Contribution ID: **210** Type: **Plenary**

GRID and Cloud Computing at IHEP in China

Monday 25 September 2017 14:30 (30 minutes)

The distributed computing system at Institute of High Energy Physics (IHEP), Chinese Academy of Sciences, was firstly built based on DIRAC in 2013 and put into production in 2014. This presentation will introduce the development and latest status of this system: the DIRAC-based WMS was extended to support multi-VO scheduling based on VOMS; the general-purpose task submission and management tool was developed to ease the process of bulk submission and management of experiment-specific jobs with modular designs and customized workflow; To support multi-core jobs, different multi-core job scheduling methods have been tested, and their performance have been compared; To monitor and manage the heterogeneous resources in a uniform way, the resources monitoring and automatic management system has been implemented based on the Resource Status Service of DIRAC.
The cloud computing provides a new way for high energy physics applications to access a shared pool of configurable computing resources. Based on the requirements from our domestic experiments, IHEP launched a cloud computing project, IHEPCloud, in 2014. This presentation will also introduce the status of IHEPCloud and some ongoing R&D work including resource scheduler based on the affinity model, integration of SDN with OpenStack to achieve configuration flexibility, and performance evaluation etc.

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Session Classification: Plenary

Track Classification: Distributed Computing. GRID & Cloud Computing