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LHCb and DIRAC strategy towards the LHCb upgrade

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The DIRAC project is developing interware to build and operate distributed computing systems. It provides a development framework and a rich set of services for both Workload and Data Management tasks of large scientific communities. DIRAC is adopted by a growing number of collaborations, including LHCb, Belle2, the Linear Collider, and CTA.

The LHCb experiment will be upgraded during the second long shutdown (2019-2020). At restart of data taking in Run 3, the instantaneous luminosity will increase by a factor five. The LHCb computing model will also need an upgrade. Oversimplifying, this translates into the need for significantly more computing (power or resources) and more storage with respect to what LHCb use right now. The DIRAC interware will keep being the tool to handle all of LHCb distributed computing resources.

Within this contribution, we will highlight the ongoing and planned efforts to ensure that DIRAC will be able to ensure an optimal usage of its distributed computing resources. This contribution focus on DIRAC plans for increasing the scalability of the overall system, taking in consideration that the main requirement is keeping a running system working, with continuity. This requirement translates into the need of studies and developments within the current DIRAC architecture. We believe that scalability is about traffic growth, dataset growth, and maintainability: within this contribution we will address all of them, showing the technical solutions we are adopting.

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