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Uniform access to grid infrastructures with JSAGA

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JSAGA is a Java implementation of the OGF SAGA (Simple API for Grid Application) and JSDL (Job Submission Description Language) specifications, which enables efficient and uniform usage of existing grid infrastructures such as EGEE, OSG, DEISA and NAREGI.

Impact

Several existing tools enable uniform usage of grid middlewares through a common interface. However, existing infrastructures do not differ only by their middleware; they also differ by their policies (e.g. network filtering rules), the supported security contexts (e.g. known certificate authorities) and the worker nodes configuration (e.g. available commands and services, environment variables). The strong point of JSAGA is that it deals with this heterogeneity to enable uniform access to heterogeneous grid infrastructures.

URL for further information

http://grid.in2p3.fr/jsaga/

Conclusions and Future Work

In addition to the integration of new technologies (e.g. gLite-CREAM), we plan to implement two upcoming OGF specifications; the SAGA Service Discovery API Extension and the JSDL Parameter Sweep Job Extension.

Keywords

SAGA, JSDL, API, uniform access, gLite, Globus, Unicore, NAREGI

Detailed analysis

In order to enable uniform access to grid infrastructures, we need to hide middleware heterogeneity by providing a common interface for execution management, data management and security; this issue is addressed by our implementation of the SAGA specification. Technologies supported by this implementation include gLite, Globus, Unicore, Naregi, SRB, iRoDS, etc.

We also need to deal with the infrastructure heterogeneity; this issue is addressed by our job collection management component, built on top of our SAGA implementation. In particular, in order to efficiently transport the job input and output data, this component selects the best transfer path, depending on many parameters related to the targeted grid, the protocols used and the data itself.

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