

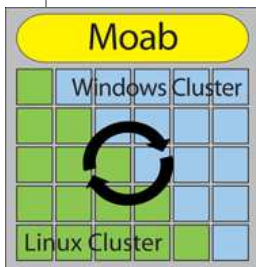
MOAB HYBRID CLUSTER™

A Mixed Windows/Linux Cluster Solution

The Moab Hybrid Windows/Linux Cluster Solution uses Moab Cluster Suite® to dynamically change a node's OS on the fly in order to meet the needs of their workload. The dynamic hybrid cluster hinges on Cluster Resources' intelligent workload, event and policy engine called Moab®. As a meta-scheduler, Moab optimally determines when the OS mix should be modified based upon defined policies and service level agreements as well as current and projected workload. When the specified conditions are met, Moab triggers the OS change using a site's preferred OS-modification technology, such as dual boot, diskfull and/or diskless provisioning or virtualization (i.e., via Hyper-V within Windows Server 2008, VMware, or Xen).

The Moab Hybrid Cluster can be applied to both new and existing clusters to help yield maximum hardware utilization and ROI. The hybrid cluster model also consolidates administration and centralizes job submission across both platforms. Administrators can easily manage the policies and workload for both OS environments from Moab's unified console. Moab can also make the dual-OS nature of the cluster transparent to end users by applying application and workload information that ensures jobs run on the correct OS without the user needing to specify it. Moab can manipulate, grow and shrink allocated resources in order to meet service level targets.

Moab Hybrid Cluster Solution incorporates industry-leading applications from Cluster Resources:



- **Moab Workload Manager®**
A policy-based workload management and scheduling engine
- **Moab Cluster Manager®**
A powerful graphical cluster administration interface, monitor, & reporting tool
- **Moab Access Portal®**
A web-based end-user job submission and management portal

Moab manages many of the largest clusters and grids in the world. Cluster Resources' technologies are used broadly across Fortune 500 companies; in fact, Moab is licensed on more Top500 compute resources than any comparable commercial solution.

Benefits

- Optimize resource utilization by eliminating potential resource silos
- Reduce user and admin complexity by achieving single interface to all resources
- Balance resource usage between OS environments by dynamically adapting from one OS to the other
- Respond to internally or externally created workload surges with dynamic adaptation of OS mix
- Enable full business processes that span multiple resources and OS environments
- Tune and reserve future OS environment mix based on planned activities and historical usage patterns

Call for Evaluation Sites

Email info@clusterresources.com

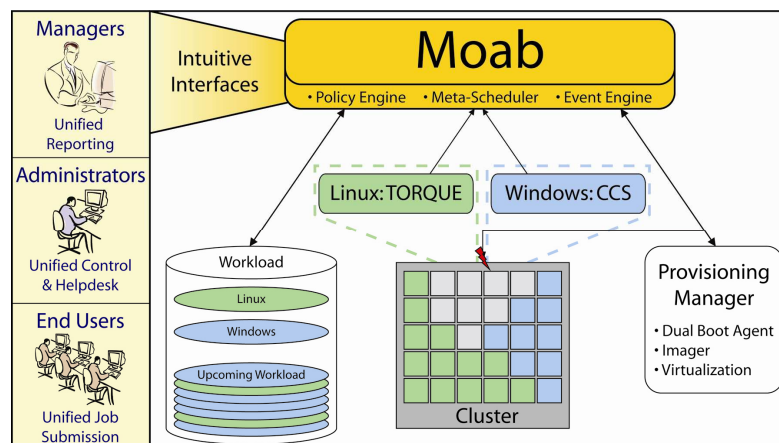
Call +1 801-717-3700 or toll free (US only) +1 888-221-2008 or +44 (1223) 437134

Advantages

- **Leverage your HPC infrastructure** more efficiently by breaking down the silos
- **Schedule automatic reallocation** based on workload requirements and established policies
- **Improve the utilization of your HPC infrastructure** by doing more with the resources you have
- **Simplify the use and management of mixed cluster environments** with a unified interface and automated service level enforcement

Capability	Windows	Linux	Moab	Advantages
Adapt OS Mix to Meet Workload Needs			X	Adapt an OS environment to meet the workload needs and mission objectives of an organization. Handle adaptation of OS mix for resource failures, workload surges, service level guarantees, resource reservations, balancing purposes, etc.
Enable Multi-OS Business Processes Workflows			X	Enable more automated business processes through automating event-driven workflows that cross multiple OSs. <i>Example:</i> Process data on Linux and visualize the results on Windows as part of a Moab integrated workflow
Unify Job Submission			X	Submit jobs via a single web submission interface; Moab applies them to the appropriate OS environment
Unify Workload Management & Reporting			X	Manage workload on both OSs through a single cluster management & helpdesk tool & utilize unified reporting
HPC Resource Manager	X		X	Windows' HPC solution includes resource management; Cluster Resources provides TORQUE* Resource Manager for Linux
System Monitoring Tools	X	X	X	Both OSs and TORQUE provide valuable hardware monitoring
Message Passing	X	X		Both OSs include Message Passing Tools
Operating System	X	X		Windows and Linux; any OS can be used

How it Works



* Other resource managers can be used; any OS can be used; more than two can be deployed, depending on provisioning technology available.