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Real-time analysis in Run 3 with the LHCb experiment

Friday, 19 March 2021 12:00 (15 minutes)

LHCb's second level trigger, deployed on a CPU server farm, not only selects events but performs an offline-quality alignment and calibration of the detector and uses this information to allow physics analysts to deploy essentially their full offline analysis level selections (including computing isolation, flavour tagging, etc) at the trigger level. This "real time analysis" concept has also allowed LHCb to fully unify its online and offline software codebases. We cover the design and performance of the system which will be deployed in Run 3, with particular attention to the software engineering aspects, particularly with respect to quality assurance and testing/limiting failure modes.

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