

LARP

LARP Instrumentation Group Issues

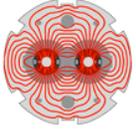
A. Ratti

April 27, 2006



Areas of activity

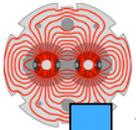
- Data Acquisition workshop
 - Tue. Apr. 25, 2006
- LARP instruments integration at CERN



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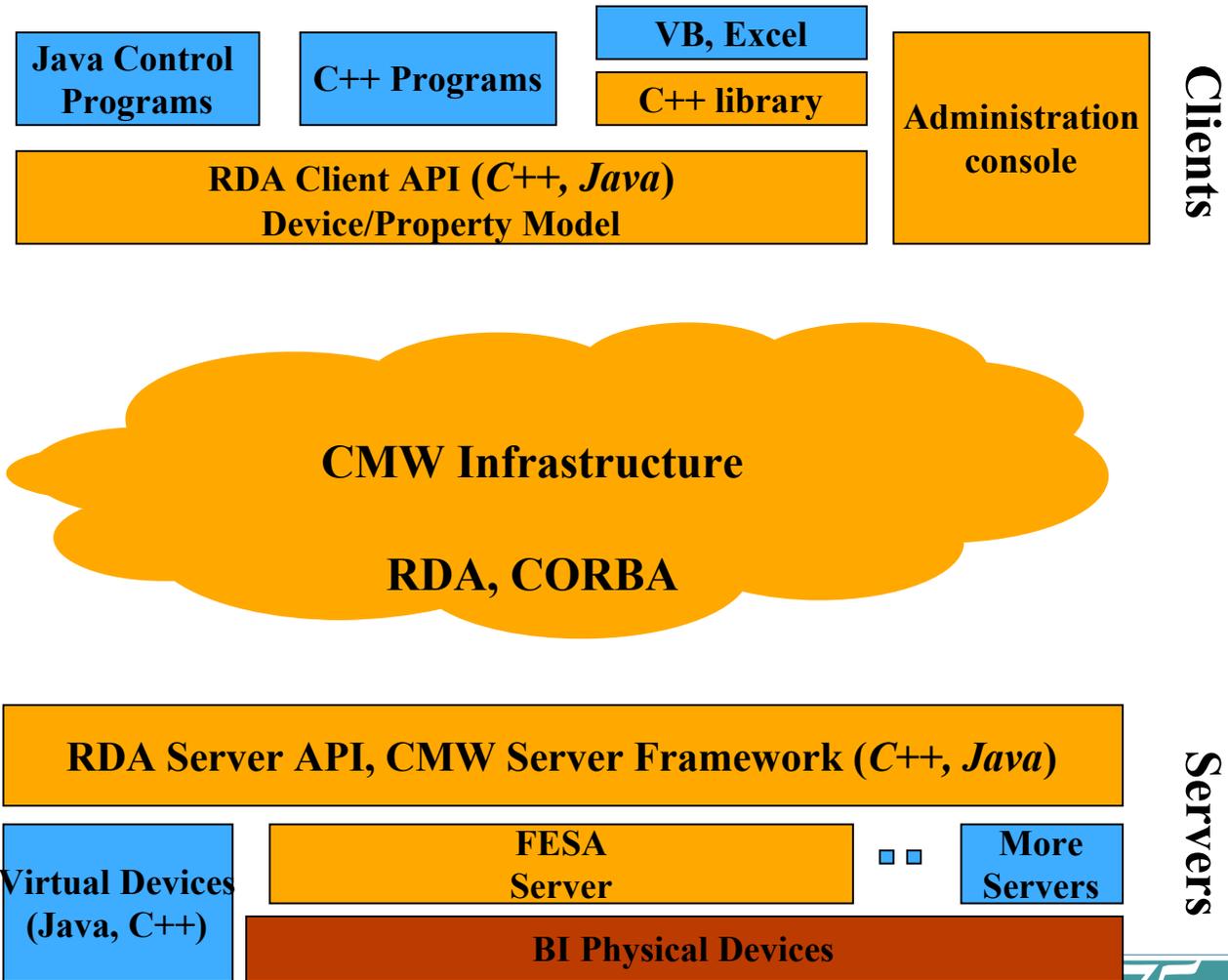
DAQ workshop

- Attended by representatives of all labs
- Daryl Bisop (TRUIMF), designer of the DAB board, gave a comprehensive description of the board design and its firmware programming
- Rhodri Jones did a live demonstration of the hardware functionality at LBL
 - Used signal from pulse generator, processed by LUMI analog shaper
- Round table discussion on how to implement system at LARP labs

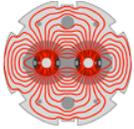


Common Middleware (CMW) Architecture

- User written
- Middleware
- Existing or off-shelf



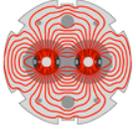
R. Jones



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DAQ for LARP instruments

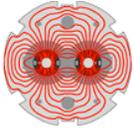
- Real Time OS problem to compile LynxOS at US labs
 - This stalled our efforts for months
 - Licensing problem
- LabView proposed by CERN
 - Use VME-USB bridge card
- LARP labs can develop expert Vis in LabView and deliver to CERN
 - Uses the bridge card in the US
- CERN implements the FESA interface, provides LabView connection
- Expert panels available through CERN's FESA
- LARP labs provide functional specification of memory interface
- CERN develops GUIs for device controls
 - Both expert and operator



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Open Issue

- LHC@FNAL opens the door to experiments or observations at LHC directly from LARP sites
 - FNAL is leading the way
- Ideal for ‘passive’ devices
 - I.e. Schottky monitor
- Not clear how much will be available by commissioning
 - CERN controls must be deeply involved for this to happen
 - Priorities may not be aligned

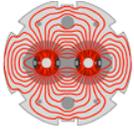


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Integration Plan

Planned documentation for each instrument

1. FS - Roles and Responsibilities
 1. Defines who does what, when
2. TS- Technical Specification
 1. Complete description of the device, its interfaces, its requirements....
3. FS - Functional Spec (of DAB 64x interface)
 1. Definition of what functions and features are included in the data acquisition system
4. FS - Memory Map of Firmware
 1. How the data is transferred to the
5. Any other document
 1. Safety, installation, HW checkout and commissioning,
6. FS - Acceptance Plan
 1. Contains a list of deliverables from LARP to CERN
 2. Once accepted, defines the end point of LARP's contribution to the instrument



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Implementation

- The above docs have approvals on both sides
 - CERN and LARP
- Pis are the single points of contact at each side of the ocean
- Documents reside in EDMS and in LARP's databases

- We aim to have the first two ready for the DoE review