

# The LHCb software and computing upgrade for Run3: opportunities and challenges

*Tuesday 11 October 2016 11:30 (15 minutes)*

The LHCb detector will be upgraded for the LHC Run 3 and will be readout at 40 MHz, with major implications on the software-only trigger and offline computing. If the current computing model is kept, the data storage capacity and computing power required to process data at this rate, and to generate and reconstruct equivalent samples of simulated events, will exceed the current capacity by a couple of orders of magnitude. A redesign of the software framework, including scheduling, the event model, the detector description and the conditions database, is needed to fully exploit the computing power of new architectures. Data processing and the analysis model will also change towards an early streaming of different data types, in order to limit storage resources, with further implications for the data analysis workflows. Fast simulation will allow to obtain a reasonable parameterization of the detector response in considerably less computing time. Finally, the upgrade of LHCb will be a good opportunity to review and implement changes in the domains of software design, test and review, and analysis workflow and preservation.

In this contribution, activities and recent results in all the above areas are presented.

## **Tertiary Keyword (Optional)**

Data model

## **Secondary Keyword (Optional)**

Data processing workflows and frameworks/pipelines

## **Primary Keyword (Mandatory)**

Computing models

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