

# Power Off Activity

This year we will be adding a little spice to the competition. Sometime during the general competition we will be shutting down the power. The exact timing of the shutdown is a secret. You and your team will need to know how to bring the hardware and software back from a full unscheduled power outage and how to resume any workload you were processing at that time. This exercise is designed to simulate real world events that system administrators must respond to. This activity will allow your team to demonstrate their systems skills by recovering the system.

This has happened before. During the first Student Cluster Competition, in 2007, the power to the Reno Convention Center suddenly failed. The entire show floor went dark. It turned out that the power coming to the convention center was inadequate for Supercomputing's high-performance machines. Power was out for an hour or so, followed by what the press described as "the world's largest reboot". After the conference, crews were seen laying additional power cables across Virginia Street.

Our competition clusters, of course, went down. When the power was restored, some teams, who had been checkpointing their systems, resumed their computations quickly. Other teams, who had not been saving data, lost many hours of work and had to start over. The experience prompted discussions about checkpointing in the real world--the tradeoff between protecting against possible disasters at a cost of reducing computations.

Since power and other failures are the realities of modern computing systems, we would like to encourage cluster teams to understand the tradeoffs, and to consider what is needed in real life. This year we will turn this thought-provoking accident into an activity to capture the think-on-your-feet spirit of the first competition.

## **Details:**

The power will be shut off at the breaker to both monitored circuits and the unmonitored circuit for all teams. Once the power is shut off, all teams will be asked to leave their booths, and each booth will be inspected to make sure that everything is powered off. All teams will be let back in their booths at the same time to begin the procedures for recovering from the power failure.

## **Some rules to be aware of:**

Advisors are not allowed to participate in bringing the system back up. Advisor rules listed here: <http://www.studentclustercompetition.us/overview.html>

- The advisor is not allowed to provide technical assistance during the competition, however, he/she is encouraged to run for food and snacks for their team and cheer during the long nights.

Any hardware failures can be swapped based on the rules listed here: <http://www.studentclustercompetition.us/2016/rules.html>

- No changes to the physical configuration are permitted after the start of the competition. In the case of hardware failure, replacements can be made while supervised by an SCC committee member.

Battery backups are prohibited in the competition this year.

- No battery backup or (Uninterrupted Power Supply) UPS systems are allowed to be used during the competition.

Since this will be a new activity, we will be looking closely for rule violations. We know that no one will intentionally violate the rules but please be careful to not accidentally violate the rules. Breaking the rules, whether intentional or not, can lead to point deductions as well as disqualification.