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Deploying HEP Applications Using Xen and Globus Virtual Workspaces

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Deployment of HEP application in heterogeneous grid environments can be challenging because many of the applications are dependent on specific OS versions and have a large number of complex software dependencies. Virtual machine monitors such as Xen could ease the deployment burden by allowing applications to be packaged complete with their execution environments. Our previous work has shown HEP applications running within Xen to suffer little or no performance penalty as a result of virtualization. However, a practical strategy is required for remotely deploying, booting, and controlling virtual machines on a remote cluster. One tool that promises to overcome the deployment hurdles using standard grid technology is the Globus Virtual Workspaces project. We investigate strategies for the deployment of Xen virtual machines using Globus Virtual Workspace middleware that simplify the deployment of HEP applications. Further, we study the feasibility of deploying user-constructed virtual machines for the purpose of executing custom physics analyses.

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