

Latest improvements in the GridWay metascheduler

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Description of the work

The Initiative for Globus in Europe (IGE) is a project funded by FP7 to coordinate European Globus activities. This work shows the most significant developments in the GridWay metascheduler supported by IGE.

The most important developments have been the inclusion of two new execution drivers for CREAM and BES execution services. The new execution drivers for GridWay provide an abstraction layer that enables users to submit to resources managed by CREAM or BES. CREAM accepts job submission requests, described using JDL, as well as other job control and monitoring requests. On the other hand, BES defines activities using the JSDL specification. Therefore, GridWay translates its job templates and operations to the above job description languages and the operations provided by the services, respectively. GridWay also has a new remote BES-compliant interface, based on GridSAM, providing access to GridWay's metascheduling and interoperation capabilities through a standard interface.

A new installation procedure is now available, in which the GridWay core and drivers are configured, built and installed independently. This feature avoids recompile GridWay in order to add new drivers. It is also possible to build and install GridWay according to the Filesystem Hierarchy Standard (FHS), while a new configuration option to write logs according to the syslog format has been included to this end.

Other developments in the GridWay core implies the adaptation of the scheduler to submit jobs to resources based only on their rank, and not on their free slots, and the choice of setting resource requirements in job templates, like the maximum time or the memory needed for a single execution of the executable. Finally, other new features in GridWay include a randomized job state polling, and the possibility of disposing jobs when they have finished the execution.

Link for further information

<http://gridway.org/>

<http://www.ige-project.eu/>

Wider impact of this work

The new features of GridWay provide a higher level of interoperation with grid infrastructures, responding to the need to leverage existing infrastructures based on different grid technologies. The CREAM and BES drivers provide end-users the ability to submit, control and monitor the execution of jobs to sites managed by these services.

The improvements in the GridWay core include features demanded by the user community, such as the possibility of writing logs according using syslog that allows sysadmins to store the logs in a central point. Other features provide a more flexible installation procedure, the submission of jobs to resources based only on their rank, or the choice of setting resource requirements to be forwarded to LRMS. These improvements contribute to provide a more powerful metascheduling tool.

Printable Summary

The GridWay metascheduler performs unattended, reliable, and efficient execution of jobs on heterogeneous and dynamic grids over different grid middlewares. The development of GridWay is being currently supported by the IGE project.

This work presents the latest developments of GridWay, which include new execution drivers that enable the interoperation with other grid infrastructures although they are not based on Globus, the possibility of writing logs with syslog, the forwarding of requirements to LRMS, or a new installation procedure.

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