Contribution ID: **5** Type: **not specified**

Quality assurance for CORAL and COOL within the LCG software stack for the LHC experiments

Tuesday 29 September 2015 09:15 (30 minutes)

CORAL and COOL are software packages used by the LHC experiments for managing different categories of physics data using a variety of relational database technologies. The core components are written in C++, but Python bindings are also provided. CORAL is a generic relational access layer, while COOL includes the implementation of a specific relational data model and optimization of SQL queries for "conditions data". The software is the result of more than 10 years of development in colaboration between the IT department and the LHC experiments. The packages are built and released within the LCG software stack, for which automatic nightly builds and release installations are provided by PH-SFT (cmake, jenkins, cdash) for many different platforms, compilers and software version configurations. Test-driven development and functional tests of both C++ and Python components (CppUnit, unittest) have been key elements in the success of the projects. Dedicated test suites have also been prepared to commission and maintain the integration of these packages with the LHC experiment framework software. Memory profilers (valgrind, IgProf, gperftools) and static code analyzers (Coverity) are also routinely used for proactive quality assurance. Performance test suites for SQL readback queries also exist for COOL and have been essential for the early detection of issues across Oracle server versions. This talk will give an overview of all these different areas of the CORAL and COOL software quality assurance.

Availability

Both days

Will you need the training center (Workshops)?

No

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