Contribution ID: **7**   Type: **Poster**

BelleII@home: Integrate volunteer computing resources into DIRAC in a secure way

Tuesday, 11 October 2016 16:30 (15 minutes)

The exploitation of volunteer computing resources has become a popular practice in the HEP computing community as the huge amount of potential computing power it provides. In the recent HEP experiments, the grid middleware has been used to organize the services and the resources, however it relies heavily on the X.509 authentication, which is contradictory to the untrusted feature of volunteer computing resources, therefore one big challenge to utilize the volunteer computing resources is how to integrate them into the grid middleware in a secure way. The DIRAC interware which is commonly used as the major component of the grid computing infrastructure for several HEP experiments proposes an even bigger challenge to this paradox as its pilot is more closely coupled with operations requiring the X.509 authentication compared to the implementations of pilot in its peer grid interware. The Belle II experiment is a B-factory experiment at KEK, and it uses DIRAC for its distributed computing. In the project of BelleII@home, in order to integrate the volunteer computing resources into the Belle II distributed computing platform in a secure way, we adopted a new approach which detaches the payload running from the Belle II DIRAC pilot which is a customized pilot pulling and processing jobs from the Belle II distributed computing platform, so that the payload can run on volunteer computers without requiring any X.509 authentication. In this approach we developed a gateway service running on a trusted server which handles all the operations requiring the X.509 authentication. So far, we have developed and deployed the prototype of BelleII@home, and tested its full workflow which proves the feasibility of this approach. This approach can also be applied on HPC systems whose work nodes do not have outbound connectivity to interact with the DIRAC system in general.

Tertiary Keyword (Optional)

Security and policies

Primary Keyword (Mandatory)

Virtualization

Secondary Keyword (Optional)

Distributed workload management

Primary author: Prof. WU, Wenjing (Computer Center, IHEP, CAS)

Co-authors: MIYAKE, Hideki (KEK); UEDA, I (KEK IPNS); Dr URQUIJO, Phillip (University of Melbourne (AU)); HARA, Takanori (KEK/IPNS); Mr KAN, Wenxiao (Computer Center, IHEP, CAS)

Presenter: Prof. WU, Wenjing (Computer Center, IHEP, CAS)

Session Classification: Posters A / Break

Track Classification: Track 8: Security, Policy and Outreach