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Evolution of CMS Software

Tuesday, 11 October 2016 16:30 (15 minutes)

The algorithms and infrastructure of the CMS offline software are under continuous change in order to adapt to a changing accelerator, detector and computing environment. In this presentation, we discuss the most important technical aspects of this evolution, the corresponding gains in performance and capability, and the prospects for continued software improvement in the face of challenges posed by the high-luminosity LHC program. Developers in CMS are now able to support the significant detector changes that have occurred during Run 2, while at the same time improving software performance to keep up with increasing event complexity and detector effects due to increased LHC luminosity. We will describe the methods used to achieve and monitor this flexibility in configuration. Finally, the CMS software stack continues to evolve towards modern compilers and techniques, while at the same time addressing short comings across our suite of reconstruction and simulation algorithms. We will discuss our achievements and their impact on the CMS physics program during Run 2 and looking forward to the future.

Tertiary Keyword (Optional)

Simulation

Secondary Keyword (Optional)

Reconstruction

Primary Keyword (Mandatory)

Software development process and tools

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