



# Platform™

Accelerating scientific research  
with reliable and cost effective  
HPC software solutions



*"With Platform's distributed computing software, we can manage our computing resources as if it were a single system environment, increasing the accuracy and effectiveness of the scientific programs that run on them. Platform's open architecture integrated easily with our existing computing infrastructure, providing a seamless transition for scientists."*

Scott Studham  
Operations Technical Group Leader,  
Molecular Science Computing Facility

As teams of scientists and researchers solve very complex and challenging problems, computing needs are exploding. In the past few years, we have made incredible discoveries, such as the cracking of the human genome, but there are still many 'big problems' that have yet to be solved. With High Performance Computing (HPC), we can accelerate information superiority and transform information into higher quality knowledge, enabling us to make informed decisions on issues such as intelligence or military operations, on a global basis.

However, since most HPC sites are both heterogeneous and distributed, organizations must find ways to provide their users with access to large quantities of reliable, on demand compute power – regardless of the hardware or applications in place. There is no shortage of Grand Challenge problems – just a shortage of Grand Challenge budgets, creating hard choices between speed, reliability, and cost.

### Delivering HPC resources with dependable workload management

Platform LSF, allows you to manage and accelerate batch workload processing for mission-critical compute, or data-intensive application workload, or thousands and millions of parallel job tasks. With scheduling workload on multiple clusters, accurate job accounting, and built-in reporting capabilities, Platform LSF allows organizations to build internal "cloud computing" infrastructure.

With Platform LSF you get the industry top quality workload scheduler to guarantee the completion of workload across your distributed, virtualized, HPC environment which lets your organization:

- Deliver HPC resource as a service to maximize return on investment
- Increase job throughput with a high performance scheduler to accelerate scientific research

Powering millions of processors in both industries and academia globally, Platform LSF is the most reliable workload management solution for mission critical production environments. With the highest quality product backed up by the most experienced support engineering team, Platform LSF allows organizations to deliver a non-stop HPC environment for end users with minimum operational cost.



## Accelerate application performance with distributed parallel programming

High performance parallel application development is complicated enough without the additional burden of managing support for a growing list of hardware architectures that leverage different interconnects. Platform MPI, fully integrated message passing interface (MPI), simplifies development, testing, and maintenance through its unique interconnect-independent architecture. Through the use of dynamic runtime selectable libraries, developers are able to distribute a single binary executable that supports a full range of end user interconnects. This reduces the number of binaries that have to be produced, tested, maintained, and distributed to customers, while increasing the overall reliability of the application.

As compute clusters grow in size and complexity, and application run times become longer, application failure due to network failure is increasingly becoming an issue. Platform MPI/HA is part of the Platform MPI solution that increases application availability by providing network failover and improved communication error checking. By monitoring the network, applications can respond to failures in the high speed network and automatically switch to a secondary Ethernet network. Platform MPI/HA is the only MPI solution that offers application-level network redundancy, assuring jobs run to completion.

## Clusters made simple and cost-effective

Platform Computing delivers intelligent, practical HPC management software and services that free your engineers, researchers, and scientists from technology constraints. Through our proven process and methodology, we link your technology to core mission objectives and give you the insight and confidence you need to enhance service levels, optimize efficiency, and optimize IT to improve performance. We give you the insight and control you need to solve the most complicated 'grand scale' challenges associated with computational science, economics, design and engineering, as well as give you visibility and information required to justify and defend budget entitlement.

Platform Cluster Manager (formerly Platform OCS 5) enables analysts, engineers, & scientists to exploit the power of HPC. Platform Cluster Manager is an integrated set of technologies and tools that minimizes the cost, deployment and management of a Linux Cluster. One of the key benefits is that it provides a single view of the entire cluster to users, administrators, and developers, whether the cluster is built out of tens, hundreds, or even thousands of CPUs. The single view makes it easier to manage, operate, and troubleshoot the cluster. From an organizational perspective, it lowers total cost of ownership (TCO) by letting the administrators manage all of the machines from one interface regardless of the hardware, chipset and applications.

Platform Cluster Manager is the only truly heterogeneous, vendor-independent, entry-level HPC management software solution on the market. It lets IT follow a commodity, off-the-shelf (COTS) strategy in buying the best-valued hardware when it comes time to grow the cluster.

It is available from vendors that you are familiar with including Dell, HP, IBM, Intel, Microsoft, Red Hat, and SGI. They offer joint solutions that add value to your IT infrastructure by combining low cost commodity hardware and standard OSs, with sophisticated, HPC management software. Unlike the open source software that Platform Cluster Manager is based on, the solutions are supported by Platform and partners.

## Alleviate multi-core bottlenecks

As multi-core processors become standard in clusters, companies have to cope with new problems, such as memory bandwidth availability, that slow down cluster performance. Many applications, WLMs and OSs currently in use, are not coded to optimize use of multi-core technology. Platform LSF mitigates the memory performance problems through automated scheduling of jobs onto processor cores according to memory bandwidth supply and demand.

Whether your cluster usage is geared towards fast turn-around time for high priority jobs, maximizing job throughput, or a combination of both, Platform LSF allows you to configure available resources for maximum performance. It lets you accommodate each of these objectives by creating a mix of high priority and high throughput queues. The result is a more intelligent allocation of resources to applications and greater control over scheduling jobs to nodes with the required bandwidth availability and processor power to finish the job efficiently.

## Justifying budget using defensible data

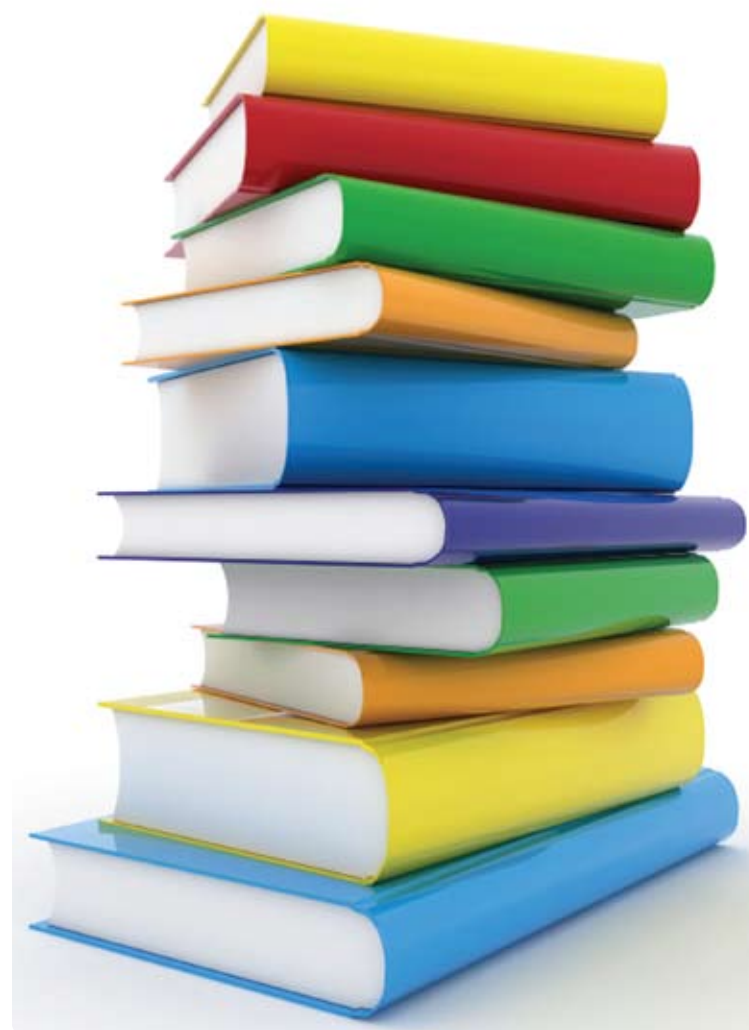
Platform collects, aggregates, correlates, and visualizes system and process data to provide you with the knowledge required to reduce overall IT budgets and anticipate future expenditures. You will have greater insight into the underlying factors influencing the research and development activities in your organization. Based on historical and forecasted activity, you can justify budget allocations and requests.

## The Platform Promise

Platform's HPC management software reduces the TCO by fully utilizing existing hardware and facilitates the easy deployment and use of economical, heterogeneous, commodity hardware-based systems. Benefits include:

- defer hardware additions
- eliminate cost of maintaining multiple separate clusters
- more efficient usage of available application licenses
- reduced power consumption for heating and cooling
- efficiently redeploy human resources
- reduce re-qualification of software to keep up with upgrades

Find out more by visiting our website at [www.platform.com](http://www.platform.com).



### Platform HPC Management Software

Platform offers a complete HPC management software solution that supports a single, consistent HPC environment. Platform provides the tools you need to:

- manage the lifecycle of multiple clusters
- accelerate performance of compute or data intensive applications
- monitor, report on and analyze cluster performance
- manage license usage
- share resources across the enterprise

### Platform Customers

CERN  
DoD, US  
DoE, US  
ENEA  
Georgia Tech  
Harvard Medical School  
Japan Atomic Energy Inst.  
MaxPlanck Inst.  
MIT  
SSC, China  
Stanford Medical  
TACC  
University of Tokyo  
Washington University

### Workload Management Products

Platform LSF  
Platform Symphony  
Platform LSF License Scheduler  
Platform LSF Session Scheduler  
Platform LSF MultiCluster  
Platform Process Manager  
Platform Analytics

### Cluster Management Products

Platform Cluster Manager  
Platform Manager  
Platform RTM

### HPC Tools

Platform MPI  
Platform RTM  
EngineFrame

### Data Center Products

Platform EGO  
Platform VM Orchestrator

# Platform™

Platform Computing is the leader in grid and cloud computing software that dynamically connects IT resources to workload demand according to business policies. Over 2,000 of the world's largest organizations rely on our solutions to improve IT productivity and reduce data center costs. Platform has strategic relationships with Dell™, HP, IBM®, Intel®, Microsoft®, Red Hat®, and SAS®. Building on 16 years of market leadership, Platform continues to help data centers be more efficient, responsive and dynamic. Visit [www.platform.com](http://www.platform.com).

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