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Objectives of the JRA1 Activity

The vision of EGEE-II for Grid middleware is to provide a reference open source implementation of the foundation services that are application independent and need to be deployed at all sites connected to the infrastructure. On top 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 EGEE, JRA1 produced a number of middleware releases (called gLite) comprising security services, information and monitoring services, data services, job management services, and helper services. These services, which, in accordance with the EGEE contract and technical plan, were developed to follow a service oriented approach, mostly based on web-services that aim at being compliant with the Web Services Interoperability¹ (WS-I) recommendations, have been integrated and tested by JRA1 to form a consistent software stack that still allows individual components to be used independently. These components are now being commissioned and gradually introduced on the production infrastructure. This stack needs to be supported, maintained, further evolved, in particular in view of emerging standards, and in some parts completed and hardened from their current prototype stage to a production-level release.

The experience gained with these releases allowed the 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 be regarded as the Middleware Infrastructure. Grid Services, instead, comprise higher level services that certain, but not all, 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 the EGEE-II applications with end-to-end solutions and to validate the effectiveness of the Grid Foundation. It is expected that many of the Grid Services will be provided by other sources and projects as well. The figure below shows the relationship of Applications, Grid Services, and Grid Foundation Middleware. The Grid Foundation Middleware, in turn, is based on basic Grid tools like Condor and the Globus toolkit.

The existing middleware components, while capable of serving a wide variety of user communities, still require expert knowledge for setting up a Grid infrastructure, exploiting the infrastructure efficiently, and to integrate it with other systems and tools. JRA1 will tackle these problems by reinforcing common best-practices, standardisation, usability and deployability of Grid Foundation Middleware and selected Grid Services. The role of JRA1 is to ensure the consolidation of the current middleware stack by reinforcement of

quality and security as well as international collaborations and standards involvement. Compared to EGEE, JRA1 in EGEE-II has reduced manpower levels reflecting the more mature state of the middleware, the creation of SA3, and also the vision of taking elements of the middleware from other projects and external providers.

The Middleware Re-engineering Activity will take responsibility for three main tasks in EGEE-II: Grid Foundation Middleware, Grid Services and middleware standardisation. The expected result is the adoption of the reengineered components in the SA3 distribution, their deployment on the SA1 infrastructure and their use (when appropriate) by NA4.

-- ClaudioGrandi - 16 Mar 2007

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