

Towards the Future: DiracX - A Modern Incarnation of the DIRAC Framework

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DIRAC has been a cornerstone in providing comprehensive solutions for user communities requiring access to distributed resources. Originally initiated by the LHCb collaboration at CERN in 2000, DIRAC underwent significant changes over the years. In 2008, a major refactoring resulted in the creation of the experiment-agnostic “core” DIRAC, allowing custom extensions such as LHCbDIRAC.

Despite its success in meeting experiment requirements, DIRAC has accumulated technical debt over 15 years. Managing installations is complex, with a high entry barrier and reliance on custom machinery. The software development lacks adherence to modern standards, hindering onboarding for new developers. Key components like the network protocol and authentication are custom and challenging to integrate with other applications.

To address these challenges, the DIRAC consortium has initiated the development of DiracX. Building on two decades of experience and battle-tested technological choices, DiracX represents a new era. While still in its early stages, the roadmap and timelines are well-established.

This paper outlines the architecture of DiracX and discusses the technological decisions made. Considering the critical importance of a continuously running DIRAC system for many communities, we delve into the migration procedure from DIRAC to DiracX.

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