IBM Platform Cluster Manager V3.2, Advanced Edition enables timelier provisioning of multiple heterogeneous HPC environments and enhances user productivity

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At a glance

IBM® Platform Cluster Manager V3.2, Advanced Edition automates the self-service assembly of multiple heterogeneous High Performance Computing (HPC) and technical computing environments on shared compute infrastructure. The cluster manager creates an agile environment for clients running technical computing and analytics workloads to dynamically create clusters and grids on demand, consolidate their scattered cluster infrastructure, increase hardware utilization, gain access to larger cluster infrastructures, and rapidly deploy multiple heterogeneous HPC environments. It delivers:

- Increased agility and innovation by enabling self-service provisioning of HPC environments in minutes
- Decreased operating costs through increased utilization of existing servers and increased operational efficiency (hundreds of servers per administrator)
- Reduced capital expenditure
- Increased utilization of pooled resources

Capabilities

- A self-service portal for different user groups and roles (Administrators, Account (tenant) Managers, and End Users)
- Dynamic scaling (expand and shrink) of HPC environments to meet SLAs
- Policy-driven automation of placement, migration, and failover with physical and virtual provisioning
- Reporting based on usage and capacity
- An operations management portal, with workload and resource monitoring, alerting, and troubleshooting
- Role-based authentication and authorization

Overview

IBM Platform Cluster Manager Advanced Edition automates the self-service assembly of multiple heterogeneous HPC and technical computing environments on shared compute infrastructure. The cluster manager creates an HPC cloud for clients running technical computing and analytics workloads to dynamically create clusters, grids, and HPC clouds on demand, consolidate their scattered cluster infrastructure,
increase hardware utilization, gain access to larger cluster infrastructures, and rapidly deploy multiple heterogeneous HPC environments. It delivers:

- Increased agility and innovation by enabling self-service provisioning of HPC environments in minutes
- Decreased operating costs through increased utilization of existing servers and increased operational efficiency (hundreds of servers per administrator)
- Reduced capital expenditure by reusing existing hardware resources
- Increased utilization of pooled resources by offering larger clusters and grids, and by reprovisioning nodes to meet the needs of the workload

Platform Cluster Manager Advanced Edition exceeds the capabilities of traditional cluster managers by:

- Providing on-demand self-service cluster provisioning
- Managing multiple separate clusters on a single resource pool
- Provisioning physical, virtual, and hybrid physical-virtual clusters
- Dynamically growing and shrinking cluster size based on workload and resource allocation policy

Platform Cluster Manager Advanced Edition runs on a variety of industry-standard x86 hardware, including the latest generation of System x® servers. By pre-qualifying and certifying these platforms at scale, IBM helps clients take the risk out of mission-critical grid computing deployments.

Key prerequisites

To benefit from a Platform Cluster Manager Advanced Edition implementation, clients will typically have one or more HPC clusters and grids that they want to consolidate. They will want to deploy multiple HPC environments on the consolidated resources, which may implement the same cluster and grid technology or different technologies. They will want their HPC clusters and grids to be dynamic in nature. These clusters and grids will exist for various amounts of time; some may run short and some may run long (days, weeks, or months). Their sizes will change over time to meet the needs of the workloads.

Clients may want to offer self-service HPC cluster and grid provisioning to their end users. Regardless of self-service, they want to reduce the administrative overhead of deploying and managing their HPC environments.

Key prerequisites to run Platform Cluster Manager Advanced Edition include:

- A physical computing environment comprised of IBM System x or similar industry-standard x86 servers
- Cluster nodes that are capable of running the desired operating systems and HPC technologies
- Cluster nodes that are connected via a fast TCP/IP network infrastructure
- Experience with installing and administrating the desired HPC cluster and grid technologies
- Administrative access to the entire HPC infrastructure, including the servers and networking resources

Planned availability date

August 3, 2012
Description

**IBM Platform Cluster Manager V3.2, Advanced Edition:** IBM Platform Cluster Manager Advanced Edition automates the self-service assembly of multiple HPC environments on shared compute infrastructure. The cluster manager creates an HPC cloud for clients running technical computing and analytics workloads to dynamically create clusters and grids on demand, consolidate their scattered cluster infrastructure, increase hardware utilization, gain access to larger cluster infrastructures, and rapidly deploy multiple HPC environments.

With IBM Platform Cluster Manager Advanced Edition you can deploy multiple heterogeneous HPC clusters and grids through self service. Resources are shared across clusters by rapidly reprovisioning to meet the cluster needs. Once deployed, the size the HPC environments can grow and shrink (flex) based on demand and to meet SLAs. Flexing maximizes utilization and reduces performance bottlenecks by allocating the resources where they are needed.

**Unique differentiators**

- A comprehensive self-service solution that is purpose-built for provisioning and managing dynamic HPC environments. It supports the end-to-end HPC environment lifecycle, from deployment to shutdown, including growth and shrinkage.
- The ability to provision all the HPC cluster and grid components and make them ready to use through a single interaction via the service catalog. This includes the masters, compute and support nodes, as well as portal applications, MPI drivers, and so on.
- Automation for both initial provisioning as well as dynamic scaling of deployed HPC environments to meet demand via predefined rules.
- HPC proven technology from over a 19-year history of managing large-scale commodity shared environments for large enterprise clients with unparalleled customer support.

**Benefits**

- Increased agility and innovation by enabling self-service provisioning of HPC environments in minutes
- Decreased operating costs through increased utilization of existing servers and increased operational efficiency (hundreds of servers per administrator)
- Reduced capital expenditure
- Increased utilization of pooled resources

Clients looking to consolidate self-provisioning and/or increase the agility of deployment/reprovisioning of their cluster will benefit from the capabilities of IBM Platform Cluster Manager Advanced Edition.

**Accessibility by people with disabilities**

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at


**Product positioning**

Platform Cluster Manager Advanced Edition is part of a family of cluster and grid workload management solutions from IBM. Platform Cluster Manager Advanced Edition is an enabling technology that is used to provision the cluster and grid workload managers. More specifically, it is used to provision multiple cluster and grid workload managers on a shared set of hardware resources. Platform Cluster
Manager Advanced Edition first provisions the HPC environment, and then the users connect to the provisioned HPC technology to run their workloads. The cluster manager is also used to manage the running HPC environment and tear it down when it is no longer needed.

Among the HPC products that Platform Cluster Manager Advanced Edition can deploy are:

- IBM Platform LSF®
- IBM Platform Symphony™
- Most third-party workload managers (for example, SGE, PBS, and Hadoop)

Platform Cluster Manager Advanced Edition is required when you need:

- To run multiple heterogeneous HPC technologies (clusters and grids) on a common hardware infrastructure. This means you can run multiple separate Platform LSF clusters and Platform Symphony grids. This includes almost any combination of IBM and third-party workload managers.
- On-demand self-service provisioning to create HPC environments on demand.
- Pooling of existing separate cluster and grid resources.
- Multi-tenancy with access controls, policies, and resource limits to enable sharing.
- Rapid provisioning (minutes) of HPC clusters and grids on physical and virtual resources.
- Elasticity where the size of deployed HPC environments can be expanded and shrunk over time using predefined rules.
- Runtime management, reporting, and analytics of the HPC environment.
- Heterogeneous support for most popular HPC technologies (for example, IBM Cluster Manager, IBM Platform Symphony, SGE, and PBS).

Platform Cluster Manager Advanced Edition delivers the following benefits:

- Increased agility and innovation by enabling self-service provisioning of HPC environments in minutes. It accelerates testing and "what if" scenarios.
- Decreased operating costs through increased utilization of existing servers and increased operational efficiency (hundreds of servers per administrator).
- Reduced capital expenditure.
- Increased utilization of pooled resources.
- Improved end-user satisfaction.

### Product number

#### Software options

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<thead>
<tr>
<th>Part number</th>
<th>Description</th>
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<tbody>
<tr>
<td>44X2534</td>
<td>IBM Platform HPC for System x V3.2 Per Managed Server with 1 Year SW S&amp;S</td>
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<tr>
<td>44X2535</td>
<td>IBM Platform HPC for System x V3.2 Per Managed Server with 3 Year SW S&amp;S</td>
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<tr>
<td>44X2536</td>
<td>IBM Platform HPC for System x V3.2 Per Managed Server with 5 Year SW S&amp;S</td>
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Managed Server

Managed Server is a unit of measure by which the program can be licensed. A server is a physical computer that is comprised of processing units, memory, and input/output capabilities and that executes requested procedures, commands, or applications for one or more users or client devices. Where racks, blade enclosures,
or other similar equipment is being employed, each separable physical device (for example, a blade or a rack-mounted device) that has the required components is considered itself a separate server.

Licensee must obtain entitlements for each server running the program and for each server being managed by the program.

**Order handling**

To allow for ease of order submission, the offerings in this announcement can be configured in conjunction with eligible System x hardware, software, and license-only configurations that can be created for this product based on existing supported System x hardware system units in a given business environment.

Licenses for offerings in this announcement include one year or three years of Software Subscription and Support. Software Subscription and Support renewals for all features are aligned through Passport Advantage® Express® or Passport Advantage, reducing the administrative burden of keeping your Subscription and Support up to date.

If a new release of a given offering in this announcement is made generally available in Passport Advantage after the announcement of the offering in System x ordering systems, you may elect to take delivery of any release generally available for that offering during the product registration process.

Eligible software products, offered and selected during the ordering process with each hardware system, are enabled for electronic download for the system unit for which the product was ordered. Optionally, software and license-only orders can be created for these products based on existing supported hardware system units in the business environment. Offerings included in this announcement are available exclusively by electronic download.

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Passport Advantage allows you to have a common anniversary date for Software Subscription and Support renewals. The anniversary date, established at the order ship date for the initial product acquisition, will remain unchanged while your Passport Advantage Agreement remains in effect. New software purchases initially include 12 or 36 full months of Subscription and Support coverage. Subscription and Support in the second year (the first year of renewal) can be prorated to be coterminous with your common anniversary date but managed and invoiced through Passport Advantage. Thereafter, all Software Subscription and Support will renew at the common anniversary date and include 12 full months of Subscription and Support.

**Education support**

IBM training provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers are on the IBM training website

http://www.ibm.com/services/learning/

Contact your IBM representative for course information.
The following publications and documentation are provided for IBM Platform Cluster Manager Advanced Edition in both web-friendly and PDF versions:

- Installing IBM Platform Cluster Manager Advanced Edition
- IBM Platform Cluster Manager Advanced Edition 3.2 Release Notes
- Administering IBM Platform Cluster Manager Advanced Edition

No hardcopy publications are shipped with this program.

**IBM Publications Center**

http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the US) or customer number for 20 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

**Services**

**Global Technology Services**

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

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For details on available services, contact your IBM representative or visit

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For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit


Select your country, and then select the product as the category.

**Technical information**

**Specified operating environment**

**Hardware requirements**

**Supported hardware environments**: Platform Cluster Manager Advanced Edition is supported on most IBM and third-party x64 hardware platforms. The installations are typically large and involve a significant amount of hardware. Because of this, rack-based solutions tend to be the most practical. The choice of hardware is
typically dictated by the type of workload that the client expects to run in this environment.

Recommended IBM hardware platforms for Platform Cluster Advanced Edition include System x rack, blade, and iDataPlex® systems.

Platform Cluster Manager Advanced Edition installations involve a pre-defined management node and a large number of compute hosts.

Because Platform Cluster Manager Advanced Edition is designed to support multiple heterogeneous HPC environments, the requirements of these HPC environments need to be considered when procuring new hardware. HPC environments benefit greatly from fast interconnects, such as InfiniBand, and should be considered in procurement. The best system should be selected in consultation with System x system and Platform product specialists. The optimal configuration will depend on the scale of the HPC environments and the nature of the anticipated application workloads.

**Software requirements**

Platform Cluster Manager Advanced Edition supports the following operating environments:

Master node installation:
- RHEL 6.2 (64 bit)

Provisions the following operating environments:
- RHEL 6.2 (64 bit)
- KVM on RHEL 6.2 (64 bit)

Supports the following virtualization environments:
- KVM on RHEL 6.2 (64 bit)
- IBM SmartCloud™ Provisioning 2.1

Provisions the following guest operating environments:
- RHEL 6.2 (64 bit)
- Windows™ 2008 (64 bit)

The Master node requires:
- Oracle 11g Release 2 or Oracle 11g XE

The Web console requires:
- Adobe™ Flash Player 10 and higher
and is supported on:
- Internet Explorer 8 and 9 on Windows
- Firefox 10 on Windows
- Firefox 3.6 on Linux™

IBM Platform Cluster Manager Advanced Edition supports most workload managers and out of the box supports the following:
- Platform LSF and Platform Application Center V8.3

**Compatibility**
Platform Cluster Manager V3.2, Advanced Edition is compatible with most cluster and grid technologies. Compatibility is limited by the operating systems supported.

Provisions the following operating environments:

- RHEL 6.2 (64 bit)
- KVM on RHEL 6.2 (64 bit)

Provisions the following guest operating environments:

- RHEL 6.2 (64 bit)
- Windows 2008 (64 bit)

IBM System x and BladeCenter® servers are listed on the IBM ServerProven® website

http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

**Planning information**

**Customer responsibilities**


You must provide the software and licenses needed to provision your HPC environments. For example, if you want to provision multiple Platform ISF clusters, then you will need to acquire the Platform LSF software and an amount of licenses suitable for your environment.

You are responsible for identifying teams of users, clusters, and existing software environments that need to be consolidated or provisioned.

**Cable orders**

Not applicable

**Installability**

IBM Platform Cluster Manager V3.2, Advanced Edition requires the head node to have fresh install of Red Hat Enterprise Linux 6.2 x86 64 bit in basic server mode.

**Packaging**

For software products in this announcement, physical media and hardcopy documentation are not included in the deliverable package. The software code is delivered only via electronic download.

After receipt of an order, the Business Partner or client will be required to register and accept Passport Advantage or Passport Express terms and conditions. Upon registration, the end customer will be provided with a website for the electronic download. The product includes the license and one year or three years of Software Subscription and Support.

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**Supplies**
None

**Security, auditability, and control**

The products in this announcement use the security and auditability features of the operating system software.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

**Global Technology Services**

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

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IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

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To learn how Electronic Services can work for you, visit [http://www.ibm.com/support/electronic](http://www.ibm.com/support/electronic)

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**IBM Direct terms and conditions**

**IBM Platform Cluster Manager V3.2, Advanced Edition**

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IBM Global Financing          Yes
Field Installable Features    Yes
Customer Setup                Yes
Model Conversions             No
Product Availability Status   New

IBM warrants that the program will conform at the date of shipment to the current specifications, provided that the program is properly used in the specified operating environment.

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**Features and options only**

Field Installable                        Yes
Customer Setup                           Yes
Support Period                           Program Services will be available for a minimum of three years. A formal withdrawal will be issued one year prior to end of Program Services.
Optional Upgrade                         No
Licensed Programs                        Yes

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**License Information form number**

L-VASN-8SUQP6

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**Development/demo discount:** Up to 100%. Contact your local IBM Business Partner Office for details on participation (local limitations, if any, prevail).

**Hardware warranty period**

Optional features - One year
**Field-installable features**
Yes

**Model conversions**
No

**Machine installation**
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