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EMI-ES: A common interface to ARC, gLite and UNICORE computing elements

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Overview

The EMI Execution Service (EMI-ES) represents an agreement between ARC, gLite and UNICORE for a common web service interface to computing elements. This service deals with the submission and management of single-job activities on a computing element.

It covers important use cases from both high throughput and high performance computing.

Impact

The EMI Execution service uses the experience from the existing JSDL, OGSA-BES and some related specifications, combining them into a single coherent interface.

The EMI Execution Service will allow transparent job submission to the different middlewares, based on a common web service interface.

Further standardization activities with the relevant OGF groups (PGI, JSDL, BES) are foreseen, in which this agreement between the European players is expected to have a strong impact. Conversely, we foresee future modifications of the specification, both necessitated by external requirements, and through the experience gained from implementing the EMI-ES specification, and doing interoperability testing.

Description of the work

The EMI-ES specification has been developed by a team consisting of leading developers from the three Grid middleware systems ARC, gLite and UNICORE.

The specification covers roughly the same space as the existing OGSA-BES and JSDL specifications, i.e. creation and management of single activities on a computing element.

However, there are evolutions and differences as well:

- * re-designed activity description XML schema, covering data staging, execution, runtime environments, parallel applications and a simple yet powerful resource description (slots, memory, etc). It can be seen as a merger of the JSDL 1.0 schema and some critical and often-used extensions
- * support for bulk operations (e.g. bulk job submission)
- * flexible data staging model, synthesizing the capabilities of the involved middlewares
- * simple state model
- * consistently uses GLUE2 as the information model for resource and activity descriptions

The technical realisation of the interface will be done using standard SOAP web services.

URL

Conclusions

The Execution Service agreement represents a significant milestone for the EMI project, which will enable transparent job submission to the different middlewares that make up EMI. Initial implementations are expected mid 2011.

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