System Monitoring and Interface Design for MUST-SIM

Thomas Nicol, Taylor University
ADVISOR: Dr. Jerome F. Hajjar, Dept. of Civil and Env. Eng.

Background

- As part of the NSF George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES), MUST-SIM is an experimental testing facility at UIUC that enables remote researchers to interact with experiments and simulations.

- Collaboration and information sharing are critical uses of the MUST-SIM Facility LAN.

Goals

- Configure easily accessible monitoring of network hardware and services.
- Write unit tests to verify the correct configuration of sensor metadata.
- Develop intuitive frontends for important utilities.

Fundamental Challenges

- Providing system status information without creating a security risk.
- Creating simple, researcher-friendly interfaces for complex programs.

Results

- Nagios configured to monitor dozens of critical services across several servers and network devices.
- Unit tests developed for Excel and XML configuration files.
- Java Swing interfaces built for common utilities.

Related Work/Interaction with Other Projects

- NEES
  - nees.org
- Nagios
  - www.nagios.org
- DataTurbine
  - www.dataturbine.org