



Contribution ID: 107

Type: **Oral**

CMS Remote Analysis Builder (CRAB) with the ARC grid middleware

Wednesday, April 14, 2010 2:20 PM (20 minutes)

The Compact Muon Solenoid (CMS) is one of the general purpose experiments at the CERN Large Hadron Collider (LHC). For distributing analysis jobs to computational resources scattered across the world, the CMS project has developed the CMS Remote Analysis Builder software (CRAB). Until now CRAB has only supported the gLite and OSG middlewares, but with the help of a new plugin, the CMS analysis jobs can be run on sites running the ARC middleware.

Detailed analysis

CRAB uses the underlying grid middleware to find a computing element (CE) close to an storage element (SE) where the data to be analyzed resides, and submit the jobs there. CRAB uses the middleware with the help of plugins. These plugins have been available for the gLite and OSG middlewares. The Tier-2 center hosted by Helsinki Institute of Physics (HIP) uses the ARC grid middleware. To enable CRAB jobs on HIP, two methods are being used. The first is based on grid level interoperability between ARC and gLite grid middlewares, together with the gLite plugin for CRAB. Recently, also an ARC plugin for CRAB has been developed, to enable jobsubmission using an ARC UI and native interaction between CRAB and ARC. This plugin allows CRAB to better support ARC, and enables CRAB to use all its features for jobhandling.

Conclusions and Future Work

CRAB can be used in a standalone mode or through a server managing the users job on the grid. In standalone mode the CRAB ARC plugin has been proven to handle the CRAB analysis jobs successfully. This method has the drawback of only being able to use one middleware type at the time. The CRAB ARC plugin will be integrated with the CRAB server to enable transparent job submission to all middleware flavors in use in CMS. This will remove the last large obstacle of completely transparent usage across middlewares.

Impact

The sites supporting the CMS experiment have predominantly run only on gLite and OSG middlewares. When the CMS tools better support different middlewares, the sites have more freedom choosing how to run their site. By

making the CMS tools more middleware agnostic this also helps the users use the largest amount of resources, transparently and efficiently.

Keywords

ARC, interoperability, CMS

URL for further information

<http://wiki.hip.fi/twiki/bin/view/Extranet/Tier/CRABModificationN>

Authors: Mr EDELMANN, Erik (CSC - Finnish IT Centre for Science); Mr HAPPONEN, Kalle (Helsinki Institute of Physics HIP); Dr LINDÉN, Tomas (Helsinki Institute of Physics HIP)

Co-authors: Mr KOIVUMÄKI, Jesper (Helsinki Institute of Physics HIP); Mr VÄLIMAA, Joni (Helsinki Institute of Physics HIP)

Presenter: Mr EDELMANN, Erik (CSC - Finnish IT Centre for Science)

Session Classification: High Energy Physics

Track Classification: Software services exploiting and/or extending grid middleware (gLite, ARC, UNICORE etc)