Software Summary

Murrough Landon – 30 June 2001

http://www.hep.ph.qmw.ac.uk/~landon/talks

Contents

Revisiting our Requirements

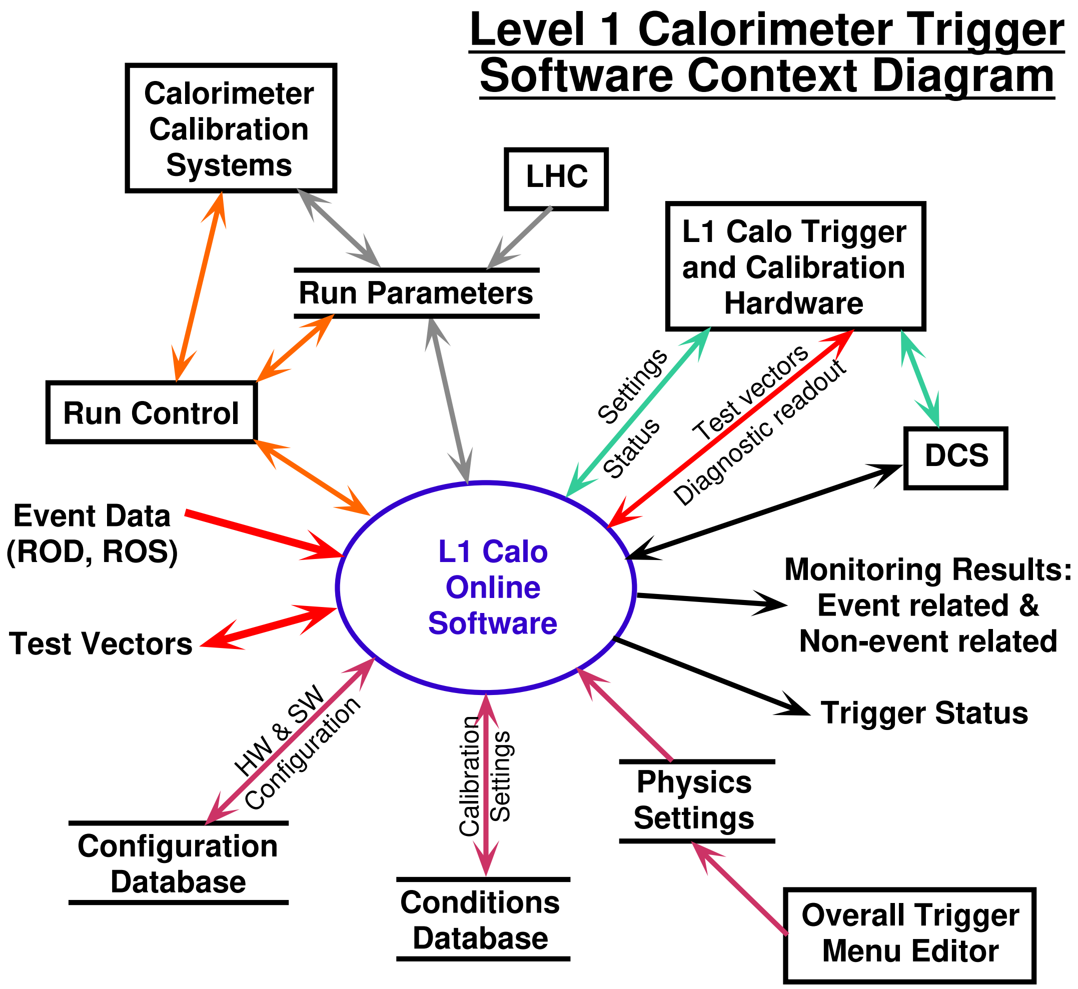
Review

- An Online Software Requirements Document was abandoned unfinished and unreviewed about two years ago
- Since then work has been done in many separate areas (diagnostics, readout, test vectors) and has recently started in other areas (run control, databases, simulation)
- In some areas we have played catchup with changing scope and timescale of the prototype system and with the software that is now available from the CERN DAQ group (but wasnt before)
- Prompted by a recent LVL1 software meeting and pressure for more formal software methods in the TDAQ community, we started looking again at the overall software project
- This is proving useful: some areas of disagreement remain to be resolved...

Software Context Diagram

Recent UK Activity

- Recent discussions in the UK have resulted in a draft "Software Context Diagram" – subject to further discussion
- At previous meetings a rough division of the project into a few major packages has been presented a few times
- However recent discussions to produce a more formal, UML style, package diagram showing the detailed division into software components and their interdependencies has not yet reached a concensus



Software Themes

L1Calo Online Software includes:

- Histogram collection and presentation, archive and reference
- Event collection (recording possible, but not planned)
- Event analysis
- Calculate and display status information
- Collection, monitoring, presentation and archiving of non-event information; periodic checking of hardware settings
- Calibration: derive settings, archive, retrieve, examine trends, set initial values
  - Internal
  - Calorimeters and LHC
- Generate test vectors
- Inject, readout, verify test vectors (Q: is this offered as a service, eg to LVL2, CTP)
- HDMC-style interactive module test
- Trigger menu processing [editing menu, generating files]
- Edit and display trigger hardware and software configuration
- Load and verify all hardware settings
- Edit and display run control parameters
- Process run control commands

Software Non-Themes

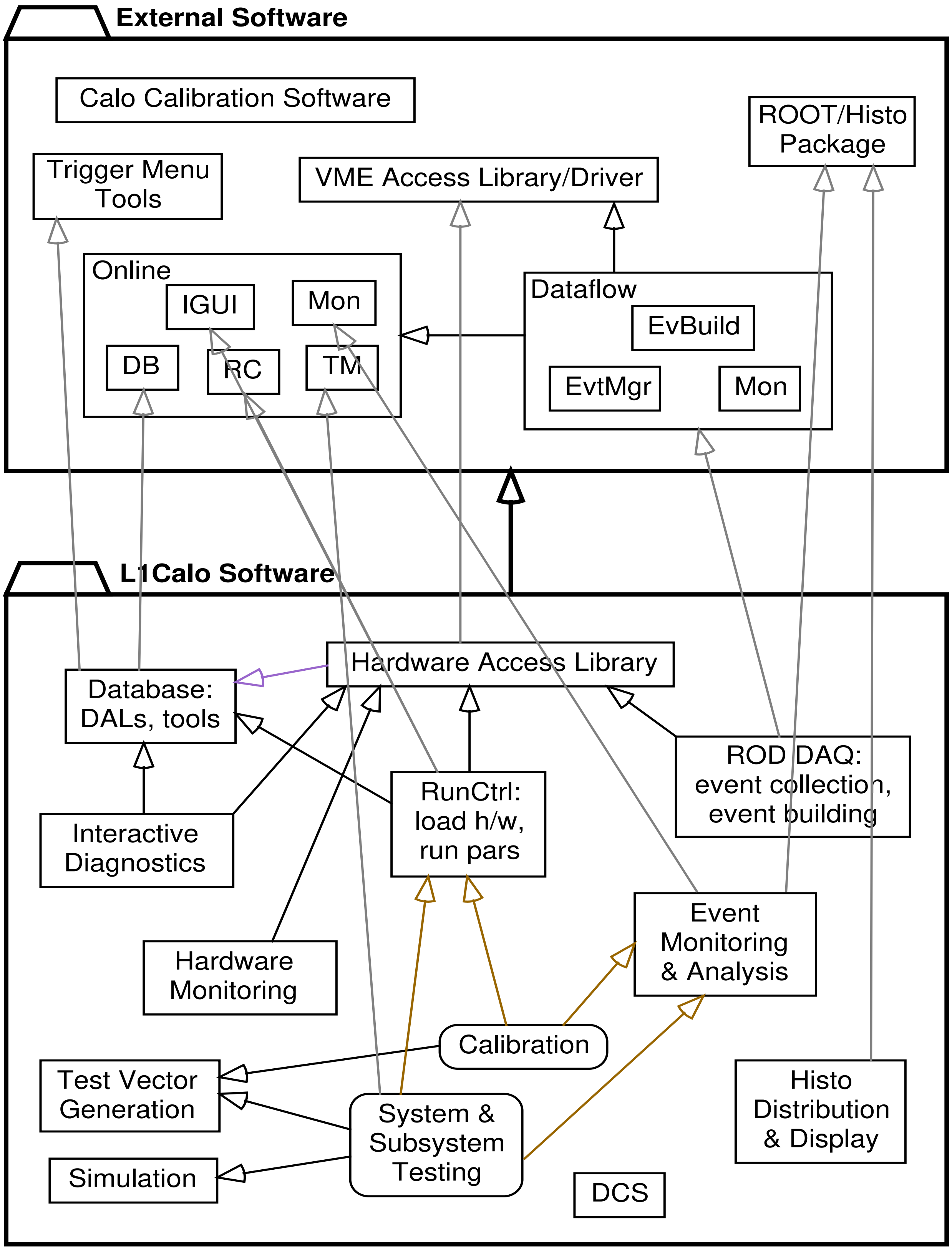
L1Calo Online Software excludes:

- Offline trigger simulation and reconstruction
- LVL1-LVL2-EF trigger performance (but does include LVL1 hardware performance)
- Physics analysis
- Firmware?

Notes

- The above "Themes" perhaps correspond more to use cases than to software packages or components
- Software packages/components which underlie all or many themes are not mentioned above, eg:
  - Hardware access library
  - ATLAS Online and Dataflow libraries
- Missing themes?
  - General user Gui ("supervisor") for integrating non Run Control actions?
  - Anything else?

L1Calo software packages and external libraries



Summary of Recent Work

Presentations at Mainz

- Simulation and Test package – Steve
- Readout – Bruce
- Proposed Changes to HDMC – Murrough
- ROD Tests – Bruce

Earlier and Ongoing Work

- HDMC: large body of software existing for some time, worked on by several people
- Test Vectors: work by Bill to be incorporated by Steve
- ROD Tests: various developments by Bruce
- Run Control: proposals on architecture and actions; some work on implementation
- Databases:
  - trigger menu: online test code adapted for use offline
  - calibration data: initial schema
- Existing and forthcoming draft documents

Status and Plans (1)

Requirements: Next Steps

- Hope to achieve a concensus at or soon after this meeting, adding anything we may have overlooked so far
- Update or rewrite the requirements document
- Conduct a review of the requirements and software organisation

Short Term

- Decide readout strategy for slice test
- Implement HDMC changes required by other packages
- Expand requirements and use cases for high priority items
- Finish and review other draft documents

Status and Plans (2)

Medium Term

- Concentrate efforts on autumn module tests (simulation and test packages)
- Prepare for larger scale tests (readout, run control, etc)
- Attend to areas we have largely ignored (monitoring, calibration, DCS)

Longer Term

- After slice tests (and joint beam tests?)...
- ...review the prototype software we have developed
- Discuss and agree changes for the final system

Miscellaneous

LVL1 Software Meeting

- Video conference discussing software across whole of LVL1
- Participation from CERN, Israel, Japan, UK
- Aim for commonality across LVL1 where achievable
- TDAQ working group will propose standards for “software process” and quality assurance

Documents

- Various draft documents exist; some are forthcoming
- We need to finish and review them...

People, Tasks and Timescales

Personnel

- Bill Stokes has unfortunately had to retire early due to ill health
- Full(ish) time software effort in the UK consists of Bruce, Murrough and Steve; plus Gilles and Norman part time.
- Oliver should start in earnest about now...?
- Lack of effort evident everywhere, but especially in Stockholm/Mainz for the JEM

Tasks

- Software tasks: roughly 40 months of full time people to produce slice test software?
- Plus probably 20 months actually spent performing tests (which will distract software writers)

Timescales

- Slipping along with the hardware...