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Real Time Monitoring of Grid Job Executions

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In this paper we describe the architecture and operation of the Real Time Monitor (RTM), developed by the Grid team in the HEP group at Imperial College London. This is arguably the most popular dissemination tool within the EGEE Grid. Having been used, on many occasions including GridFest and LHC inauguration events held at CERN in October 2008.

The RTM gathers information from EGEE sites hosting Logging and Bookkeeping (LB) services. Information is cached locally at a dedicated server at Imperial and made available for clients to use in near real time.

The system consists of 3 main components: the RTM server, enquirer and an apache Web Server which is queried by clients. The RTM server queries the LB servers at fixed time intervals, collecting job related information and storing this in a local database. Job related data includes not only job state (i.e Scheduled, waiting, Running or Done) along with timing information but also other attributes such as Virtual Organization, Computing Element (CE) queue - if known.

Job data stored in RTM database is read by the enquirer every minute and converted to an XML format which is stored on a Web Server. This decouples the RTM server database from potentially many clients which could bottleneck the database.

This information can be visualized through either a 2D or 3D Java based client with live job data either being overlaid on to a 2 dimensional map of the world or rendered in 3 dimensions over a globe map using OpenGL.

Primary authors: Dr COLLING, David (Imperial College London); Dr MOONT, Gidon (Imperial Collge London); Dr MARTYNIAK, Janusz (Imperial College London); Ms AGGARWAL, Mona (Imperial College London); Dr VAN DER AA, Olivier (Imperial Collge London); Dr MC GOUGH, Stephen (Imperial College London)

Presenter: Dr MARTYNIAK, Janusz (Imperial College London)

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