management.

Role Statement:

Under broad direction, the Senior HPC Systems Specialist:

1. Lead the design (together with the HPC and Cloud Systems Manager), the development and the 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, reliability and develop and implement strategies, which 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 and Cloud 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. Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity.
8. Perform other duties as required, consistent with the classification of the position and in line with the principle of multi-skilling.

SELECTION CRITERIA:

1. Preferably a postgraduate degree, with extensive relevant experience, or an equivalent combination of education, training and experience demonstrating the capacity to undertake the role
2. 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).
3. Demonstrated high level of knowledge and experience in planning, configuring, deploying and maintaining petascale HPC and HPD systems that provide high-level computational services to researchers nationally.
4. 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.
5. Demonstrated knowledge and extensive experience of performance issues and tuning operating system kernels for large-scale systems, particularly system scalability and parallel file systems.
6. 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.
7. 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.
8. A demonstrated high level of understanding of equal opportunity principles and a commitment to the application of EO policies in a university context.

Supervisor/Delegate Signature:		Date:	
Printed Name:	Prof Sean Smith	**Uni ID:**	u1056946

References:

General Staff Classification Descriptors

Academic Minimum Standards

Australian National University

Pre-Employment Work Environment Report

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Position No.	TBA	**Reference No.**	

In accordance with the Occupational Health and Safety Act 1991 the University has a duty of care to provide a safe workplace for all staff.

- This form must be completed by the supervisor of the advertised position and forwarded with the job requisition to Appointments and Promotions Branch, Human Resources Division. Without this form jobs cannot be advertised.

- This form is used to advise potential applicants of work environment issues prior to application.

- Once an applicant has been selected for the position consideration should be given to their inclusion on the University's Health Surveillance Program where appropriate – see . http://info.anu.edu.au/hr/OHS/__Health_Surveillance_Program/index.asp Enrolment on relevant OHS training courses should also be arranged – see http://info.anu.edu.au/hr/Training_and_Development/OHS_Training/index.asp

- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see ' Employment Medical Procedures' at http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp

Potential Hazards

- Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a **regular** or **occasional** part of the duties.

TASK	regular	occasional	TASK	regular	occasional
key boarding	☒	☐	laboratory work	☐	☐
lifting, manual handling	☐	☒	work at heights	☐	☐
repetitive manual tasks	☐	☒	work in confined spaces	☐	☐
catering / food preparation	☐	☐	noise / vibration	☒	☐
fieldwork & travel	☐	☒	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☐	☐	nuclear particles	☐	☐
laser	☐	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☐	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor's Signature:		Print Name:	Muhammad Atif	Date:	