LHC Logging Project

Overview, Status and Recent Developments

by
The LHC Logging Team

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Mandate, Scope, Objectives

- Analysis, design, procurement of Logging Facilities for future LHC Controls System
  - Information management for LHC performance improvement
  - Meet INB requirements for recording beam history
  - Make available long term statistics for management
  - Avoid duplicate logging efforts
- Within the scope is:
  - Analyze experience, capture requirements
  - Implement first version to support QRL
  - Logging data from TT40 extraction tests
    - The request was presented at the LHC-CP meeting of 08 Oct 2002.
  - Investigate interface with Alarms and Post-Mortem systems
- Objectives
  - Establish logging facility for TT40 and QRL, scalable to LHC
  - Major project review after initial validation

Project Team

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- Maciej Peryt
- Maciek Marczukajtis
  - Fellow.
- Gareth Frederickson
  - Technical Student, until 30 June 2003.
**Data Input API 4 Java**

- **Overview**

  - **Package Class**
    - `Tree` [Deprecated] [Index] [Help]

- **Packages**

  - `ch.cern.lhclogging.input`
    - `LoggingDataFor`
      - `LoggingVariable`
        - `LoggingVariableData`
        - `LoggingVariableFile`
        - `LoggingVariableFileMeta`
      - `LoggingUtility`
    - `ch.cern.lhclogging.util`
      - `LoggingVariable`

- **Classes**

  - `ch.cern.lhclogging.input`
    - `LoggingDataFor`
      - `LoggingVariable`
        - `LoggingVariableData`
        - `LoggingVariableFile`
        - `LoggingVariableFileMeta`
      - `LoggingUtility`

- **Documentation** includes source code and examples.

**Thin Data Extraction Client**

- **Functionality similar to stride - String2 Data Extractor, but different platform (Java).**
- **Struts** (part of the Apache Jakarta project) as candidate framework for building web applications.
- **JSP**: standard taglibs used as much as possible.
- **Still looking for charts package to be used both in thin and in fat client.**
- **Will be available for TT40 Extraction Tests.**
ILOG JViews 5.5 Evaluation

- Under evaluation by colleagues from ST/MA.
- First impressions:
  - Very complete functionality.
  - Highly modular, easy to customize.
  - Seems to be very fast, but still some benchmarks to be done.
  - The same API for thin and fat clients.
- We are going to work with AB/CO applications section to standardize on a common toolkit.

Next step: TT40 Extraction Tests

- API to be tested by SPS 2001.
- We need to test the full chain with real data:
  - Equipment → CMW → Logging → query.
  - Logging on cycle basis: higher data rates than initially assumed.
  - Still not clear what data types apart from scalar data will be stored.
  - We expect to store vectors of numbers - like profile data.

QRL

- If OK for TT40, then QRL should be satisfied too.
- Loading to be implemented by producers of data using our API - come and see us to get help!
- C++ version of Data Input API to be developed very soon.
Pending Issues

- Interfacing with Alarms and Post-Mortem.
  - To be defined what needs to be recorded in the Logging System.
- Application server.
  - Need more powerful machine before September.
- Database server.
  - Running on devdb9: OK for TT40, will have to move to production server next year.

Conclusions

- We are (finally) ready to log data.
- TT40: a functionality showcase.
- QRL: waiting for the clients to show up!