JRA1 – MIDDLEWARE RE-ENGINEERING

The vision for Grid middleware in the second phase of EGEE is to provide a reference open source implementation of the foundation services that are application-independent and which need to be deployed at all sites connected to the infrastructure. On top of this foundation, an open-ended set of application–specific, higher-level services that can be deployed on-demand at specific sites will either be provided directly by the project or integrated from other sources and projects.

In the first phase of EGEE, JRA1 produced a number of middleware releases (called "gLite", pronounced *gee-light*), comprising security services, information and monitoring services, data services, job management services, and helper services. These services were developed to follow a *Service Oriented Architecture*, mostly based on web-services that aim to be compliant with the Web Services Interoperability (WS-I) recommendations. They have been integrated and tested to form a consistent software stack that still allows individual components to be used independently and is now being commissioned and gradually introduced on the main EGEE Grid infrastructure. This stack needs to be supported, maintained, further evolved, in particular in view of emerging standards, and some components must be completed and hardened from the current prototype stage to a production-level release.

The experience gained with these releases allowed the EGEE project to distinguish between application-independent "Grid Foundation Middleware" and higher-level "Grid Services". Grid Foundation Middleware comprises all services that need to be deployed on a production Grid infrastructure in order to provide a consistent, dependable service. It can therefore be regarded as the "Middleware Infrastructure". Grid Services, on the other hand, comprise higher-level services that certain users and Virtual Organisations (VOs) require. While the focus of EGEE-II will be on Grid Foundation Middleware, key Grid Services need to be provided in order to offer end-to-end solutions to the EGEE applications and to validate the effectiveness of the Grid Foundation Middleware. It is expected that many of the Grid Services will be provided by other sources and projects as well. The Grid Foundation Middleware is also based on other common basic Grid tools such as Condor and the Globus toolkit.

Components have been deployed on several environments, including the EGEE Pre-Production service (used for testing) and the Production services (the main Grid infrastructure). The gLite middleware has also been used by other communities such as the DILIGENT project. The user feedback received has been a valuable driver for improving the functionality, usability and performance of the middleware. The last gLite release (version 3.0) was released on 4 May 2006 and is deployed on the Production Service infrastructure.

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JRA1 Webpages
JRA1 homepage: http://cern.ch/egee-jra1/;
gLite homepage: http://www.glite.org

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