APPLICATION MONITORING USING THE MERCURY MONITORING SYSTEM ON THE CLUSTERGRID INFRASTRUCTURE

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Grid technologies are steadily gaining ground worldwide. More and more researchers from different areas recognize the benefits of grid and start using it in areas where previous technologies were not sufficient or would have come with a very high cost. This all results in more and more people running more and more applications on grids.

Developing and running applications have not become easy however. In contrast to conventional clusters grids usually appear as black boxes that users have no direct access to. This makes several well-known development, testing and debugging procedures not applicable in grid environments. Since grid applications are commonly running for extended periods of time the ability to verify their run-time behaviour is especially important.

Besides testing and debugging, the ability to monitor the performance of a running application is also important. It is not uncommon for e.g. parallel programs that they work well in a small test environment but inhibit unexpected bottlenecks on a large grid thus failing to deliver the expected performance. It is therefore important for the user running the application to receive information about the actual run-time behaviour and thus be able to identify the possible performance problems.

The MTA SZTAKI Laboratory of Parallel and Distributed Systems developed the Mercury Monitoring System to help solving the above mentioned problems. The Mercury Monitoring System is capable of monitoring both the grid fabric (state, performance and usage of various hosts and grid services) as well as the applications running on the grid. Using Mercury it is possible for example to monitor the communication patterns of parallel applications. Mercury also gives support for source-level debugging of applications running on a remote grid resource thus enabling the developer to use conventional, well-known debugging methodologies on his/her local computer.

Mercury is successfully used by several European project on different grid infrastructures. In this article we focus on describing the usage of Mercury on the Hungarian ClusterGrid infrastructure. We not only describe our experiences but also discuss further application monitoring enhancements made possible by the ClusterGrid architecture.