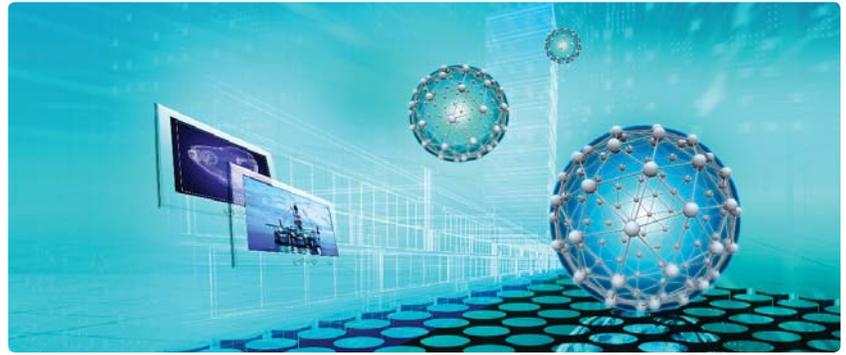




Intelligent HPC Workload Management



## Moab® HPC Suite 9.0 ENTERPRISE EDITION

### Enterprise HPC Challenges

While all HPC systems face challenges in workload demand, end-user support, workflow constraints, resource complexity, and system scale, the enterprise faces even more stringent challenges as well as expectations to keep productivity levels high. Enterprise HPC systems must meet mission-critical and priority HPC workload demands for commercial businesses and business-oriented research and academic organizations as these workloads directly impact revenue, product delivery, and organizational objectives. Eliminating job delays and failures, improving resource utilization, and managing efficiency across multiple heterogeneous systems is a necessity in meeting today's business demands. To do so, a best-in-class workload and resource orchestration platform is necessary to speed time to discovery by more efficiently leveraging data to make data-driven decision that ultimately leads to a competitive advantage.

### Ease-of-Use Driven Productivity

Moab® HPC Suite - Enterprise Edition, a workload and resource orchestration platform, delivers ease-of-use driven productivity for HPC administrators and end-users. It aids in accelerating insights by unifying data center resources, optimizing the analysis process, and guaranteeing services to the business. Moab 9.0 for HPC systems and HPC cloud continually meet enterprise priorities through increased productivity, automated workload uptime, and consistent SLAs. Enterprise customers benefit from a single integrated product that brings together key Enterprise HPC capabilities, implementation services, and 24/7 support. The following new use cases play a key role in improving overall system performance and ease-of-use driven productivity:

- **Viewpoint administrator and end-user portal** – increases end-user productivity through an easy-to-use end-user submission portal, and decreases administrator overhead

by simplifying administrative reporting, workload status tracking, and job resource viewing

- **Docker container support** – improves productivity, efficiency and security for the admin and end-user by automating the set up and tear down of docker containers
- **Non-uniform memory access (NUMA) capabilities** - delivers unparalleled control and performance of job placement by maximizing efficiency of available hardware by specifying the location and configuration of the lower level resources

### Moab HPC Suite - Enterprise Edition

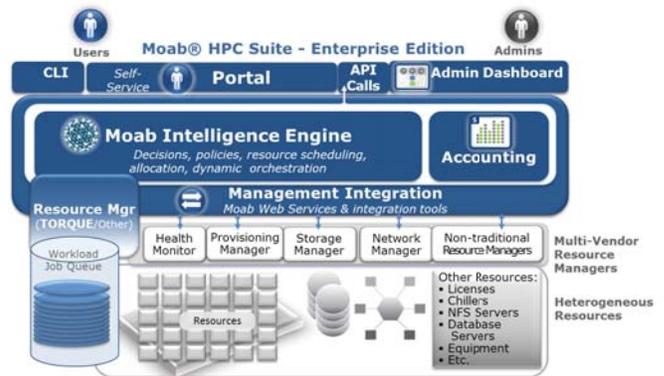
Moab® HPC Suite – Enterprise Edition accelerates insights by increasing overall system, user and administrator productivity, achieving more accurate results that are delivered faster and at a lower cost. Moab provides the scalability, 90-99 percent utilization, and simple job submission required to maximize productivity. This ultimately speeds the time to discovery, aiding the enterprise in achieving a competitive advantage due to its HPC system. Enterprise use cases and capabilities include the following:

- **Elastic computing** – manages resource expansion through bursting private/public cloud and other data center resources utilizing OpenStack or other standard platforms
- **OpenStack integration** - offers virtual and physical resource provisioning for IaaS and PaaS
- **Advanced workflow data staging** - enables improved cluster utilization, multiple transfer methods, and new transfer types
- **Advanced power management** - reduces energy costs by 15-30 percent through clock frequency control and lowering the power state of idle nodes
- **Workload-optimized allocation policies and provisioning** to get more results out of existing heterogeneous resources and reduce costs, including topology-based allocation
- **Heterogeneous cluster utilization** - manages workload across clusters, maximizing resource availability and administration efficiency



# Moab® HPC Suite 9.0 ENTERPRISE EDITION

- **Optimized, intelligent scheduling** - packs workloads and back-fills around priority jobs and reservations while balancing SLAs to efficiently use all available resources
- **Optimized scheduling and management of accelerators** - maximizes utilization and effectiveness on both Intel Xeon Phi and GPGPUs,
- **Simplified Job submission and management** – provides advanced job arrays and templates
- **Showback or chargeback for pay-for-use** – tracks actual resource usage with flexible chargeback rates and reporting by user, department, cost center, or cluster
- **Multi-cluster grid capabilities** - manages and shares workload across multiple remote clusters to meet growing workload demand or surges



## Auto SLA Enforcement

Enterprise Edition optimally schedules and dynamically adjusts workload to consistently meet service level agreement (SLAs) guarantees or business priorities. This automatically ensures that the right workloads are completed at the optimal times, taking into account the complex number of using departments, priorities, and SLAs to be balanced. Moab provides the following benefits:

- **Usage accounting and budget enforcement** - schedules resources and reports on usage in line with resource sharing agreements and precise budgets, including usage limits, usage reports, auto budget management, and dynamic fair share policies
- **SLA and priority policies** - makes sure the highest priority workloads are processed first, including Quality of Service and hierarchical priority weighting
- **Continuous plus future scheduling** - ensures priorities and guarantees are proactively met as conditions and workload changes (i.e. future reservations, pre-emption)

## Guarantee Services to the Business

Job and resource failures in enterprise HPC systems lead to delayed results slowing admin and end-user productivity and missed organizational opportunities. Enterprise Edition intelligently automates workload and resource uptime in the HPC system to ensure that workloads complete successfully and reliably, avoid failures, and guarantee services are delivered to the business. The Enterprise benefits from these features:

- **Intelligent resource placement** - prevents job failures with granular resource modeling, meeting workload requirements and avoiding at-risk resources
- **Auto-response to failures and events** – creates configurable actions to pre-failure conditions, amber alerts, or other metrics and monitors
- **Workload-aware future maintenance scheduling** - helps maintain a stable HPC system without disrupting workload productivity
- **Real-world expertise** – aids in fast time-to-value and system uptime with included implementation, training and 24/7 support remote services

Contact a solutions advisor by phone or email, or visit our Web site today

North America, Latin America +1 (801) 717.3700  
 Europe, Middle East, Africa +44 (0) 1483 243578  
 Asia, Pacific, Japan, India +65 6597-7053  
 Email: solutions@adaptivecomputing.com  
 www.adaptivecomputing.com

Corporate Headquarters

1712 S. East Bay Blvd.  
 Suite 300  
 Provo, Utah 84606

