SNS/HFIR Experiment Data Archiving Dashboard

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Abstract

The Translation Service Monitor (TSM) shows the translation status in the process of transforming and archiving raw experiment data; this process is known as data translation from the Data Acquisition System (DAS) to the Data Management System (DMS). The Translation Service Diagnostics Tool (TSDT) allows internal users to observe how many runs are archived and how many runs failed to archive for the neutron science facilities and instruments. The project goal is to upgrade this tool for better performance and ease of use. The aim of my research project is to develop a SmartGWT java based web application to modernize the TSDT with a more interactive user friendly interface in which the TSM will later merged into. This application will display the data from the facilities and instrument groups using pies to show how many runs were successfully archived and how many runs failed to archive.

Methods

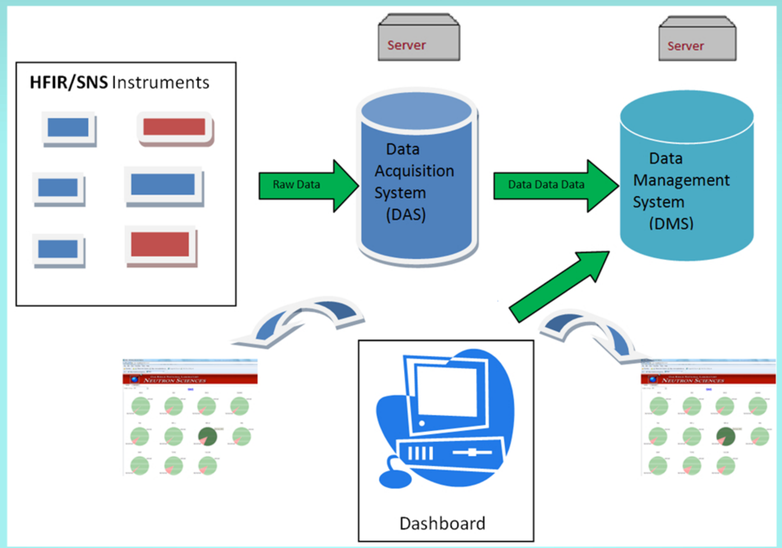
Tools used to accomplish the objective of the research project:

Smart GWT is set of development tools, programming utilities and widgets for developing Ajax-based rich Internet applications using java Instead of JavaScript. GWT then cross-compiles the java code into optimized JavaScript that automatically works across all major browsers. It can be debugged and stepped though line by line. Java source code is compatible into stand-alone JavaScript files.

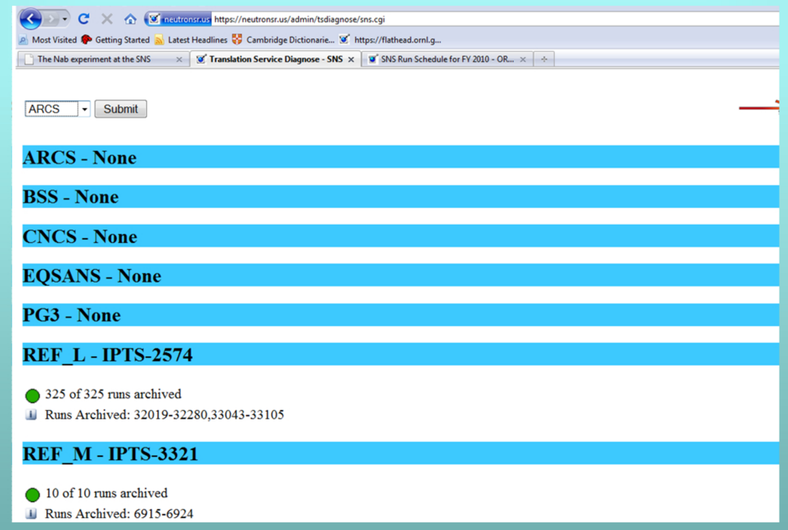
Gchart is a third party library used to draw Image widgets (for curves) and Grids widgets (for align text). it works reliably across-browsers.

NeatBeans IDE is an integrated development environment that enable developers to create web, enterprise, desktop, and mobile applications using Java platform as well as JavaFX, PHP, JavaScript and Ajax, Ruby and Ruby on Rails, Groovy and Grails, and C/C++.

Outline of the Data Flow from Instruments to Dashboard Application



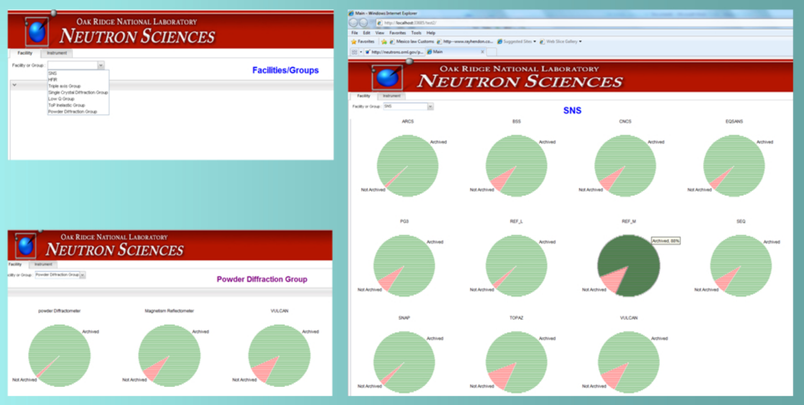
This diagram shows the general description of how the data flows throughout the system and how it is used by the dashboard application to display the pies.



Current translation service diagnostics tools

Results

A user friendly web application that will help users working in instruments to visualize the data graphically.



The application displays data in terms of experiment runs per instrument. Pie charts are utilized in visualizing the data, one pie per instrument, and can be grouped by facilities or by instrument groups. Each pie shows what percentage is archived and what percentage fails to archive.

Future Research

- Create a database to hold latest run status
- Develop a web service to communicate with the database to insert and retrieve run information
- Develop a Perl script to fetch the run status data from the system and store it in the database via web service call
- Revise the user interface to retrieve run status data from the web service
- Merge the TSM to TSDT developed application

References

Gchart: http://code.google.com/p/clientsidegchart/
Smart GWT: http://code.google.com/p/smartgwt/

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