



**USC** University of  
Southern California

## Senior Systems Architect (HPC) (ITS)

### Job Description

#### JOB INFORMATION

<i>Job Code:</i>	166907
<i>Job Title:</i>	Senior Systems Architect (HPC) (ITS)
<i>FLSA Status:</i>	Exempt
<i>Supervisory:</i>	May lead one or more employees performing similar work.
<i>Job Family:</i>	Systems Engineering
<i>Job Family Group:</i>	Information Technology
<i>Management Level:</i>	7 Individual Contributor

#### JOB SUMMARY

Acts as technical resource for the complete lifecycle of the Center of High-Performance Computing's systems and utilities (i.e., managing, designing, configuring, debugging). Collaborates with HPC engineers, influencing new infrastructure and software design, and managing current systems and software to continuously improve system performance. Demonstrates ITS values in action.

#### JOB QUALIFICATIONS:

##### Education

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

##### Additional Education

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

Combined experience/education as substitute for minimum education

##### Work Experience

<i>Req</i>	<i>Pref</i>	<i>Work Experience</i>	<i>Experience Level</i>	
X		5 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 running large-scale, complex, computational-and data-intensive analytical systems for research purposes, specifically Linux HPC cluster and cloud-based technologies.
X		Expertise in Linux operating systems, job schedulers, cluster management tools, and parallel and shared-memory HPC frameworks (e.g., OpenMP, MPI). Demonstrated knowledge of HPC security requirements for systems and cloud environments, secure data computational algorithms, scripting languages (e.g., Python, Perl), compilers, and software application support.
X		Expertise in design, administration, and management, monitoring and debugging HPC networking, storage, architectures, and low- latency interconnection networks.
X		Thorough understanding of several HPC paradigms and languages, and a proven track record of effectively communicating HPC engineering design concepts, policies, and standards to executives/leadership.
X		Ability to apply creative, critical thinking, and troubleshooting skills to advanced new technologies, and to develop solutions for problems.
X		Experience working in a project-based environment, with strong planning and execution skills, and the ability to self-direct, working effectively in a team and independently.
X		Experience optimizing and fine-tuning computational storage and network systems to maximize performance.
	X	Experience in high-performance computing and systems architecture.

## Other Job Factors

### JOB ACCOUNTABILITIES

	% Time	Essential	Marginal	N/A
Designs, evaluates, tests, and supports deployment of high-performance technology improvements in HPC environments. Provides troubleshooting and optimization assistance, adopting appropriate leading practices and anticipating future advancements. Determines and meets reasonable balance between performance, reliability, and cost. Knowledgeably mentors junior employees in a variety of related topics (e.g., computer organization, input/output requirements, operating systems).				
Supervises the HPC private network infrastructure, overseeing low-latency interconnects, fiber channel and Ethernet switches, network protocol services, and access protection. Collaborates with supporting ITS teams to achieve optimal performance and connectivity for global access by HPC researchers, addressing all relevant security protocols, policies, and procedures.				
Builds and maintains strong collaborative relationships with ITS leaders and relevant stakeholders across the university. Actively embodies ITS values and behaviors (e.g., accountability, customer service). Contributes to a culture of trust and transparency by sharing information broadly, openly, and deliberately. Supports the HPC team's vision, working closely to implement and support effective solutions for HPC architecture, and to support process improvement efforts within HPC and across ITS.				

## 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: <a href="https://policy.usc.edu/mandated-reporters/">https://policy.usc.edu/mandated-reporters/</a>

<i>Campus Security Authority (CSA)</i>	<i>Essential:</i>
By virtue of the associated job duties, this position qualifies as a Campus Security Authority as required by law and USC's policy at: <a href="https://dps.usc.edu/alerts/clery/">https://dps.usc.edu/alerts/clery/</a>	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.