

## **Virtualizing the Philippine e-Science Grid**

One of the biggest challenges in High Performance Computing is how to allocate computing resources to different groups of users. These groups of users may have different computing needs e.g., number of nodes, number of CPU cores, amount of memory and hard disk space as well as different software applications and versions. Moreover, when limits are not in place, some users may use up all the resources in a cluster. In the case of the Philippine e-Science Grid or PSciGrid ([www.psciGRID.gov.ph](http://www.psciGRID.gov.ph)), the problem of equitably allocating resources to a diverse group of users is quite evident. Local seismologists, meteorologists, physicists, computer scientists and biologists comprise a growing number of users that have started to take advantage of the computing resources of PSciGrid. At present, we have different physical clusters that cater to these groups of users. The problem with this setup is that some clusters are underutilized while others are overutilized. Furthermore, when two or more users want to have full access to a cluster, the jobs they submit usually have to be queued. In this paper, we propose to consolidate the different physical clusters of PSciGrid into one big cluster. We retain the individual clusters virtually by using the Xen roll provided by the Rocks distribution. Using this setup, we hope to improve the general maintenance of PSciGrid's HPC infrastructure, isolate concurrent users from each other, and improve computing utilization.

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