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MonALISA, An Agent-Based Monitoring and Control System for the LHC Experiments: Status and Outlook

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MonALISA, which stands for Monitoring Agents using a Large Integrated Services Architecture, has been developed over the last fourteen years by Caltech and its partners with the support of the CMS software and computing program. The framework is based on Dynamic Distributed Service Architecture and is able to provide complete monitoring, control and global optimization services for complex systems.

The MonALISA system is designed as an ensemble of autonomous multi-threaded, self-describing agent-based subsystems which are registered as dynamic services, and are able to collaborate and cooperate in performing a wide range of information gathering and processing tasks. These agents can analyze and process the information, in a distributed way, to provide optimization decisions in large scale distributed applications. An agent-based architecture provides the ability to invest the system with increasing degrees of intelligence, to reduce complexity and make global systems manageable in real time. The scalability of the system derives from the use of multithreaded execution engine to host a variety of loosely coupled self-describing dynamic services or agents and the ability of each service to register itself and then to be discovered and used by any other services, or clients that require such information. The system is designed to easily integrate existing monitoring tools and procedures and to provide this information in a dynamic, customized, self describing way to any other services or clients.

A report of the present status of development in MonALISA as well as outlook on future developments will be given.

Secondary Keyword (Optional)

Distributed workload management

Primary Keyword (Mandatory)

Monitoring

Tertiary Keyword (Optional)

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