

List of Accomplishments on the Beowulf Cluster – Fall 2018

1. 3D Printed out more mounting materials at the UMW ThinkLab (Motherboard mounts, SSD mounts, power supply, etc).
2. Attempts to epoxy glue the magnets to the Motherboard and power supply mounts.
3. Moved existing cluster test bench to the server rack, establishing proof of concept.
4. Experiments at maintenance with other Linux Distributions (stock CentOS with Beowulf Cluster utilities) before settling on Rocks Clusters once again.
5. Installation of three nodes plus the master computer to the overall cluster array.
6. Successfully installed the Slurm Scheduler in place of the legacy Sun Grid Engine, ready to test with test workloads. Slurm has the benefit of having modern documentation in order to understand how users could potentially interact with it.
7. Uncovered a issue with the 220V adapter where the Cluster UPS batteries are potentially drawing too much power from the 120V outlets on the cable, causing them to overload. Work around is to connect the network switch, computer monitor, and connected nodes to 120V power strips.

Direction of the Project for Spring 2018

1. Looking for more Computer Science students with interest in parallel computing, as well as Physics students who have practical experience with computer hardware and electricity.
2. Security audit of segmented cluster network, this will determine the practicality and risks of having the cluster hosted as a remote network service, opposed to walking up to it to use.
3. Connect more nodes to the overall cluster array in order to get closer to a complete proof of concept.
4. Attempt to push software updates from CentOS upstream (of which Rocks is based on) without risking stability.
5. As mentioned before, test the Slurm Scheduler with test workloads.
6. Compile relevant documentation.