Repurposing Decommissioned ICS Clusters

Overview

Currently, ICS is decommissioning several clusters and transit to newer machines. This project aims to address these issues by combining the decommissioned hardware with accessible software that provides teachers and students with a glimpse into fields now dominated by high-powered computing. User-friendly software loaded onto a supercomputer will allow teachers to show students concrete examples of Big Data without overwhelming technical details.

Last year a CMPEN / EDSGN project had successfully created a prototype of a cluster for use in middle and high school. This semester, this project, in conjunction with EDSGN group, CSATS and ICS, is going to further develop the prototype and design the deployment method. Also, according to the requirements from CSATS, the software must be implemented capable to any personal computers.

Objectives

- Complete and further extend the prototype application from last semester.
- Optimize the user interface and construct the application program interface between the clusters and the application.

Approach

- Meet with sponsors and EDSGN group weekly to verify our outcome is on the right path.
- To accurately fulfill the requirement on the application, we scheduled a formal meeting with former representatives from CSATS who previously devoted into the project.
- Transfer the prototype to a web application for wider capability.
- Design and optimize the user interface for the web application.
- Design the relationship database for the server.
- With help from sponsors, configure the clusters from ICS and make them work for the project.

Outcomes

In that some installation problems were encountered when moving the clusters, we get the access to the clusters by almost the end of the semester. However, we still tried our best to achieve as much as possible.

- There is a brief structure of relationship database
- Implement partial front-end design based on the previous prototype
- All four nodes of the cluster, along with the switch to group them together, are plugged into and functioning properly