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## A Case for Virtualization for Atlas: Deploying Virtual Machines with Panda Pilot Jobs

*Tuesday 23 September 2008 16:19 (1 minute)*

**Describe the activity, tool or service using or enhancing the EGEE infrastructure or results. A high-level description is needed here (Neither a detailed specialist report nor a list of references is required).**

Atlas Computing framework uses Panda pilot jobs for submission to the grid to overcome grid workload scheduling latencies introduced at work load management systems, and to increase resource utilization. Over the past few years, virtualization has represented itself as a next step to further increase resource utilization and resource consolidation. Virtual machine as isolated and portable environments allows improvement in the security.

**Report on the impact of the activity, tool or service. This should include a description of how grid technology enabled or enhanced the result, or how you have enabled or enhanced the infrastructure for other users.**

We have extended the present Panda pilot framework utilized by the Atlas computing framework to improve overall resource utilization and decoupling the execution environment from the physical machines, thus reducing the environment configuration problems while increasing overall throughput of the jobs due to higher availability of the resources. In future, we plan to allow users to submit their own virtual machine images where they could already have tested their software, and possibly already packaged with their data to allow job migration much simpler and easier to manage.

**Describe the added value of the grid for your activity, or the value your tool or service adds for other grid users. This should include the scale of the activity and of the potential user community, and the relevance for other scientific or business applications.**

Our work is highly relevant in the present as it provides a scalable and non-invasive way to integrate virtualization technology in the grid in a transparent manner. This is independent of any local batch system deployed by the site provider which could be Torque, SGE or Condor. Thus allowing us to shift the job execution paradigm from the physical machines to the virtual machines in the grid. The additional added value to the grid is that our work enables resources to be treated as generic by providing execution environments on demand for jobs which could also enable business applications to be run on the grid resources.

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