



Solution Overview

# Platform Cluster Manager

## Benefits:

- Easily deploy open clusters
- Simplify cluster management
- Update compute nodes without re-installing
- Perform risk-free, trial software installations
- Change node personalities with ease
- Deploy your choice of Linux® OS environments

## Highlights:

- The most advanced cluster management tools
- Integrated workload management
- Intuitive web-interface
- Optimized for performance
- Certified & supported

## Clusters Made Simple

Platform Cluster Manager (PCM) represents a “re-think” of how open source clusters are deployed and managed. Based on the open source Project Kudu, Platform Cluster Manager is a pre-integrated, vendor certified solution enabling the consistent delivery of scaled-out application clusters. Built using open source components, it includes all the tools required to deploy, run and manage clusters with unprecedented ease. Using Platform Cluster Manager, cluster administrators can easily perform operations that are simply not possible with less advanced cluster management solutions.

**Easy to use web interface** The web interface makes operations like installing and maintaining clusters a snap. Cluster administrators will appreciate the built-in alerting, reporting and management features and the ease with which software configurations can be managed and deployed without ever leaving the Platform Management Console (PMC) graphical interface. Cluster users can take advantage of the web portal and the open workload manager, Platform Lava (Platform LSF compatible), that allows them to submit, monitor and manage their own cluster workloads without ever touching the command line. Ideal for academic and commercial applications alike, the intuitive web interface makes job submission interfaces self-documenting reducing training requirements and error rates and reducing the support burden on busy cluster administrators.

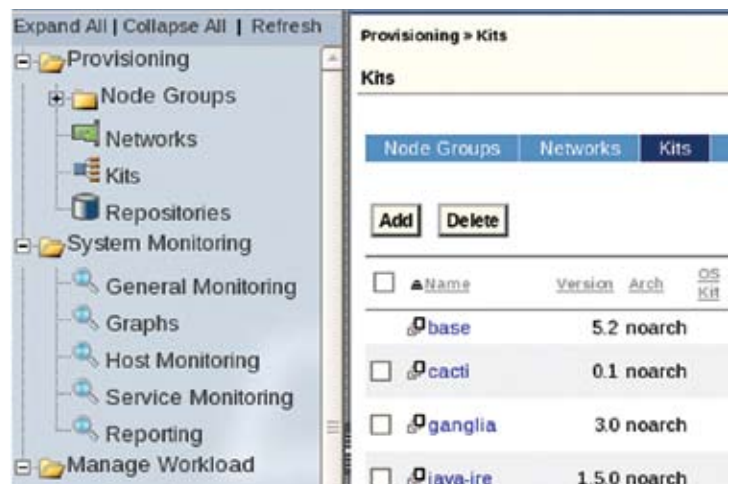
**Update compute nodes “on the fly”** As clusters inevitably get busy and user communities grow, scheduling downtime even in small environments can be a challenge. This is especially true in environments with multiple users, or those supporting long-running or parallel workloads. While other cluster management solutions require that nodes be re-installed every time a minor software update is made, Platform Cluster Manager provides a powerful cluster file manager (CFM). For common activities such as package and patch installations, it can transparently synchronize files to cluster nodes without any downtime or re-installation requirement. Updates are properly reflected in the Platform Cluster Manager repository so that changes will be retained the next time nodes are provisioned. For updates that do require a reboot, the web interface makes this apparent to cluster administrators, allowing them to defer the re-installation of nodes according to their own schedule.

**Perform risk-free, trial software installations** Platform Cluster Manager employs a unique and flexible approach to software management supporting multiple repositories that in turn contain different operating systems and software components. Performing software upgrades becomes simple and risk-free. Administrators can snapshot their known good repository, and perform upgrades against a repository copy. If something goes wrong after deploying the upgraded software, node group definitions can simply be linked to the previous repository version, allowing the cluster to be quickly restored to its original state. This unique ability

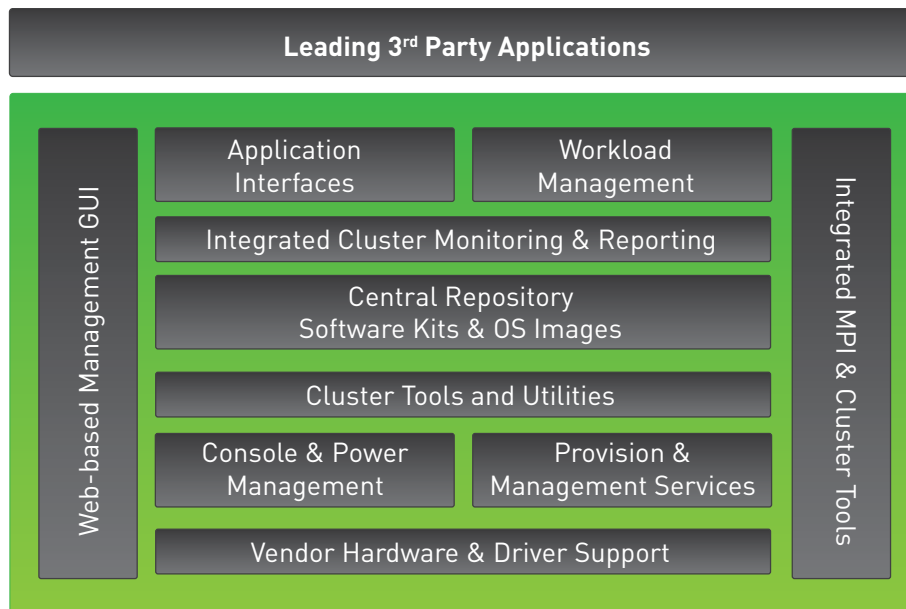
A better way to manage open clusters		
Key capability	Open Source Solution	Platform Cluster Manager
Clusters installed quickly and easily	✓	✓
Easily install add-on software	✓	✓
Available NVIDIA® CUDA™ SDK	✓	✓
Easy to use web interface	✗	✓
Update software with no re-installing	✗	✓
Perform repository snapshots	✗	✓
Change node personalities any time	✗	✓
Integrated workload manager	✗	✓
User-friendly job submission portal	✗	✓
Built-in monitoring, alerting & reporting	✗	✓
Multiple OS environments	✗	✓
Vendor optimized	✗	✓
24/7 Enterprise support	✗	✓

**Manage cluster software as installable components**

Platform Cluster Manager provides an intuitive extensible web interface allowing administrators to manage the cluster without learning complex command line syntax. Cluster users will appreciate the easy to use web interface for submitting and monitoring simulations and cluster applications.



## Platform Cluster Manager Components



of Platform Cluster Manager, to create “restore points for clusters”, and the ability to maintain libraries of installable software components, is ideal for agencies or labs that may need to rapidly deploy earlier software stacks owing to regulatory requirements, or reliably demonstrate the repeatability of prior calculations.

**Flexible provisioning** While Platform Cluster Manager, by default, employs the same provisioning approach as other cluster managers, it also offers enhanced capabilities. In addition to performing simple package-based installations, Platform Cluster Manager supports image-based installs allowing cluster nodes to be rapidly “cloned” and even provides support for diskless nodes. Multiple operating systems (RHEL, SLES and CentOS) and versions can be deployed concurrently to the same cluster, providing cluster administrators with the flexibility to support special requests from their user communities and accommodate unanticipated changes.

**The most advanced HPC tools** Since performance is the whole reason for HPC clusters, Platform Cluster Manager provides the most advanced suite of HPC infrastructure components including libraries pre-optimized for vendor hardware and network components. Standard benchmark tests are included to ensure your cluster will deliver the best performance possible out-of-the-box. Platform Cluster Manager includes a range of industry standard, pre-tuned MPI implementations making it easy to get your parallel applications up and running quickly. For organizations requiring enhanced management of parallel workloads, Platform LSF, available separately, can be easily loaded as a kit and deployed to cluster nodes automatically.

### Exploit the power of GPUs in your HPC environment

Available as a free download for Platform Cluster Manager, the NVIDIA® CUDA™ Kit allows customers to easily harness the tremendous floating-point capability of modern graphics processors (GPUs) for general purpose computations. The NVIDIA kit automatically deploys a full CUDA 2.2 environment including all the drivers, tools, SDKs and debuggers needed to deliver breakthrough performance at low cost for a variety of widely used HPC algorithms optimized for NVIDIA GPUs.

**Vendor optimized** Unlike other cluster deployment tools that may leave you scrambling for optimized drivers or specialty software components, Platform Cluster Manager is complete. It provides all the required software components so that open clusters are fully integrated out of the box. Platform Cluster Manager also includes a number of vendor specific enhancements including:

- The Intel® Cluster Checker – available on select configurations only, the Intel Cluster Checker is used to ensure Intel Cluster Ready (ICR) compliance
- Vendor specific MPI run-time environments
- Enhanced InfiniBand support and optimized MPI libraries for selected switch manufacturers
- Enhanced device support for Mellanox, Myrinet and Qlogic
- Vendor kits with enhanced drivers, tools and utilities specific to particular hardware vendors

**Fully supported by Platform** Platform Cluster Manager is the only open Linux cluster solution fully supported by Platform Computing, the world leader in HPC management solutions. Unlike competing cluster toolkits which are little more than thrown together collections of open-source software, Platform Cluster Manager is the result of a close and long-standing engineering collaboration with our system partners. With a focus on quality and platform certification, Platform Computing and our systems partners jointly provide outstanding support on a 24 x 7 basis. When dealing with Platform, you're dealing with the organization that actually develops and builds the key software components comprising the cluster, ensuring top notch support and speedy problem resolution.

## Everything you need is here

Platform Cluster Manager includes everything you need to have your HPC cluster up and running quickly. For ease of installation and management, software is packaged as easy-to-deploy, pre-built "kits". Of course, the Platform Cluster Manager cluster remains fully "open", and administrators can still easily install their own software, using more traditional approaches if they choose. Kits are easy to build and sites may choose to package their own software as kits, or take advantage of a growing library of contributed kits from Platform Computing and others available at [hpccommunity.org](http://hpccommunity.org). Among the pre-integrated kits included in Platform Cluster Manager are:

- **Base** – Contains the tools and applications for managing the Platform Cluster Manager cluster
- **Web GUI** – A complete web-based management interface and application-centric portal
- **Cacti\*** – An open source reporting tool used to collect and graph various node metrics
- **Ganglia** – A powerful open-source resource monitoring solution
- **HPC** – A comprehensive collection of tools, libraries and utilities specific to HPC clusters

\* Note: Cacti is an open source rrdtool-based graphing solution.  
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- **Platform Lava** – A powerful, open-source workload scheduler 100% compatible with Platform LSF
- **Nagios** – A powerful open source host, service and network monitoring facility
- **NTOP** – A tool to monitor network bandwidth and analyze traffic
- **JAVA™ JRE** – Java 2 Platform Standard Edition Runtime Environment
- **OFED** – A collection of drivers and libraries for InfiniBand®

## Built for Growth

Most clusters grow not always in terms of nodes, but almost certainly in terms of applications, users and complexity as clusters are augmented with new hardware, network and storage devices. Platform Cluster Manager ensures that your cluster is future proof – not only can you easily grow and scale, but you can support different operating systems and provisioning approaches as your needs evolve. With a unique driver patching capability, your cluster can even accommodate the addition of hardware not yet invented, avoiding the need to completely re-install or upgrade the cluster to support new devices. Should your requirements outgrow the open source components included, a range of optional commercial packages are available that seamlessly integrate with the Platform Cluster Manager cluster providing complete investment protection.

## Supported Operating Systems

Platform Cluster Manager provides support for popular Linux® environments including Red Hat® Enterprise Linux, SUSE® Linux and CentOS. The latest set of supported hardware platforms and operating environments are available at [www.platform.com/products/platform-cluster-manager](http://www.platform.com/products/platform-cluster-manager).

## FOR MORE INFORMATION, CONTACT PLATFORM SALES SUPPORT:

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Platform Computing is the leader in cluster, grid and cloud management software - serving more than 2,000 of the world's most demanding organizations for over 17 years. Our workload and resource management solutions deliver IT responsiveness and lower costs for enterprise and HPC applications. Platform has strategic relationships with Cray, Dell™, HP, IBM®, Intel®, Microsoft®, Red Hat® and SAS®. Visit [www.platform.com](http://www.platform.com).

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