



The LHC Logging System

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LEADE meeting

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Outline



- Mandate, Scope & Objectives
- Context of the LHC Logging System
- Project Evolution and Status
- Data Extraction Tools
- Graphical Data Visualization
- Conclusions
- Questions & Answers

Project Mandate (17.09.2001)



- **Mandate:** 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
- **Scope:**
 - 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 08.10.2002.
 - 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 (held on 16.12.2003)

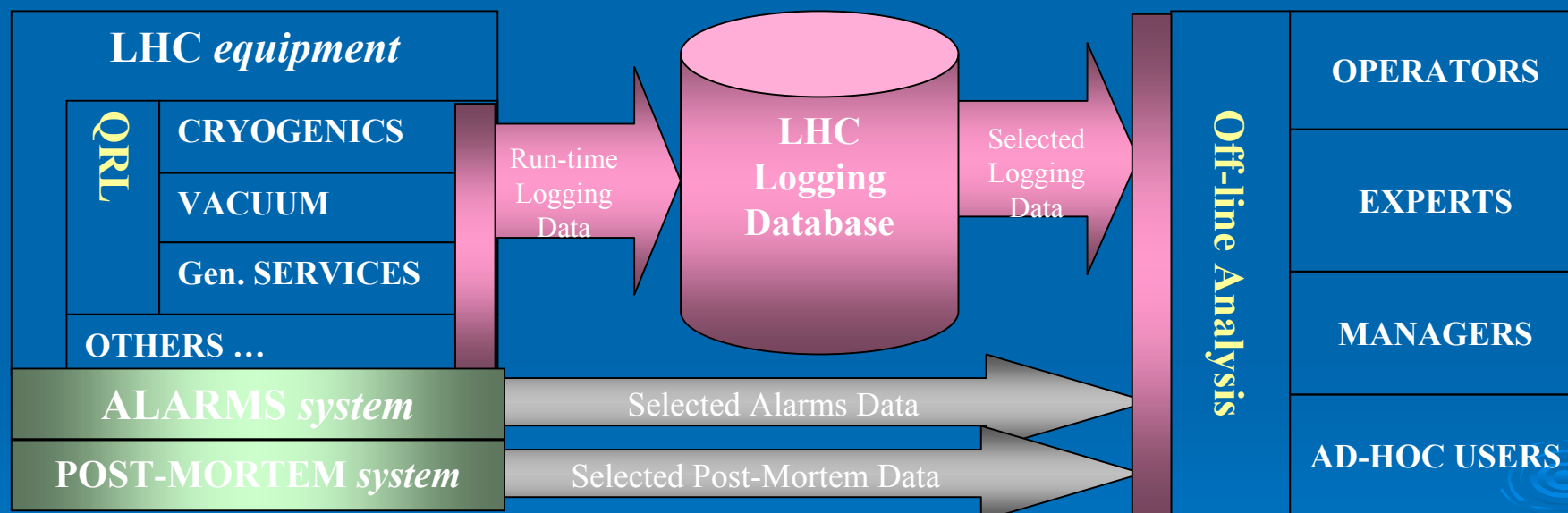
Logging System Context



Data providers

Data input, storage & output

Data users



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Project Evolution & Status




- **Availability milestone:** *end-2002* for **QRL-vacuum**
 - QRL commissioning *delayed*... so did we
- **First client:** TT40 extraction tests
 - “**Shot-by-Shot**” logging at SPS cycling rate
 - Sessions in September and October 2003
- **First permanent client:** SPS vacuum
 - Started in June 2004
 - 1500 channels; data at 3-minute interval
- **Data extraction:** Web deployed GUI is operational
 - Statistics, graphical visualization
 - File output (tab or comma delimited fields; XML format)

Data Extraction



Extractor ▾ Help ▾

 **timber**
The LHC Logging System

Logging Query

Selected Variables	Name	Type
	VPIA_10120.PR	NUMERIC <input type="button" value="X Delete"/>
	VPIA_20120.PR	NUMERIC <input type="button" value="X Delete"/>
	VPIA_30120.PR	NUMERIC <input type="button" value="X Delete"/>
	VPIA_40120.PR	NUMERIC <input type="button" value="X Delete"/>
	VPIA_50120.PR	NUMERIC <input type="button" value="X Delete"/>
	VPIA_60120.PR	NUMERIC <input type="button" value="X Delete"/>

Start date DD MM YYYY HH:MI:SS

End date DD MM YYYY HH:MI:SS

Output

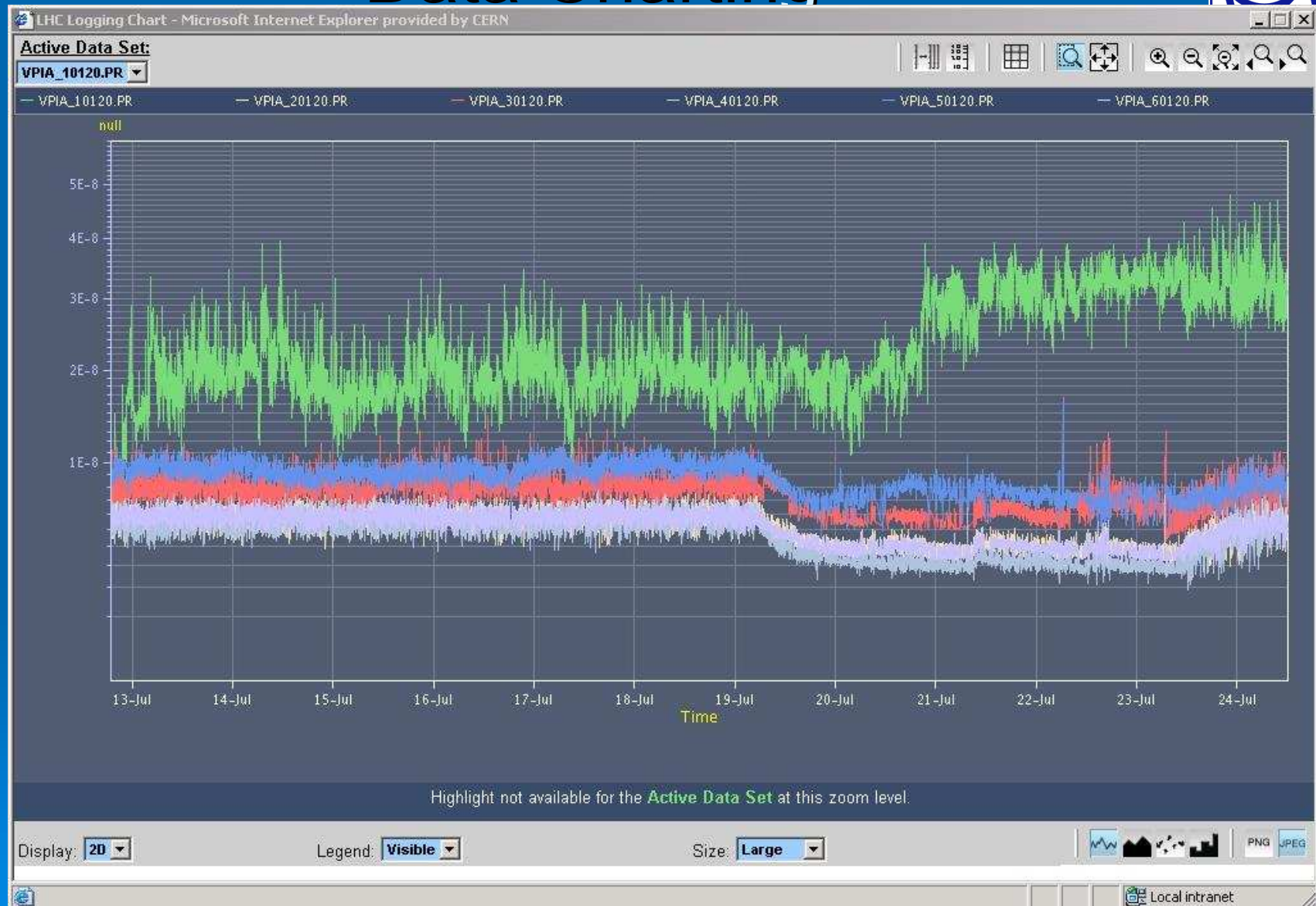
Statistics (counts of matching values, min/max timestamp)

File Format:

Chart

Time scaling Frequency: Algorithm: Multicolumn:

Data Charting



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Conclusions



- ✓ The LHC Logging service is in “production” mode
- ✓ Several clients are logging operational data
- ✓ We guarantee the data to be stored correctly “as is” and available beyond the lifetime of LHC
- ✓ Data can be extracted in graphical and ASCII format
- ✓ Interface currently deployed at <http://abofs1:7780/LoggingGUI/>
- ✓ Other interfaces may be envisaged, if requested
- ✓ LHC Logging homepage at <http://lhc-logging.web.cern.ch/lhc-logging/>
- ✓ ***Any questions and comments are welcomed!***