

An XML-based configuration and management system for the gLite middleware

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gLite is the next generation middleware for grid computing. Born from the collaborative efforts of more than 80 people in 12 different academic and industrial research centers as part of the EGEE Project, gLite provides a bleeding-edge, best-of-breed framework for building grid applications tapping into the power of distributed computing and storage resources across the Internet.

Currently, gLite is composed of more than 25 different services, implemented in different languages, using different technologies and all coming with individual configuration needs. In addition gLite can be run in multiple operational scenarios and supports presently hundreds of configuration options. Past experience has shown that configuration and management are one of the biggest challenges of such a system. In order to ease configuration and deployment of such a complex system, we have developed a configuration model that offers the users and administrators of gLite a homogeneous, easy to use, extensible and flexible system across all services, yet fitting the needs of the different services and providing the necessary security.

It includes an XML-encoded common configuration storage format across all services with pre-configured configuration templates guiding the user in the proper selection of the configuration scenarios. This includes validation of the stored configuration information and tools to manipulate the information and automatically produce documentation or transform the information so that it can be used by high-level system management tools. The services can obtain the configuration information either from local storage or from a central configuration service using standard grid security based on certificates and VO memberships and roles.

After a discussion of the environment and challenges, the paper will present a detailed description of the developed solutions together with a discussion of the problems and future developments.

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