

FermiCloud: Technology Evaluation and Pilot Service Deployment

FermiCloud is an open-source private cloud that provides infrastructure-as-a-service on demand to the Fermilab community. FermiCloud's initial stakeholders were developers, testers, and integrators of grid middleware and scientific software at Fermilab. FermiCloud has now expanded to host small servers which do not need the resources of a full machine. The FermiCloud project has recently completed gathering its requirements and evaluating technology. This paper describes the process and results of the technology evaluation, in which we compared Xen and KVM hypervisors and Nimbus, Eucalyptus, and OpenNebula cloud management software. We will also describe issues we found regarding authentication and authorization in these packages and the work we are doing with the developers to resolve them. We will describe operational experience we have gained from running our pilot service thus far. Finally we will describe the work necessary to detect idle virtual machines and reclaim the unused resources to run batch system virtual machines.

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