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## Framework Services for Real-time SOIs

*Tuesday, 23 September 2008 16:45 (0 minutes)*

**Describe the activity, tool or service using or enhancing the EGEE infrastructure or results. A high-level description is needed here (Neither a detailed specialist report nor a list of references is required).**

We present here a set of framework services, which are the basis of a service oriented infrastructure, capable for interactive real-time applications with increased QoS requirements. Our challenge is to redesign the grid middleware services by integrating real-time features in every layer of the architecture. EGEE would benefit from this contribution since new applications will be ported to grid environment or the existing ones will be enhanced by introducing interactivity, interoperability.

**Report on the impact of the activity, tool or service. This should include a description of how grid technology enabled or enhanced the result, or how you have enabled or enhanced the infrastructure for other users.**

The implementation of the presented framework services will enable the deployment of real time applications which have complex inter-organisation value-chains with distributed management. This real time interoperability is certainly going to broaden the range of the applications which are deployed in distributed environments. Our framework is part of a SOI which complies with the WS standards. Therefore it can be easily integrated to other SOIs and then again, as we focus on real time applications, it can be applied to many other QoS aware environments. Moreover the mapping of SLA business terms to resource level attributes is a well known problem. Archiving this mapping taking into account the algorithms' complexity of each application and the end user requirements or any other generic parameters, instead of the application type, it will be a great contribution to EGEE and grid technology.

**Describe the added value of the grid for your activity, or the value your tool or service adds for other grid users. This should include the scale of the activity and of the potential user community, and the relevance for other scientific or business applications.**

In order to guarantee the high QoS requirements of the interactive real-time applications, we designed a set of real-time aware framework services for the grid middleware that are able to support end to end lifecycle management of the grid resources. Based on the application requirements analysis, we focus on the negotiation and enforcement of SLAs, discovery, advance reservation, QoS provisioning and data-exchange. Dynamic security capabilities are also included in each independent service and in the entire framework as this was also a critical requirement of the interactive applications that we examined. Additionally, a generic approach for semantic mapping, through the SLAs, of the high level business requirements to the low level resource parameters will be also presented. The aforementioned framework services can be integrated to any SOI that requires real-time functionality since they follow all the WS-\* specifications.

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