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DIRAC: A community grid solution

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The DIRAC system was developed in order to provide a complete solution
for using distributed computing resources of the LHCb experiment at CERN
for data production and analysis. It allows a concurrent use of over 10K CPUs and
10M file replicas distributed over many tens of sites. The sites can be part of a
computing grid such as WLCG or standalone computing clusters all integrated in a
single management structure.

DIRAC is a generic system with the LHCb specific functionality incorporated
through a number of plug-in modules. It can be easily adapted to the needs of
other communities. A special attention is paid to the resilience of the DIRAC
components to allow an efficient use of non-reliable resources. The
DIRAC production management components provide a framework for building
highly automated data production systems including data distribution and
data driven workload scheduling.

In this paper we give an overview of the DIRAC system architecture and design
choices. We show how different components are put together to compose an
integrated data processing system including all the aspects of the LHCb
experiment - from the MC production and raw data reconstruction to the final
user analysis.

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