



IBM Platform Cluster Manager V4.1 Advanced Edition can consolidate your cluster and grid environments

Table of contents

1 Overview	4 Publications
2 Key prerequisites	4 Technical information
2 Planned availability date	8 Ordering information
2 Description	9 Terms and conditions
3 Product positioning	12 Prices
3 Program number	

At a glance

IBM® Platform Cluster Manager V4.1 Advanced Edition:

- Automates the self-service assembly of multiple heterogeneous high performance computing (HPC) and analytics clusters
- Shares the compute infrastructure for running multiple HPC and analytics clusters for use by multiple teams
- Creates secure multi-tenant clusters
- Manages all components of running infrastructure from a single management pane
- Provides intelligent policy-based provisioning decisions to Extreme Cloud Administrative Toolkit (xCAT)

Overview

IBM Platform Cluster Manager V4.1 Advanced Edition automates the self-service assembly of multiple heterogeneous HPC and analytics clusters on shared compute infrastructure. The cluster manager creates a secure multi-tenant analytics and HPC cloud for users running technical computing and analytics workloads to dynamically create clusters and grids on demand, consolidate a scattered cluster infrastructure, increase hardware utilization, gain access to larger cluster infrastructures, and rapidly deploy multiple heterogeneous HPC environments.

Platform Cluster Manager Advanced Edition can deliver:

- Increased agility and innovation by enabling self-service provisioning of HPC and analytics clusters 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 providing larger clusters and grids, and by reprovisioning nodes to meet the needs of the workload

IBM Platform Cluster Manager Advanced Edition has the following advanced capabilities over IBM Platform Cluster Manager Standard Edition:

- Providing on-demand self-service cluster provisioning
- Managing multiple separate clusters as a single resource pool
- Creating a secure multi-tenant environment

- Provisioning physical, virtual, and hybrid physical-virtual clusters
- Dynamically growing and shrinking a user's logical cluster size based on workload and resource allocation policy

Platform Cluster Manager Advanced Edition runs on the latest generation of IBM System x® iDataPlex®, Intelligent Cluster™, and other rack-based servers and is also supported on non-IBM industry standard x86_64 hardware. By prequalifying and certifying these platforms at scale, IBM can help you take the risk out of deploying mission-critical grid computing deployments.

Key prerequisites

- A physical computing environment comprised of x86_64 servers
- Cluster nodes that are capable of running the required operating systems
- Cluster nodes that are connected through a fast TCP/IP network infrastructure

Planned availability date

December 14, 2012

Description

Typical HPC and analytics clusters are built for a specific purpose. The applications running in these clusters are varied and may require differences in the hardware and software environment. In addition, separate projects may build their own separate clusters, and separate user groups may need to securely separate themselves from each other. If you have multiple clusters, you can benefit by consolidating these clusters. You need a dynamic and flexible infrastructure to support the performance required by these compute-intensive workloads.

By offering self-service capability, Platform Cluster Manager Advanced Edition enables timelier provisioning of HPC and analytics clusters, and enhances user productivity. It creates an analytics and HPC cloud for users running technical computing and analytics workloads to consolidate their disparate cluster infrastructure. This delivers increased hardware utilization and the ability to meet or exceed your service level agreements (SLAs) while lowering operational expenditures (OPEX). It also enables you to rapidly deploy HPC and analytics clusters, and supports multiple heterogeneous HPC and analytics clusters such as IBM Platform LSF®, IBM Platform Symphony®, or Grid Engine. With integrated management capabilities, Platform Cluster Manager Advanced Edition can deliver a single pane to monitor and manage your entire infrastructure.

With Platform Cluster Manager Advanced Edition, you can deploy multiple heterogeneous HPC and analytics clusters and grids through self service. Resources are shared across clusters by rapidly re-provisioning to meet the cluster needs. Once deployed, the size of the HPC and analytics clusters 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.

Accessibility by people with disabilities

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

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

Platform Cluster Manager Advanced Edition is part of a family of cluster and grid workload management solutions. 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 and analytics clusters, and then you connect to the provisioned HPC or analytics cluster to run your workload. The cluster manager is also used to manage the running HPC and analytics clusters, and to shut them down when they are no longer needed.

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

- IBM Platform LSF
- IBM Platform Symphony
- Most third-party workload managers

Platform Cluster Manager Advanced Edition is required when customers need:

- To run multiple separate HPC and analytics clusters on a common hardware infrastructure. This means the customer can run multiple, separate Platform LSF and Platform Symphony clusters. This includes almost any combination of IBM and third-party workload managers.
- On-demand self-service provisioning to create HPC and analytics clusters on demand.
- Pooling of existing separate cluster and grid resources.
- Secure multi-tenancy with access controls, policies, and resource limits to enable sharing.
- Rapid provisioning (minutes) of HPC and analytics clusters on physical and virtual resources.
- Elasticity, where the size of deployed HPC and analytics clusters can be expanded and shrunk over time using predefined rules.
- Runtime management, reporting, and analytics of the HPC and analytics clusters.
- Heterogeneous support for other HPC and analytics clusters technologies such as IBM Platform LSF , IBM Platform Symphony , or Grid Engine.

Reference information

Refer to Preview Announcement [212-392](#), dated October 03, 2012 .

Program number

Program number	VRM	Program name
5641-CM6	4.1.0	Platform Cluster Manager Advanced Edition with 1 Yr SW S&S
5641-CM7	4.1.0	Platform Cluster Manager Advanced Edition with 3 Yr SW S&S
5641-CM8	4.1.0	Platform Cluster Manager Advanced Edition with 5 Yr SW S&S

Product identification number

Program PID number

5641-CM6
5641-CM7
5641-CM8

Offering Information

Product information is available via the Offering Information website

<http://www.ibm.com/common/ssi>

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM , you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=212-462>

Publications

The following publications and documentation are shipped with the product and available on the web:

- Platform Cluster Manager Advanced Edition, Quick Up and Running Guide
- Platform Cluster Manager Advanced Edition, Installation Guide
- Platform Cluster Manager Advanced Edition, Administration Guide
- Platform Cluster Manager Advanced Edition, Release Notes

The 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 50 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.

Technical information

Specified operating environment

Hardware requirements

Platform Cluster Manager V4.1 Advanced Edition is supported on IBM System x iDataPlex , Intelligent Cluster , and other rack-based servers and is also supported on non-IBM x86_64 servers.

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 you expect to run in this environment.

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

Software requirements

Platform Cluster Manager V4.1 Advanced Edition supports the following operating environments:

- Master node installation:
 - Red Hat Enterprise Linux™ (RHEL) 6.3 (x86_64 bit)
- Physical machine provisioning:
 - xCAT 2.7.6
 - IBM Support for xCAT V2 - recommended
- xCAT provisioning node installation:
 - RHEL 6.3 (x86_64 bit)
 - CentOS 5.8 (x86_64 bit)
- Provisions the following operating environments:
 - RHEL 6.3 (x86_64 bit)
 - KVM on RHEL 6.3 (x86_64 bit)
 - CentOS 5.8 (x86_64 bit)
- Supports the following virtualization environments:
 - KVM on RHEL 6.3 (x86_64 bit)
 - IBM SmartCloud™ Provisioning 2.1
 - vSphere 5.0 with ESXi 5.0
- Provisions the following guest operating environments:
 - RHEL 6.3 (x86_64 bit)
 - Microsoft™ Windows™ 2008 (64 bit)
- Provisions the following storage clients:
 - IBM GPFS™ client node V3.5
- Manages the following network infrastructure:
 - IBM RackSwitch™ G8000, G8052, G8124, and G8264
 - Mellanox InfiniBand Switch System IS5030, SX6036, and SX6512
 - Cisco Catalyst 2960 and 3750 switches
- The Master node requires:
 - MySQL, stand-alone 5.1.64
 - Oracle 11g Release 2 or Oracle 11g XE

The web console requires Adobe™ Flash Player 10, or later, and is supported on:

- Internet Explorer 8 and 9 on Windows
- Firefox 10 on Windows
- Firefox 3.6 on Linux

Platform Cluster Manager Advanced Edition supports most workload managers, and supports the following:

- Platform LSF V8.3, or later
- Platform Application Center V8.3
- Platform Symphony V5.2, or later
- IBM InfoSphere® BigInsights™ V1.4

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Companion products

Typical use of this product is in conjunction with HPC workload managers such as IBM Platform LSF, IBM Platform Symphony, Grid Engine, PBS, and Hadoop.

Compatibility

Platform Cluster Manager V4.1 Advanced Edition is compatible with most cluster and grid technologies. Compatibility is limited by the operating systems supported.

Limitations

Refer to usage restrictions in the [Terms and conditions](#) section of this announcement, or to the License Information document that is available on the IBM Software License Agreement website

<http://www.ibm.com/software/sla/sladb.nsf>

Performance considerations

The performance of this product depends upon many factors, including the number of nodes in the cluster, the number of users querying the system, and the frequency of queries. As these increase, the scheduling cycle and user response time will increase.

IBM Electronic Support

The IBM Support Portal is your gateway to technical support. This includes IBM Electronic Support tools and resources, for software and hardware, to help save time and simplify support. The Electronic Support tools can help you find answers to questions, download fixes, troubleshoot, automate data collection, submit and track problems through the Service Request online tool, and build skills. All these tools are made available through your IBM support agreement, at no additional charge.

- Read about the Electronic Support portfolio of tools:
<http://ibm.com/electronicssupport>
- Access the IBM Support Portal:
<http://ibm.com/support>
- Access the online Service Request tool:
<http://ibm.com/support/servicerequest>

Planning information

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

Customer responsibilities

Support for xCAT is not covered by the Platform Cluster Manager Advanced Edition software subscription and support. For production installations, it is recommended that IBM Support for xCAT be purchased (5724-V63 or 5724-V64).

Installability

When installing Platform Cluster Manager V4.1 Advanced Edition, you must follow the instructions in the documents named *Platform Cluster Manager Advanced Edition, Quick Up and Running Guide* or *Platform Cluster Manager Advanced Edition, Installation Guide* . These documents provide a thorough explanation of the steps involved in installing the program.

You will need to obtain the software and licenses needed to provision your HPC and analytics environments. For example, if you want to provision multiple Platform LSF clusters, you will need to acquire the Platform LSF software and the licenses suitable for your environment.

Packaging

Platform Cluster Manager V4.1 Advanced Edition is distributed on multiple DVD media options and available for electronic download with multiple eAssemblies. Included are:

- IBM International Program License Agreement (L-ACHG-8YGLBV) in multiple languages
- Release notes
- Installation or User's Guide
- Required files

This program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, and will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Security, auditability, and control

Platform Cluster Manager Advanced Edition uses the security and auditability features of the system in which it is installed. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Software Services

IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

<http://www.ibm.com/software/sw-services/>

Ordering information

Charge metric

Program name	Part number or PID number	Charge metric
IBM Platform Cluster Manager	5641-CM6	Managed server with 1-year S&S
IBM Platform Cluster Manager	5641-CM7	Managed server with 3-year S&S
IBM Platform Cluster Manager	5641-CM8	Managed server with 5-year S&S

Server

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. For the purpose of server-based licensing, licensee must obtain entitlements for each server that is made available to the program, regardless of the number of processor cores and partitions in the server or the number of copies of the program on the server.

Notes :

- Some programs may require licenses for the program and what is being managed. In that case, the following applies. In addition to the entitlements required for the program directly, licensee must obtain entitlements for this program sufficient to cover the servers managed by the program.
- Some programs may be licensed on a managed basis only. In that case, the following applies. Instead of the entitlements required for the program directly, licensee must obtain entitlements for this program sufficient to cover the servers managed by program.

New License

Orders for new licenses will be accepted now. Electronic download ability begins on the planned availability date.

Basic License

To order the programs described in this announcement, specify the type model number, order type description, supply feature, and quantity of desired licenses for the appropriate one-time charge (OTC) features listed in the tables below. After receipt of your order, you will be requested to register through Passport Advantage® Express® to allow for entitlement for support and notification of upgrades. Upon registration completion you will be provided with a website for the electronic download. The one-time charge for the product includes the license and one year or three years of Software Subscription and Support.

Single entity offering (SEO) numbers in the table below can be ordered through ibm.com. The SEO numbers in the table below are equivalent to the type model number, description, supply feature, and OTC billing feature numbers as designated in the table. After receipt of your order, you will be requested to register through Passport Advantage Express to allow for entitlement for support and notification of upgrades. Upon registration completion, you will be provided with a website for the

electronic download. The one-time charge for the product includes the license and one year or three years of Software Subscription and Support.

Program number and feature description	Supply feature number	OTC billing feature number	SEO number
5641-CM6 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 1 Year SW S&S	5809	0436	00Y4498
5641-CM7 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 3 Year SW S&S	5809	0437	00Y4499
5641-CM8 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 5 Year SW S&S	5809	0438	00Y4500

Customization options

Select the appropriate feature numbers to customize your order with delivery options desired. These features can be specified on the initial order.

Expedite shipments

Feature	Description
3445	Expedite
3444	Serial number only

Expedite shipments will be processed to receive 72-hour delivery from the time IBM Software Delivery and Fulfillment (SDF) receives the order.

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Licensing

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

Agreement for Acquisition of Software Maintenance

The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) applies for Subscription and Support (also referred to as Software Maintenance) and does not require customer signatures.

These programs are licensed under the IBM Program License Agreement (IPLA). IBM includes one, three, or five years of Software Subscription and Support with the initial license acquisition of each program acquired.

License Information form number

L-ACHG-8YGLBV

The program's License Information will be available for review on the IBM Software License Agreement website

<http://www.ibm.com/software/sla/sladb.nsf>

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, consult the IBM Software Support Handbook found at

<http://www.ibm.com/support/handbook>

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that (1) for programs acquired under the IBM International Passport Advantage offering, this term applies only to your first acquisition of the program and (2) for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Volume orders (IVO)

No

Passport Advantage applies

Yes, and through the Passport Advantage website at

<http://www.ibm.com/software/passportadvantage>

Software Subscription and Support applies

Yes. The offerings in this announcement include one year, three years, or five years of Software Subscription and Support (Software Maintenance) in the price of the license.

Program Technical Support

Technical support of a program product will be available for a minimum of three years from the general availability date, as long as your Software Subscription and Support (also referred to as Software Maintenance) is in effect. This technical support allows you to obtain assistance (via telephone or electronic means) from

IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support also provides you with access to updates, releases, and versions of the program. You will be notified, via announcement letter, of discontinuance of support with 12 months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or IBM Business Partner. This extension may be available for a fee.

System i Software Maintenance applies

No

Variable charges apply

No

Educational allowance available

Yes. A 15% education allowance applies to qualified education institution customers.

Statement of good security practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, refer to

<http://www.ibm.com/support/electronic>

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support.

This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support Web site at

<http://www.ibm.com/support/electronic>

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

<http://www.ibm.com/support/electronic>

Prices

For additional information and current prices, contact your local IBM representative.

Information on charges is available at

<http://www.ibm.com/support>

Choose the option entitled Purchase/upgrade tools.

Program number and feature description	OTC billing feature number	SEO number	OTC
5641-CM6 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 1 Year SW S&S	0436	00Y4498	
5641-CM7 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 3 Year SW S&S	0437	00Y4499	
5641-CM8 IBM Platform Cluster Manager V4.x Advanced Edition Per Managed Server with 5 Year SW S&S	0438	00Y4500	

Pricing terms

Prices in the following PDF prices link are suggested list prices on day of announcement for the U.S. only. They are provided for your information only. Dealer prices may vary, and prices may also vary by country. IBM list price does not include tax or shipping and is subject to change without notice.

[ENUS-212-462-LIST_PRICES_2012_11_13.PDF](#)

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

<http://www.ibm.com/financing>

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Financing from IBM Global Financing helps you preserve cash and credit lines, enables more technology acquisition within current budget limits, permits accelerated implementation of economically attractive new technologies, offers payment and term flexibility, and can help match project costs to projected benefits. Financing is available worldwide for credit-qualified customers.

IBM Global Financing offers competitive financing to credit-qualified customers and IBM Business Partners to assist them in acquiring IT solutions. Our offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors, as well as commercial financing (revolving lines of credit, term loans, acquisition facilities, and inventory financing credit lines) for Business Partners. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

<http://www.ibm.com/financing>

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other

restrictions may apply Rates and offerings are subject to change, extension, or withdrawal without notice.

Trademarks

Intelligent Cluster, IBM SmartCloud, GPFS, RackSwitch, BigInsights and Electronic Service Agent are trademarks of IBM Corporation in the United States, other countries, or both.

IBM, System x, iDataPlex, LSF, Symphony, PartnerWorld, InfoSphere, Passport Advantage, Express, ibm.com and AIX are registered trademarks of IBM Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Adobe is a trademark of Adobe Systems Incorporated in the United States, and/or other countries.

Other company, product, and service names may be trademarks or service marks of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this announcement at any time without notice. This announcement is provided for your information only. Additional terms of use are located at

<http://www.ibm.com/legal/us/en/>

For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

<http://www.ibm.com/planetwide/us/>