Grant Funded Opportunity:
System Administrator, High Performance Computing Virtual Laboratory (HPCVL)
CARLETON UNIVERSITY

Job Summary:

This grant funded position will report to the Manager of Research Computing Services (RCS). As the System Administrator, HPCVL provides scientific and technical support to researchers utilizing HPC at Carleton, working in close collaboration with the Carleton University Research Office (CURO). This position is one of 2 direct reports to the Manager of Research Computing Services (RCS). The other position is: System Administrator, Research Computing. While the Research Computing group will remain small, the scope and influence of this position should not be underestimated.

This work may include developing new or enhancing existing programs, helping in the porting of computer codes, assisting and giving advice regarding the adapting of mathematical techniques to the parallel programming environment, and advising on the appropriate methods and models for database construction and use. Maintains and supports the HPCVL computer and data systems at Carleton University, and provides uninterrupted high performance computing environment to HPCVL users while ensuring that HPCVL policies and services (e.g., security) are implemented and observed.

Roster of Duties:

Systems Support:

• Works strategically and collaboratively with all information technology areas involved in successful research support and with research and technology leaders at schools and departments throughout the University.
• Participates in regular meetings between the RCS group and CURO
• Collaborates with stakeholders, CURO and CCS management to review, plan, recommend and coordinate changes to assure a smooth transition of change management and effectively communicate project status and major initiatives.
• Contributes to synergies across the University to increase IT productivity
• Identifies, evaluates, and implements technologies to significantly improve research support services.
• Ensures systems and applications designs that are scalable, reliable, and secure.
• Assesses and develops research tools including: collaborative data analysis, computational performance, data storage, and research collaboration.
• Additionally, the System Administrator, HPCVL collaborates with other research support entities at the University.

Research Activity Support:

• Tutors and supports scientific researchers, staff and students regarding High-Performance Computing (HPC) and Advanced Research Computing (ARC) resources.
• Consult and interact with faculty and their research groups to enable them to fully utilize the ARC resources for their scientific research.
• Assist researchers with the porting and optimization of applications.
• Design, create and present tutorials, hands-on workshops, and documentation to support the research community.
• Take a pro-active approach in communicating the unique research potential of the ARC. Respond quickly to user questions and problems.
Help faculty with grant proposals by contributing sections of the proposal that describe the interplay between their research and ARC resources.

Support HPCVL:
- Provide system design and programming expertise to HPCVL and HPCVL users
- Plan and coordinate the installation and integration of new systems, packages, and upgrades over all HPCVL systems
- Help implement, manage, and maintain HPCVL policies
- Ensure backup and recovery systems are operational
- Perform troubleshooting when and where required
- Ensure that outstanding operational problems are addressed on a daily basis
- Write technical documents for program maintenance & non-technical documents for end-user support
- Decide on timing for resolving systems problems
- Develop timely solutions to avoid major problems caused by systems failure
- Manage access control procedures
- Maintain the operation and integrity of systems and plan the allocation of resources to expand and enhance the environment
- Evaluate technology and make recommendations
- Maintain the HPCVL lab (equipment, users etc.)
- Undertake other duties as required.

Education and Experience Requirements:
- Graduate degree, either a Master (with thesis) or PhD in Computer Science, Computer Engineering or related field is required.
- 3-5+ years of progressive information technology experience in research systems engineering, research focused environment or a related field.

Required skill sets:
- Applicants must have experience supporting research or cloud computing platforms.
- Knowledge of scientific computer programming languages, such as, FORTRAN, C, and C++, Java and parallel programming protocols such as MPI and OpenMP.
- Demonstrated expertise in Unix environments (experience with Solaris is highly desirable)
- Demonstrated knowledge and understanding of web services, networking (TCP/IP)
- Demonstrated experience of participation in multi-disciplinary research projects.
- Demonstrated ability to work in a client-centered environment.
- Demonstrated ability to learn new technologies
- Demonstrated team work abilities with experience in managing multiple information technology teams with data management experience.
- Ability to work under pressure, time constraints, and to handle/manage numerous tasks effectively
- Experience with project management, methodologies and systems implementation.
- Expert knowledge of technology, applications and interfaces designed to support research.
- Strong written and verbal communication skills and the ability to interact effectively with senior faculty and high level executives. Technical/scientific writing skills, and communication skills in order to facilitate information sharing.
• Must have extensive system administration experience in large distributed computing environments.
• Ability to develop and maintain programs and scripts that aid in the operation and automation of administrative tasks using various shell and scripting languages (bash, Perl, Python).
• Must be able to read, analyze, and interpret professional journals and technical documentation.
• Must be able to write reports, procedures, manuals, and technical documentation and must have the ability to effectively present information and respond to questions from faculty, students, staff, and other IT professionals.
• Requires the ability to work independently and with minimal supervision and requires excellent organizational skills
• Must have excellent interpersonal communication skills, negotiation skills, and advanced knowledge of computer management methodologies
• Must have an excellent ability to analyze client needs as they relate to computing and network technology.
• Must be able to stay-on-top of advancements in computer software, which includes computer languages, operating systems, and client and server software.
• Utmost confidentiality required when dealing with sensitive research related information.
• Must be diligent to maintain system and information integrity.
• Will be expected to be "on call" as required and to work outside of regular business hours in order to complete specific work or to resolve problems.

Contact Information:

Dr. Sylvain Pitre
Manager, Research Computing Services
Computing and Communication Services
Carleton University
1125 Colonel By Drive
Ottawa, Ontario
K1S 5B6
sylvain.pitre@carleton.ca