

The
INTERNATIONAL CONFERENCE for **NOV 15-20**
HIGH PERFORMANCE COMPUTING
CHICAGO, IL NETWORKING, STORAGE, & ANALYSIS

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SCC26 Cluster Operational Readiness Evaluation

Student Cluster Competition 2026
October 7, 2026

- CORE is about exploring the real user management, security, job scheduling, networking, monitoring, and software management that is required to run a real world supercomputer
- During the competition, we will ask to view your system, and then ask interview questions about your experience leading up to the competition
- The goal is not to build a fully mature production platform. We want to see that you understand what such a platform requires, and that your design is moving in that direction.
- HPC systems are complex and often multi-use, how prepared are you to handle that

- **Account Management:** Can teams easily modify multiple users and projects?
- **Security:** Are basic security items like passwords and root access covered?
- **HPC Job Management:** Can teams submit and manage jobs through a scheduler or direct bash scripts?
- **Networking:** How is networking configured, especially in multi-node setups? How is any switch or storage used? Is the networking easy to use or hardcoded static IP addresses?
- **Monitoring and Health:** How can teams see the current utilization of the cluster?
- **Software Management:** How can teams install packages? Is there a package library? How are different team dependencies handled?

- Before the certification phase, committee members will conduct an interview with teams on Day 2
- It's mostly QA, but with an interactive session for maximum fun!
- Questions will focus on methodology, justification, and utilization
 - In other words, we want to know what you did, why you did it, and are you actually using it
- You can nominate a team member to be the point person for this session, or the answers can come from anyone in the group
- The interview will happen at your table
- You can internet search for syntax issues online but we'll be monitoring and making sure the questions are within reason

- We are going to ask you to onboard a new project group and some users to your cluster
 - Including adding a new user and creating a linux/project group for them
 - Linux/project for example is making a non-home directory folder that has linux group permissions set up
- We are NOT going to get control of your system
 - But maybe we do try sshing later to make sure you deleted the accounts
- We want to see if you are able to handle team separation, user separation, group permissions
- Job scheduling questions
 - Inspecting how you run a job, validating you have a scheduler and project files are not all in the root folder
- Expected time: 10-15 minutes
- Total Points available: 20

- Q/A
 - You don't need to demonstrate anything live, but if you want to flash something quickly, you can.
 - Each question should take ~2 minutes
- Full points are awarded for showing thought, tooling, and intent.
 - Bonus points are available for the 3 category questions for going well above and beyond.

- Monitoring
 - IE: How do you monitor the system? If the system is acting sluggish, where do you go
- Great answers show tooling setup and processes and HPC specific features and constraints
- Good answers show familiarity with standard linux tooling
- Poor answers show little proof of thought given to this

- Walk through the network setup and how it is secured, including port shut off, passwords, ssh restriction, and firewalls
- During day 2 we will run a tool to check for open ports or vulnerabilities in your system
 - We will deduct points for hits here, so make sure your ports are closed and databases aren't reachable with a default password
- Great answers include ability to answer or demonstrate network separation, multi node management, and restriction of public exposure
- Good answers include at least basics such as passwords rotated, and basic access control
- Poor answers show little to no security practices in place

- How did you manage your software?
 - Was there any system in use? Can you explain what it enabled and if there were issues or workarounds that had to be implemented
- Consider how multiple teams / projects can be ran, complied, and executed on one system with different version requirements
- Great answers include a package management system and examples of the team using it
- Good answers share how package management and installation worked
- Poor answers show little thought given to this or a handed solution from vendors

- What was your takeaway?
- What was your experience and out of this?
- What did you learn? Is there anything you did that matches the CORE principles but we didn't ask about
- This is your chance to tell us your stories

- A 2 section interview before verification: a hands on section and a QA section
- At a minimum, teams should be able to show they considered and implemented foundational items regarding security, user management, and HPC workload management
- Full points show clear direction and thought given to these problems
- We are not looking for fully managed systems, but care, thought, and curiosity

Question	Points	Percentage
HPC Account and Job Management	20	40%
Monitoring	8	16%
Network Security	8	16%
Software Management	8	16%
Overall Learnings	6	12%
Total	50	100%