Contribution ID: **233**   Type: **oral**

The Integration of Virtualization into the U.S. ATLAS Tier 1 Facility at Brookhaven

Tuesday 24 March 2009 17:50 (20 minutes)

The RHIC/ATLAS Computing Facility (RACF) processor farm at Brookhaven National Laboratory currently provides over 7200 cpu cores (over 13 million SpecInt2000 of processing power) for computation. Our ability to supply this level of computational capacity in a data-center limited by physical space, cooling and electrical power is primarily due to the availability of increasingly dense multi-core x86 cpu's. In this era of dense and inexpensive multi-core processors, the use of system virtualization has become increasingly important.

By virtualizing a single multi-core server into many, one can minimize the impact of operating system and service failures. Virtualization can also serve as a useful tool in the elimination of resource contention issues on compute nodes. For these reasons, we have split a number of our multi-core systems into virtual Condor batch, interactive and testbed components with Xen. The flexibility offered by virtualization comes with a price, however, a new level of configuration management complexity.

This presentation will discuss our experiences with Xen. In particular, we will cover our development of a custom software toolkit to simplify Xen configuration management. This has allowed us to integrate Xen deployments with our existing, automated OS provisioning system and can potentially lead to the virtualization to thousands of hosts.

Author: Dr CHAN, Tony (Brookhaven National Laboratory)

Co-authors: Mr WITHERS, Alexander (Brookhaven National Laboratory); Mr HOLLOWELL, Christopher (Brookhaven National Laboratory); Mr PRYOR, James (Brookhaven National Laboratory); Mr HOGUE, Richard (Brookhaven National Laboratory); Mr PETKUS, Robert (Brookhaven National Laboratory); WU, Yingzi (Brookhaven National Laboratory)

Presenters: Mr HOLLOWELL, Christopher (Brookhaven National Laboratory); Mr PETKUS, Robert (Brookhaven National Laboratory)

Session Classification: Hardware and Computing Fabrics

Track Classification: Hardware and Computing Fabrics