Adaptive COMPUTING

Agile › Automated › Adaptive

Moab

Moab Cluster Suite®

The Next Generation Challenge

With the pace of technological change accelerating, the range of architectural choices for next generation HPC systems continues to expand. Current state-of-the-art systems incorporate thousands of nodes, multi-core processors, GPGPUs, low latency network technologies and multiple OS environments.

When efficiently matched with appropriate workloads each of these advanced technologies can accelerate the pace of discovery. At the same time, each of these additional technologies and increases in scale add to the complexity of management and the need for intelligent automation.

Moab Cluster Suite Overview

Moab Cluster Suite® is a policy-based intelligent resource management system that automates the scheduling, managing, monitoring, and reporting of HPC workloads on massive scale, multi-technology installations.

Through policy-based management, predictive real-time and future scheduling, optimized resource allocation, and a scalable architecture, Moab Cluster Suite—

- Applies organizational policies to ensure that service levels and fair-share resource allocations meet user requirements while maximizing job throughput
- Automates management through extensive use of event-based scheduling and triggers that delivers optimum utilization of 90-99% on a consistent basis
- Provides a web 2.0 graphical interface for intuitive and effective user job control
- Integrates with existing middleware for consolidated administrative control and holistic system reporting
- Reduces administration costs and increases ROI

Moab manages the world's most advanced systems: half of the top 10 systems and 38 percent of the total compute cores of the top 100 systems on the November 2010 Top 500 list. Support for hybrid GPGPU-based systems has been introduced with Moab 6.0 and TORQUE 2.5.4.

Intelligent Resource Management

Moab acts as the "brain" of an HPC system to automate complex decision making processes. Moab works primarily through your system's underlying resource managers to receive information from and send instructions to your resources. Moab works with most major resource-management and industry standard resource-monitoring tools.

Working with the resource and storage managers in your system, Moab takes advantage of domain expertise to allow these systems to do what they do best, importing their state

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information and providing them with the information they need to control resources efficiently.

Working with the resource-management tools of your choice, Moab Cluster Suite 6.0 —

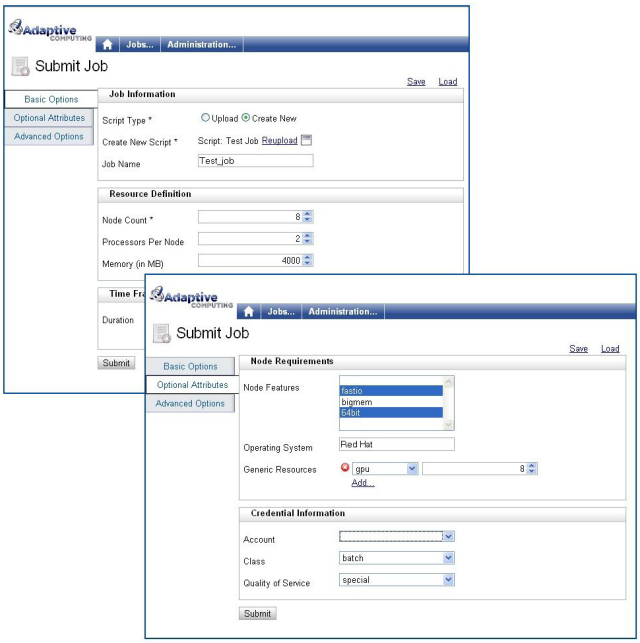
- accesses infrastructure and workload status information
- optimizes workload placement in time and space
- modifies workload for optimum performance
- analyzes historical data and future commitments
- makes and enforces intelligent decisions

As a result, Moab increases workload throughput and efficiency by utilizing idle resources and accomplishing more work in less time with existing resources.

Capabilities

Moab Cluster Suite applies site policies to orchestrate workload across the ideal combination of compute, network, storage and specialized resources including GPGPUs:

- Priority weighting (user, group, account, QoS, and class)
- Backfill job scheduling (firstfit, bestfit, "greedy," and preempt algorithms)
- Allocation management
- Advance reservations, node sets, malleable jobs
- Quality of service (QoS) facilities (special treatment for various classes of jobs, users, groups, etc.)
- Fair-share targets, caps, weights, and hierarchical priorities
- Security
- Checkpointing
- Affinity



Moab Viewpoint User Control

A standard component of Moab Cluster Suite 6.0, Moab Viewpoint™ 2.0 is a next-generation self-service web portal that provides Moab users and administrators with an easy and intuitive framework to manage resources allocated to them.

Managing with Intelligence

As today's leading HPC facilities move beyond petascale towards exascale systems incorporating increasingly sophisticated and specialized technologies, equally sophisticated management capabilities are essential. With a proven history of managing the most capable and advanced systems in the Top500, Moab Cluster Suite 6.0 continues to be the preferred solution for next generation HPC facilities.

For more information on Moab Cluster Suite 6.0 visit www.adaptivecomputing.com.

Let's Talk . . . Set Up a Demonstration . . . and Test in Your Environment

- An Adaptive Computing solutions advisor can guide you to the products and services that will best meet your needs, and will work with you to set up a live, online interactive demonstration designed specifically for your organization.
- Contact a solutions advisor by phone or email, or visit our Web site today—

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