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Virtualization applications at the Brookhaven Computing Facility

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The Brookhaven Computing Facility provides for the computing needs of the RHIC experiments, supports the U.S. Tier 1 center for the ATLAS experiment at the LHC and provides computing support for the LSST experiment. The multi-purpose mission of the facility requires a complex computing infrastructure to meet different requirements and can result in duplication of services with a large number of single-purpose servers for narrowly-defined applications. The facility is investigating potential applications of the open-source Xen virtualization package to allow the consolidation of services and servers. This presentation also discusses using Xen to virtualize the bulk of our Linux-based computing cluster. This is being integrated with Condor, the dCache-managed distributed storage system and the new multi-core CPU's to improve availability and increase effective usage of our facility resources by virtualizing a wide array of software support packages to meet the needs of various applications. Virtualization support (both hardware and software) can be an important element for efficient operations in a heterogeneous computing environment with increasing reliance on distributed computing models.

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