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Cluster Consolidation at NERSC

Thursday, 22 May 2014 17:25 (25 minutes)

This talk will provide a case study of cluster consolidation at NERSC.

In 2012, NERSC began deployment of “Mendel”, a 500+ node, Infiniband-attached, Linux “meta-cluster” which transparently expands NERSC production clusters and services in a scalable and maintainable fashion. The success of the software automation infrastructure behind the Mendel multi-clustering model encouraged investigation into even more aggressive consolidation efforts.

This talk will detail one such effort: under the constraints of a 24x7, disruption-sensitive environment, NERSC staff merged a 400-node legacy production cluster, consisting of multiple hardware generations and ad-hoc software configurations, into Mendel’s automation infrastructure. By leveraging the hierarchical management features of the xCAT software package in combination with other open-source and in-house tools, such as Cfengine and CHOS, NERSC abstracted the unique characteristics of both clusters away below a unified management interface. Consequently, both cluster components are now managed as a single, albeit complex, integrated system.

Additionally, this talk will provide an update on the PDSF system at NERSC, including improvements to trending data collection and ongoing CHOS development.

Summary

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