Contribution ID: **15** Type: **poster**

Grid systems' capacity metrics from a user point of view; Performability exploration within the ATLAS virtual organization

Wednesday 9 May 2007 17:30 (20 minutes)

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

The activity we propose involves benchmarking of grid resources, as they are effectively available for all users. We do this in order to measure real grid characteristics, which serve as a proof that metrics-guided resource selection is nearly imperative, if not to optimally select resources, at least to specifically avoid ones which are known a priori that they don't perform as good as necessary. Our results hint in favour of a more intelligent matchmaking process which involves metrics.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

As explained earlier, the metrics service can be deployed within the context of a VO, in order to benefit the users of that particular realm directly and in their own discretion or, it could be provided as an integrated servide within the RB/WMS mechanisms that can now make resource selection with more detailed and accurate algorithms. The basic framework for doing the first part is already available as a python code package, which is able to submit a self-compiling lmbench source and some related scripts that gather other system information -software & hardware-, and collect their reports. In order to make the results technically correct some statistical validation is necessary.

What is very important to specifically clarify, is that the benefits of applying the benchmarking technique and resource characterization can greatly outnumber the measurement system's overhead in itself (typically less than 0.5% of site's capacity).

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

To begin with, we have been able to make our first experiments with the technology, but not to implement it as a regular service, say in the ATLAS VO, because we suspect that we might be colliding with the VO's AUP. We do think that the service is useful though and should be expanded across multiple VOs. It is imperative to note that resource characterization makes sense, as long as sysadmins keep the type of resources within a single queue homogeneous (ie. similar systems across one queue).

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

The potential community that benefits is in effect all grid users, since optimization of the system as a whole, can lead to direct and indirect advantages for everyone, in terms of total AND individual job throughput. What we want specifically to demonstrate is, that by skipping benchmarking and resource characterization, enormous amount of grid resources can be waisted or sub-optimally exploited. For example, the systems that are best on floating point of a given algorithm, say 64bit operations, are not the ones that are optimal on memory transfers, and vice versa. The results are conclusive in demonstrating that the current GIIS-based scheme is, at best, incomplete. We started our activity within SEE VO, then verified the situation also within ATLAS VO, and expect that if operations' teams (dteam, ops) align and perform similar metrics, the same will be proven for the system as a whole. Currently this is not possible from our side, because it requires operators' and/or VO approval.

Authors: Mr GEORGATOS, Fotis (University of Cyprus); Mr KOUVAKIS, Ioannis (University of the Aegean); Mr KOYRETIS, Ioannis (National Technical University of Athens)

Presenters: Mr GEORGATOS, Fotis (University of Cyprus); Mr KOUVAKIS, Ioannis (University of the Aegean); Mr KOYRETIS, Ioannis (National Technical University of Athens)

Session Classification: Poster and Demo Session