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## Performance testing of distributed computational resources in the software development phase

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### Overview (For the conference guide)

A grid software harmonization of different software vendors is possible through adoption of standards (common protocols and interfaces). We have observed that reliable and comparable performance parameters of grid subsystems or large scale grid infrastructures are not usually known, neither for developers which implement the standards in the existing solutions nor for potential users which are looking for high performance distributed computational solutions.

### Conclusions

The proposed solution can provide useful information for developers based on daily running performance tests and for potential users after issue of the release.

### Impact

Regular performance testing in early development phase can increase quality of the final software.

### URL

<http://arc-emi.grid.upjs.sk/tests.php>

### Description of the Work

In the early stage of standard implementation, the performance testing of grid subsystems can detect serious software failures which are not possible to find by other test procedures. The reliable performance tests could provide an important feedback for developers. During certification testing of ARC components (ARC gridftp server, ARC CE, ARC Infosys, ARC Clients, and ARC Core) of EMI 2.0.0 release [1] automatic performance tests of nightly builds [2] has been introduced. We proposed a simple software solution which includes a communication layer, resource consumption agents which are hosted in computational resources (client desktops or servers), database of the results and web interface. The monitoring agents are supervised by a supervisor through the secure XML-RPC protocol. The resource monitoring agent is a key element of performance testing. It provides information about all monitored process including their child process. The monitoring agent is a simple Python script using Python psutil library [3]. The second agent is used for data recording in the central MySQL database. The results stored in the database is possible to query and visualize using a web interface.

References

[1] FP7 project: European Middleware Initiative, <http://www.eu-emi.eu/>

[2] ARC test results, <http://arc-emi.grid.upjs.sk/tests.php>

[3] Python library psutil, <http://code.google.com/p/psutil/>

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