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The MonALISA monitoring framework

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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).

MonALISA is a fully distributed service able to provide complete monitoring, control and global optimization services for complex systems. The framework allows to gather information from multitude of sources, starting from basic system monitoring to high level Grid services through embedded agents. The monitored information can be aggregated and filtered on many different levels along the reporting line and finally stored in a central repository with API and Web interface available to the end user.

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.

MonALISA is the main monitoring system in several large scale collaborations, being essential for their efficient operation. It is firmly embedded in day-to-day operational procedures for all elements of these projects. In ALICE, MonALISA is the primary tracking tool for the number and status of jobs running on the Grid, the SE operational state and network flow, as well as status of each individual (and critical) service along WMS and SE operation. The Repository enables efficient automated service management, automatically restarting site services that fail functional tests and steering the DNS loadbalancing of central services, while in EVO the distributed services continuously maintain the Minimum Spanning Tree of reflectors according to the network conditions. In addition to monitoring, MonALISA has been extended to do basic functionality tests of the GRID services by integrating it with the WMS and Storage system tools over 3 Grid implementations (EGEE - gLite, OSG, ARC).

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.

MonALISA is used by the ALICE experiment to monitor the entire Grid activity, including job submission, individual job status, data transfers, SE status and availability, accounting (CPU, storage and network) and different historical views. The system allows easy integration with already existing frameworks (ex: ROOT, where an internal class is used to report any monitoring data to the closest MonALISA service) through the ApMon API available for many programming languages. At present the ALICE MonALISA Repository is aggregating information from some 70 Grid sites, tracking ~70,000 parameters over a 3-year period. The web interface provides global views, individual parameter displays as well as correlation charts between parameters. The Web interface is very intuitive and fast, despite the large database size (more than 200 GB). The

same functionality is provided to other Grids, such as OSG and PANDA, and to any site that requires local monitoring.

Authors: Mr COSTAN, Alexandru (University Politehnica of Bucharest, Romania); Mr GRIGORAS, Costin (CERN Geneva, Switzerland); Mr VOICU, Ramiro (California Institute of Technology, USA)

Co-authors: Mr LEGRAND, Iosif (California Institute of Technology, USA); Mr BETEV, Latchezar (CERN Geneva, Switzerland)

Presenters: Mr COSTAN, Alexandru (University Politehnica of Bucharest, Romania); Mr GRIGORAS, Costin (CERN Geneva, Switzerland); Mr VOICU, Ramiro (California Institute of Technology, USA)

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