



Contribution ID: 259

Type: oral presentation

Analysing CMS software performance using IgProf, OProfile and callgrind

Thursday, September 6, 2007 2:40 PM (20 minutes)

The CMS experiment at LHC has a very large body of software of its own and uses extensively software from outside the experiment. Understanding the performance of such a complex system is a very challenging task, not the least because there are extremely few developer tools capable of profiling software systems of this scale, or producing useful reports.

CMS has mainly used IgProf, valgrind, callgrind and OProfile for analysing the performance and memory usage patterns of our software. We describe the challenges, at times rather extreme ones, faced as we've analysed the performance of our software and how we've developed an understanding of the performance features. We outline the key lessons learnt so far and the actions taken to make improvements. We describe why an in-house general profiler tool still ends up besting a number of renowned open-source tools, and the improvements we've made to it in the recent year.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

CMS

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Session Classification: Software components, tools and databases

Track Classification: Software components, tools and databases