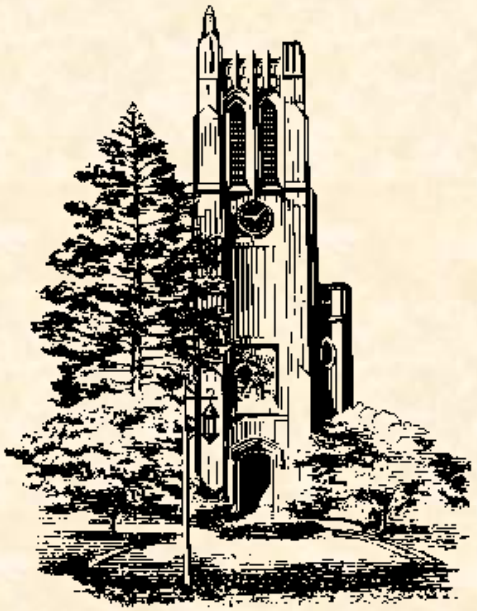
MICHIGAN STATE UNIVERSITY

Technical Specification / Schedule
Advanced Network Fault Management



Team 7: Motorola

CSE 498, Collaborative Design

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Department of Computer Science and Engineering
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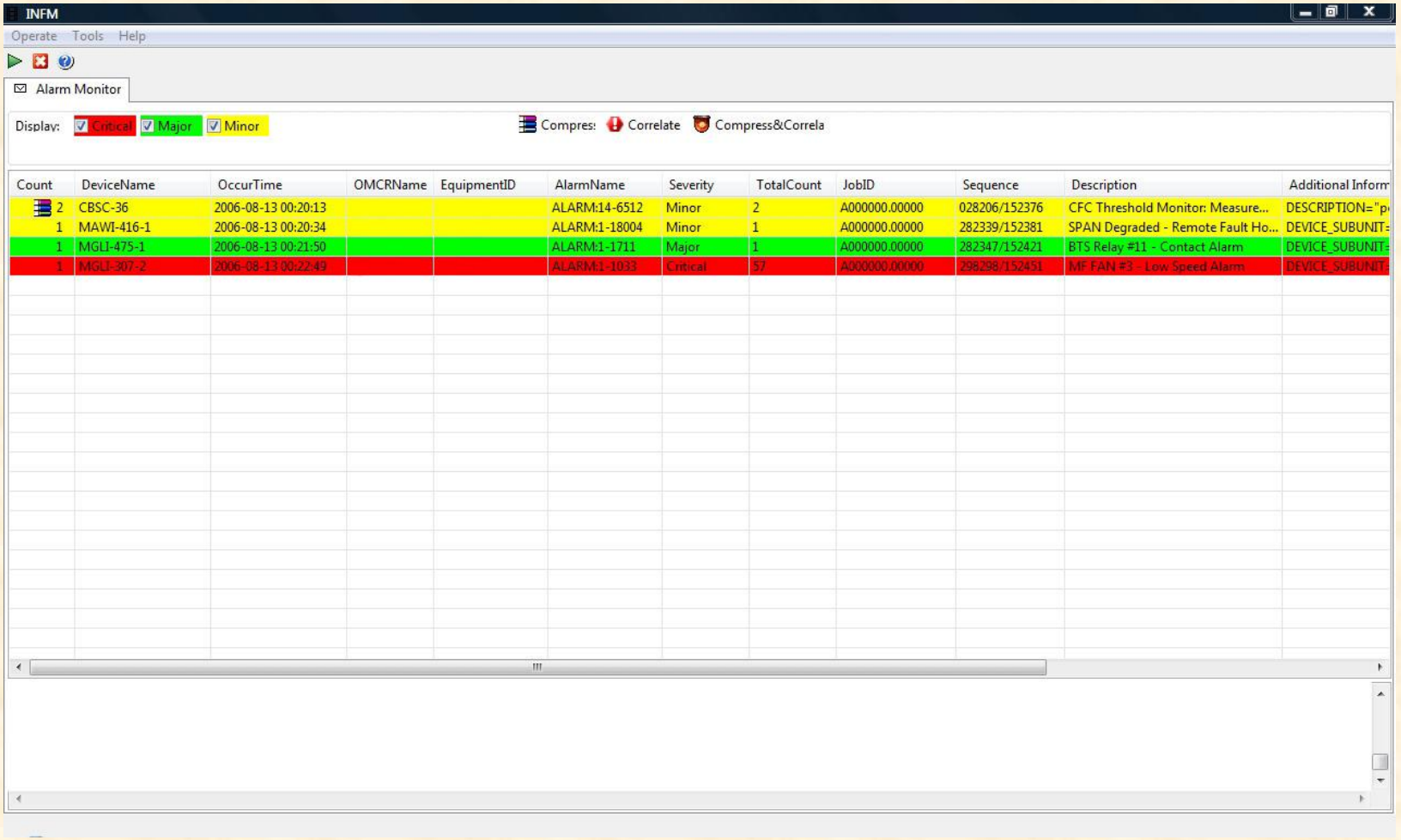
Spring Semester 2008

Project Overview

- Two Types of Network Management:
  - Performance Management is concerned with things like the throughput of the network and the number of packets that are sent across a router interface.
  - Fault Management is concerned with things like failing ports and inoperable fans.
  - Our application will be used by network administrators dealing with fault management.

Project Overview



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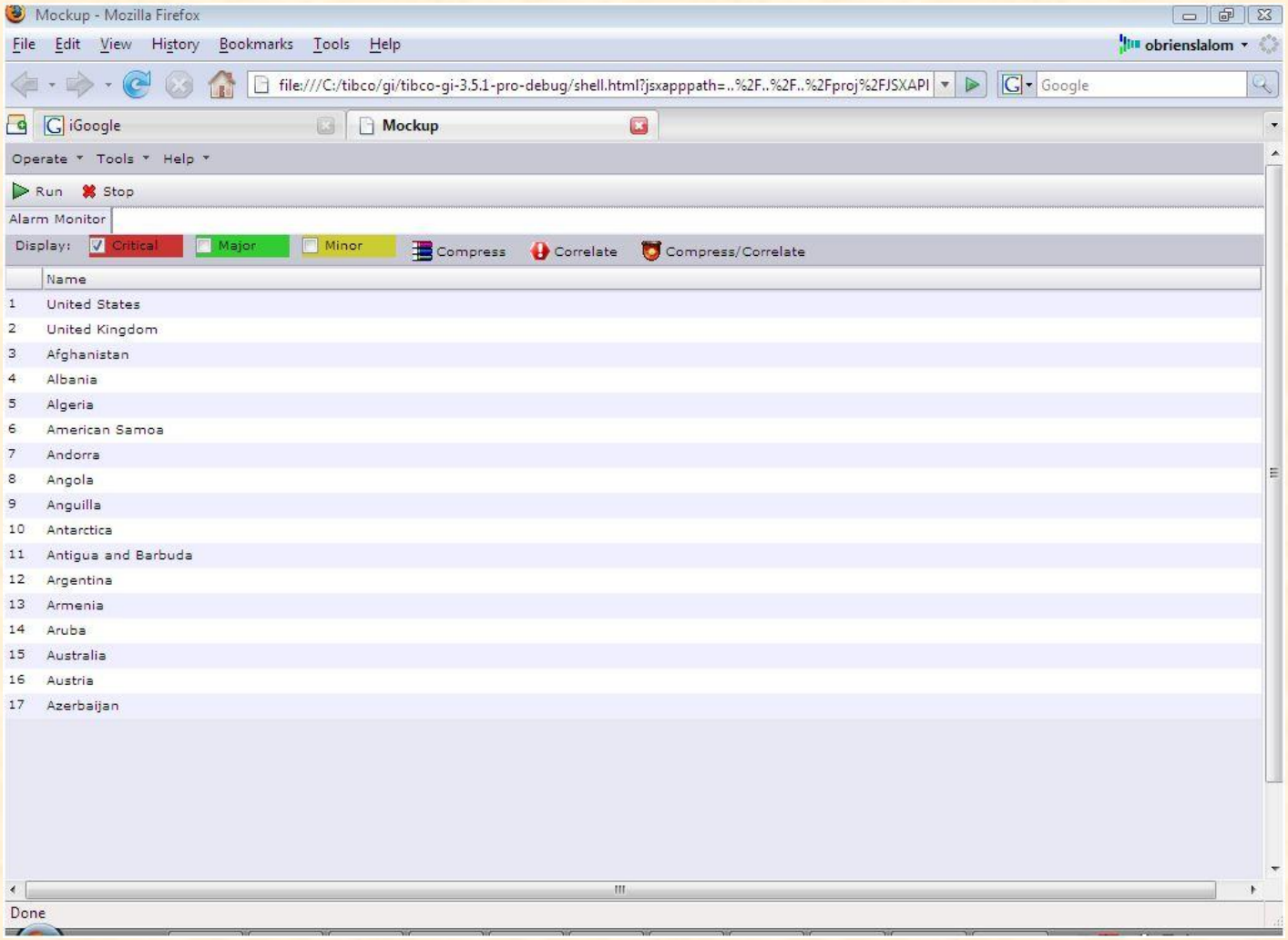
Project Overview



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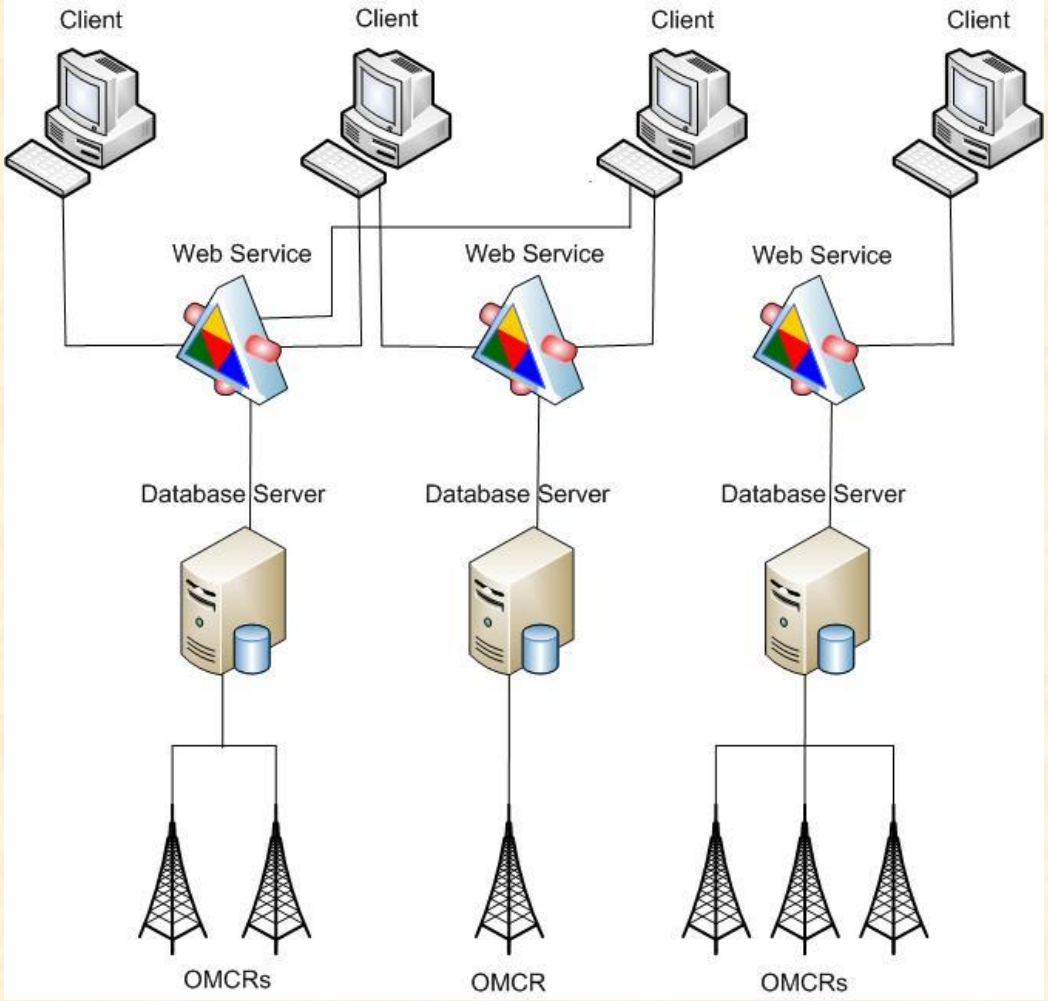
Project Overview

- Start with a standalone Java application
- Isolate the business logic from the GUI logic
- Deploy business logic as a Java Web Service
- Implement the GUI using TIBCO GI and the Model View Controller Pattern
- Connect the new GUI with the Web Service
- Standalone application is now a client-server based application that is easier to deploy and manage.

Project Overview



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Functional Specifications

- Read In Fault Data
  - From a MySQL Database
  - From an OMCR (via FTP)
- Step through faults in temporal order
  - Play, Pause
- Categorize events based on severity
  - Minor
  - Major
  - Critical

Functional Specifications

- Analyze faults based on known rules and past events
  - Compress – group faults that are the same together.
  - Correlate – If Event 1 directly causes Event 2 and Event 3, associate them so that Event 1 can be identified as the cause and fixed first.
- Compute Statistics
  - Search for all events identified by a given rule that occurred in a given time period
  - Search for all events that occurred on a given device that occurred in a given time period

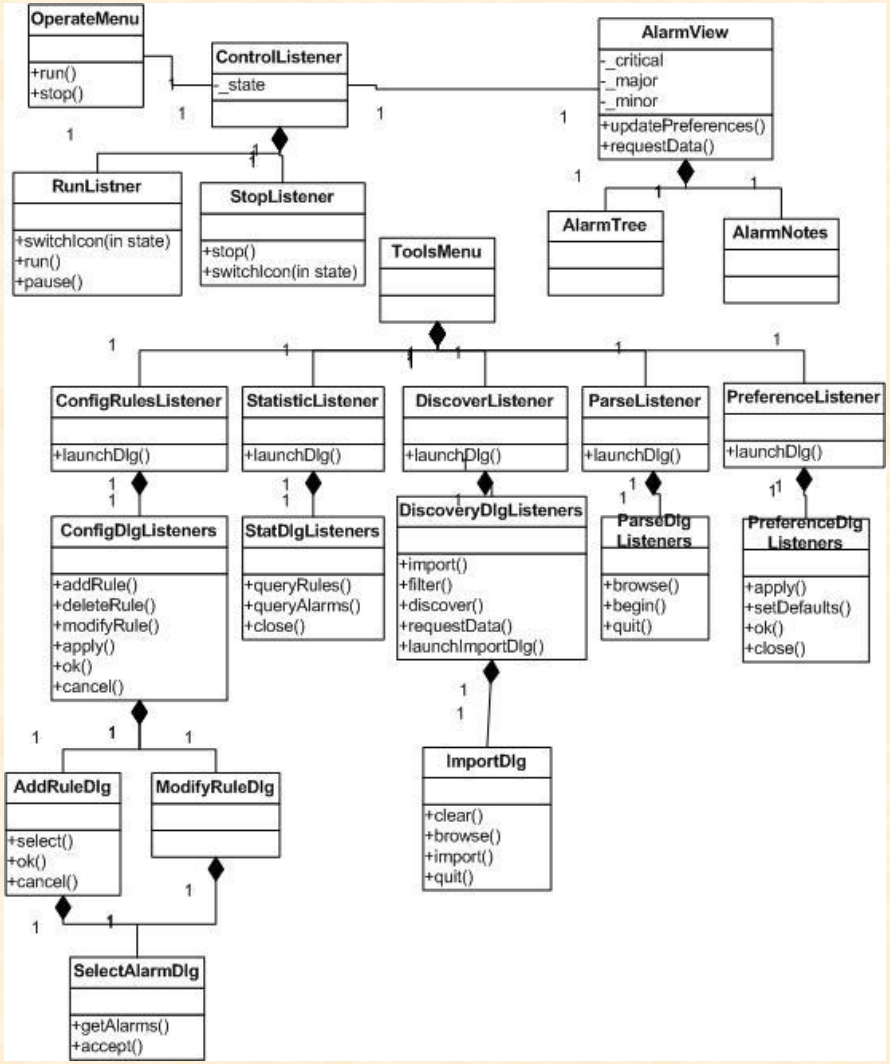
Functional Specifications

- Allow the rules logic to be configured
  - Add New Rules
  - Delete Existing Rules
  - Modify any attribute of an existing rule
- Discover Rules
  - Ability to automatically discover new rules by applying given artificial intelligence algorithms to known events.

System Components

- Hardware Platforms
  - Platform Independent
  - Client-Server Based
  - Web Service Based
- Software Platforms / Technologies
  - Business logic implemented in Java and reused where appropriate
  - Web services implemented in Java/JAX-WS
  - GUI Developed in TIBCO UI
    - JavaScript, AJAX, SOAP, XML, etc.

Architecture Illustrated



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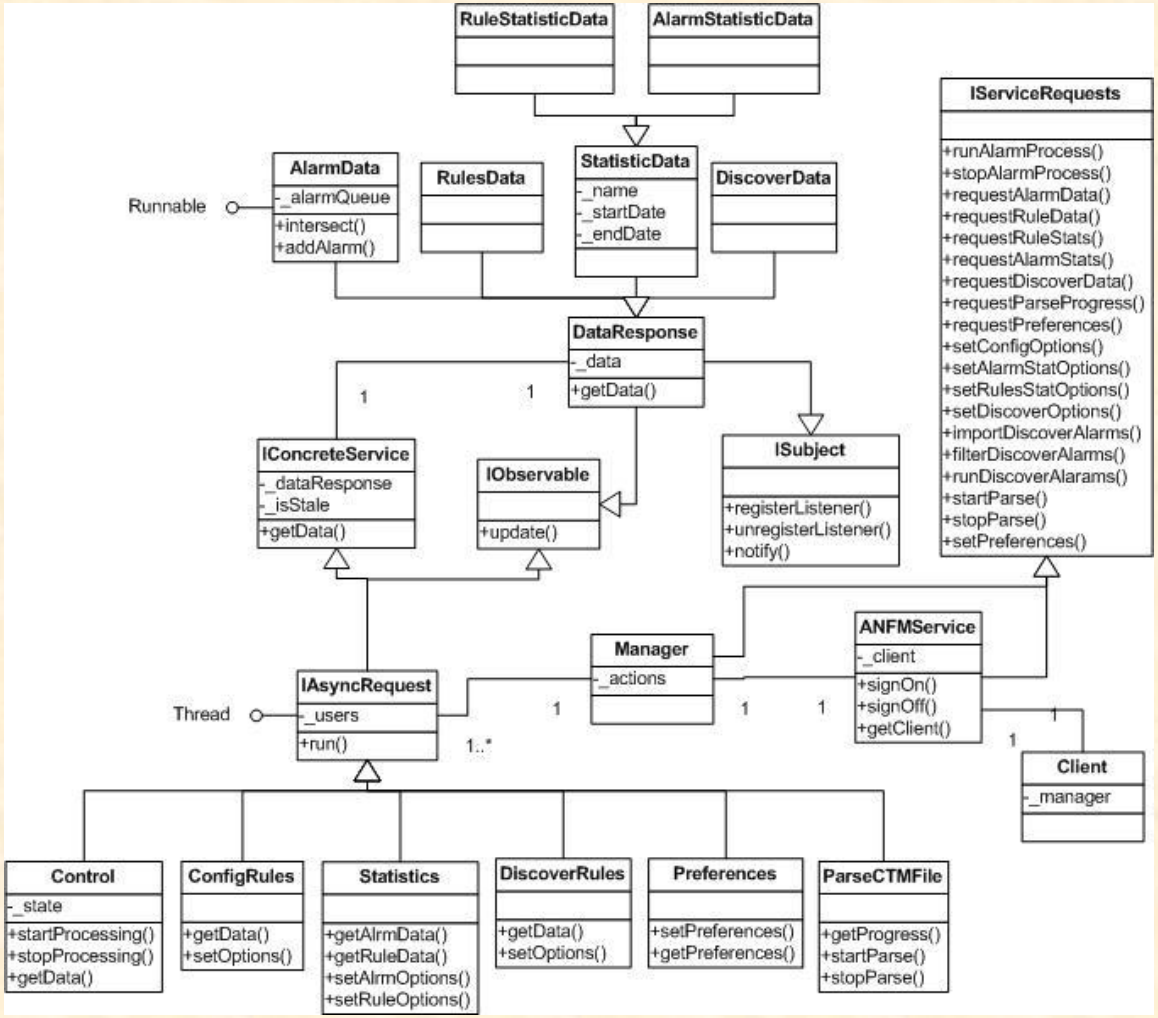
Architecture Illustrated



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Risks

- Mastering Java Web Services
  - Learning how to deploy existing code as a service
  - We have already completed a mock-up of a simple client-server interaction using Java Web Services.
- Feature Creep
  - We have already identified functional improvements that could be made.
  - Focus on getting it working first, then improvement as time permits.

Project Schedule

1. Java Web Services
   a) Simple client-server interaction demo
   b) January 22, 2008 – COMPLETED
2. Technical Specification
   a) First Major Draft of Tech. Spec. Complete
   b) January 28, 2008
3. Draft GUI
   a) Limited functionality GUI demo
   b) February 4, 2008
4. Alpha Demonstration
   a) Alpha version complete and delivered to client
   b) February 14, 2008

Project Schedule

5. Formal Testing
   a) Formal testing of alpha version begins
   b) February 14, 2008
6. Beta Version
   a) Beta version complete and delivered to client
   b) March 14, 2008
7. Project Video
   a) Complete project video
   b) March 28, 2008
8. Design Day
   a) Formal presentation of ANFM Software
   b) April 25, 2008