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Visual GRID Activity Monitoring in the Dashboard Framework

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It is sometimes hard to conceptualise the GRID and visualise its activity. But having a graphical representation of its workings and movements, we can more easily surpass these problems; coupling this with a system that provides accurate measurements of such activities, we obtain a powerful monitoring system that is visually appealing, intuitive to use and of great practical worth.

Our solution is supported on two, interconnected systems: the Google Earth Dashboard monitor provides the high-level, graphical view of the Grid while more detailed information is displayed by Siteview.

Detailed analysis

The Google Earth application displays a highly detailed 3D model of planet Earth, on top of which various informations can be overlaid; the Google Earth Dashboard Monitor is a service that provides such information in near real-time about the GRID. It collects information about the GRID activities –job processing and data transfers– and transforms it to a format that Google Earth can understand and display. In particular, Sites are represented in their place on the 3D globe and one can see file transfers and job submission going through the skies between the intervening sites. This gives a very visual sense of the level of activity on the GRID.

For more detailed information about the status of the Sites, the Google Earth monitor takes us to Siteview. This service provides for every site, and for every VO on it, details of its current operational status. It is based on GridMap. Thus, one can with a simple glance assess the overall status of the Site and the activities running there. It also displays information hierarchically, enabling one to find information about relevant sub-activities, and, for more specific information, it takes one to the lower-level monitoring tools.

Conclusions and Future Work

These higher-level monitoring tools, that visually show the GRID's activity, are invaluable not only in educating and presenting what the GRID is and how it achieves its goals but also in the daily monitoring activities of the GRID.

As such, work is underway that will extend these tools in terms of the quality of the visualisation and in the type and number of VOs supported. One particular point that we are particularly excited about is to provide real-time visualisation of the GRID activities. We would also like to support VOs other than the CERN experiments.

Impact

The success of the Google Earth monitor is easily visible: it is currently on display at CERN's IT department and at the Atlas visitor center and it was one of the stars of the show at CERN's ITU booth. The reason is simple: it's visually attractive, educational and informative.

The Siteview service is currently used by Site administrators to check, from the VOs perspective, the status of their Sites and the on-going activities in them.

Keywords

Monitoring Tools, GRID Visualization, Graphical User Interfaces

URL for further information

<http://dashb-earth.cern.ch>

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