![USC University of Southern California]

Lead Engineer, High Performance Computing
Job Description

JOB INFORMATION

Job Code:	166903
Job Title:	Lead Engineer, High Performance Computing
FLSA Status:	Exempt
Supervisory:	May supervise staff, student, temporary or resource workers.
Job Family:	Systems Engineering
Job Family Group:	Information Technology
Management Level:	7 Individual Contributor

JOB SUMMARY

Responsible for system design and planning, implementation, performance improvement, security and maintenance of high-performance computing infrastructure. Builds, manages and mentors a team of engineers delivering innovative research solutions.

JOB QUALIFICATIONS:

Education

Req	Pref	Degree	Field of Study	
X		Bachelor's degree		
	X	Bachelor's degree	Computer Science	Or
	X	Bachelor's degree	Computer Information Systems	Or
	X	Bachelor's degree	Information System Management - Network Management	Or
	X	Bachelor's degree	in related field(s)	

Additional Education

Check here if experience may substitute for some of the above education.

X	Combined experience/education as substitute for minimum education

Work Experience

Req	Pref	Work Experience	Experience Level	
X		6 years		
	X	8 years		

Additional Work Experience

Check here if education may substitute for some of the above work experience.

	Combined experience/education as substitute for minimum work experience

Knowledge, Skills and Abilities

Req	Pref	Functional Skills
X		Extensive experience in administration, monitoring, and maintaining secure Linux/Unix operating systems in HPC environments.
X		Proficiency with low-latency/high-bandwidth, interconnected infrastructure (e.g., Infiniband, 10/100GigE).
X		Expertise with HPC system software cluster management/provisioning tools (e.g., Lmod/Module system, Ansible/Salt) and job schedulers (e.g., Slurm).
X		Demonstrated expertise in design configuration and planning.
X		Experience establishing processes for maintaining system performance and managing best-in-class standards.
X		Proficiency with fundamental programming languages/skills (e.g., Bash, PERL, Python).
X		Knowledge of HPC storage principles, file systems and computer node storage.
X		Proficiency in shared and distributed memory parallelism (e.g., OpenMP, MPI) and accelerators.
X		Excellent written and oral communication skills, and the ability to establish positive working relationships and rapport with diverse groups.
X		Demonstrated experience leading project planning, with the ability to drive technical leadership and management of complex, large-scale computing system projects.
X		Expertise with multi-vendor management, security and network/Internet protocols.
X		Excellent organization skills.
X		Ability to identify and resolve problems and manage performance.
	X	Experience in high-performance computing and system administration.
	X	Familiarity with cloud computing and container technologies.

Other Job Factors

JOB ACCOUNTABILITIES

	% Time	Essential	Marginal	N/A
Architects, evaluates, designs, tests and supports HPC technology deployment. Supervises HPC private network infrastructure (e.g., fiber channel/ethernet switches, network protocol services, access protection). Adopts appropriate leading practices and leverages next-generation advancements. Determines reasonable balance between performance, reliability and costs.				
Drives day-to-day operations and strategic plans, establishing policies and procedures and managing compliance. Monitors computing resource performance, manages configurations, and addresses security administration. Builds and maintains relationships with key stakeholders to understand researcher needs and current/future HPC requirements. Mentors others in relevant HPC areas (e.g., computer organization, software stack, operating systems).				
Provides guidance with system performance optimization and troubleshooting. Collaborates with relevant stakeholders to achieve optimal performance and connectivity for global access to HPC researchers. Works closely with leadership to identify, implement and support cost-effective, leading solutions. Provides input on department budgets and monitors and manages resources.				
Leads the development of new software, custom scripts, and testing plans and procedures to ensure operational reliability. Drives server hardware/software lifecycle management by helping plan, develop and deploy maintenance fixes. Improves system integrity, networks, and services by applying leading edge technical and operational knowledge to configure and maintain HPC server platforms.				
Manages staff development, helping set and achieve career growth goals. Drives training for new software/hardware developed or acquired. Stays current with industry best practices and emerging technologies. Champions collaborative relationships with peer research organizations. Promotes an environment that fosters inclusive relationships and creates unbiased opportunities for contributions through ideas, words, and actions that uphold principles of the USC Code of Ethics.				

Other Requirements

Essential:	Emergency Response/Recovery	Essential:	Mandated Reporter
	In the event of an emergency, the employee holding this position is required to "report to duty" in accordance with the university's Emergency Operations Plan and/or the employee's department's emergency response and/or recovery plans. Familiarity with those plans and regular training to implement those plans is required. During or immediately following an emergency, the employee will be notified to assist in the emergency response efforts, and mobilize other staff members if needed.		A mandated reporter who in his or her professional capacity has knowledge of, or reasonably suspects a person who is under the age of 18 years, elderly, or a dependent adult has been the victim of abuse or neglect must report the suspected incident. The reporter must contact a designated agency immediately or as soon as practically possible by telephone or in writing within 36 hours. By virtue of the associated job duties, this position qualifies as a mandated reporter as required by state law and USC's policy at: https://policy.usc.edu/mandated-reporters/

Campus Security Authority (CSA)		Essential:
By virtue of the associated job duties, this position qualifies as a Campus Security Authority as required by law and USC's policy at: https://dps.usc.edu/alerts/clery/		No

ACKNOWLEDGMENTS

The above statements reflect the essential and non-essential functions as necessary to describe the principle contents of the job. They are not intended to be a complete statement of all work requirements or duties that may be required of the position. I understand that I may be asked to perform other duties as assigned. USC reserves the right to add or change duties at any time.

The University of Southern California is an Equal Opportunity Employer. USC prohibits discrimination on any basis protected under federal, state, or local law, regulation, or ordinance or university policies. All employment decisions are based on individual qualifications and business need.

I acknowledge receipt of this job description and its associated physical requirements. I have read and understand the job description and job requirements and agree to abide by their contents. I realize that duties may be requested of me that are not specifically stated herein. I understand that I will be expected to adjust to potential fluctuations in work volume. I understand that, if I have any questions about the essential functions or expectations of my position, my supervisor and/or HR partner are available to discuss them with me.

_____   _____   _____
Print Employee Name   Signature   Date

_____   _____   _____
Print Manager Name   Signature   Date

This job description describes the general nature and level of work required by the position. It is not intended to be an all-inclusive list of qualifications, skills,
duties, responsibilities or working conditions of the job. The job description is subject to change with or without notice, and Management reserves the right to add, modify or remove any qualification or duty. Nothing in this job description changes the existing at-will employment relationship between the university and the employee occupying the position.