IBM Systems Director Active Energy Manager for Linux on System z, V4.2 helps you monitor and manage the power and thermal usage of your IT environment

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At a glance

IBM Systems Director Active Energy Manager™ V4.2 (AEM), an IBM® Systems Director plug-in, is available for Linux® on System z®, Linux on POWER®, Linux on System x®, AIX®, and Microsoft® Windows® operating systems to help you monitor and manage the power and thermal usage of your IT environment. AEM is a unique energy management software tool that can provide a single view of the actual power usage across systems in your infrastructure as opposed to the benchmarked power consumption.

The main new features in this release are:

- Energy monitoring of IBM System z10 servers with updated firmware levels
- Energy management of updated firmware levels for POWER6™ servers and POWER technology-based server support to aid in power on and off
- Enhanced facility provider support with APC, Eaton, and Emerson Network Power, enabling energy monitoring of equipment supporting IBM systems
- Support for users to manually create relationships from servers to cooling and power units in data centers
- Enhanced PDU support that enables users to disable and enable outlets on a PDU to help an administrator better control what can be plugged into racks
- Ability to monitor energy and environmental data from PDUs and sensors sold by APC, Arch Rock, Avocent, and Rittal

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

IBM Systems Director Active Energy Manager (AEM) V4.2 is designed to effectively manage the energy usage in data centers at the system, chassis, or rack level. Through monitoring of a wide range of equipment and use of power-saving capabilities on IBM equipment, AEM can help analyze data center efficiency, which may result in monetary savings. AEM is positioned as a key component of IBM's energy-efficient technologies and services and is part of the dynamic infrastructure strategy.

A data center energy management solution, AEM is designed to measure, monitor, and manage the energy management components built into IBM servers. AEM V4.2 supports updated IBM System z10 and POWER6™ firmware levels. AEM retrieves
temperature and power information via external sensors and collects alerts, events, and data from facility providers related to power and cooling equipment. AEM V4.2 builds upon AEM V4.1 and offers improved integration with facility providers such as APC, Eaton, and Emerson Network Power. AEM provides energy management data that can be exploited by Tivoli® enterprise solutions, such as IBM Tivoli Monitoring.

Features and enhancements in AEM V4.2 include the ability:

- For AEM energy monitoring functions to operate with IBM System z10 servers with updated firmware levels
- For the newest AEM energy management functions to operate with POWER6 servers with updated firmware levels and the utilization of data to help enable administrators to more efficiently manage the power use of these servers
- To automatically collect additional information, from meters and sensors, using APC’s InfraStruXure Central, and to allow the association of this information with IT equipment
- To retrieve power topology information from Eaton's Power Xpert and Foreseer that helps provide a better understanding of power implications within the data center
- To monitor more types of equipment by utilizing sensor readings from the integration of AEM with Emerson Network Power's SiteScan to help determine environmental conditions associated with IT equipment
- For users to disable and enable outlets on a PDU from a central location, providing better control for what can be plugged into racks

Key prerequisites

- IBM Systems Director V6.1, or later
- One of these operating systems:
  - Red Hat Enterprise Linux AS, Version 4 for IBM System z
  - Red Hat Enterprise Linux AS, Version 5 for IBM System z
  - SUSE Linux Enterprise Server 9 for IBM System z with Service Pack 4 and earlier
  - SUSE Linux Enterprise Server 10 for IBM System z with Service Pack 2 and earlier

Planned availability date

December 11, 2009

Description

AEM V4.2 is designed to simplify the management of energy consumption across multiple IBM and non-IBM systems. AEM tracks energy use over time and can assist you in determining how to reallocate energy to additional servers without adding additional energy or cooling equipment. When energy is constrained, AEM is designed to allow energy to be allocated on a server-to-server basis. AEM is also designed to track and allocate energy consumption in a manner intended not to affect performance. Sensors and alerts can warn you if limiting energy to a server could affect performance.

AEM is designed to increase your capability to control energy consumption and improve energy use efficiency, which can potentially result in savings and cost reductions. AEM is intended to help you:

- Increase energy use efficiency by controlling energy use across the data center
- Negotiate competitive utility rates based on accurate energy use trend assessments
• Limit server energy consumption by capping maximum energy consumption
• Perform server-to-server energy consumption comparisons

By enabling you to meter energy use and trend data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate with higher-level management software such as Tivoli. AEM interfaces with the IBM Tivoli Monitoring products and other Tivoli products.

AEM V4.2 can help protect your IT investment through its open design and support for industry standards that enable heterogeneous physical and virtual management with support for multiple platforms and operating systems.

AEM V4.2 supports the following endpoints: IBM System z, IBM Power Systems, IBM BladeCenter®, and IBM System x servers. New in this release is support for updated IBM System z10 and POWER6 firmware levels. In addition, the Power servers now have the ability to report how long it takes to re-IPL the servers and standby power information. This gives energy-conscious administrators information that can help determine what servers would be most appropriate to power off when energy saving is needed.

Non-IBM, legacy IBM, and IBM Storage Systems can be monitored through PDU + support. In addition, AEM can collect information from select facility providers, including InfraStruXure Central from APC, Power Xpert and Foreseer from Eaton, and Liebert’s SiteScan from Emerson Network Power. Sensors from Arch Rock, iButton, Sensitronics, and SynapSense are also supported, in order to provide a view of data center environmental data and for equipment that does not have its own built-in sensors. AEM V4.2 can perform monitoring and management functions for all supported systems from a single console.

AEM V4.2 provides no-charge monitoring functions and a set of optional chargeable (fee-based) management functions.

AEM monitoring functions (no charge)

AEM V4.2 is designed to provide monitoring functions for devices that can connect to select PDUs. This enables monitoring functions for systems that do not have support for AEM; for example, older servers and low- and mid-range storage devices. When these systems are plugged into a PDU+ (a smart power strip), AEM is designed to be able to collect energy information from I/O drawers plugged into the PDU, providing a more complete view of energy used in the data center. New in this release is the ability to turn off individual outlets on the PDUs that support this function. This allows administrators to prevent the plugging in of unauthorized equipment in a rack. It also provides a way to quickly cut power usage in case of emergencies.

Power trending is a monitoring function that displays energy use for individual systems or groups of systems over time (in a graph or table format) to help enable clients to understand energy use trends within and across their systems.

Thermal trending is a monitoring function that displays information on the inlet and exhaust temperatures for individual systems one at a time to help you understand thermal characteristics of your systems. Incorporating this data into one centralized software-based energy use offering allows finite and localized temperature adjustments within the IT shop to help reduce energy costs for cooling.

Support for facility providers is a function that retrieves information from Emerson Network Power's SiteScan application, APC's InfraStruXure Central, and Eaton's Power Xpert and Foreseer. Numerous attributes associated with the energy usage of power and cooling equipment can be collected, and made available through AEM. This provides a broader scope of energy information within the data center while including a view of facilities equipment. New in this release is the ability to collect power topology information from some of these providers, as well as providing users with a method of manually creating relationships between IT equipment and the power and cooling equipment that supports it.
Support for sensors is a function that retrieves temperature and power information via sensors. Supported vendors include Arch Rock, iButton, Sensitronics, and SynapSense. In AEM V4.2, this sensor data can now be associated with Systems Director managed resources. This provides a broader scope of energy information across systems within the data center, while including a view of facilities equipment.

**AEM management functions (chargeable)**

**Power capping** is included in the set of optional chargeable (fee-based) management functions. It is designed to allow a client to set a maximum energy level per system. If the system starts to consume more than the maximum level set, AEM is designed to throttle the processor to use less energy, which slows down the server. This feature is designed to come into play if it gets too warm in the data center. Setting the cap will ensure that the system will not use more than the cap value, thus allowing the user to allocate less power for that system.

**Power saver mode** is included in the set of optional chargeable (fee-based) management functions. Power saver mode is designed to save processor energy use for IBM Power Systems. It is designed to allow clients to manage their energy use as work activity shifts across various demands. Static power saving mode is enabled via an on/off switch, which a client can schedule during times of low utilization, or a script can be written so that it can be switched automatically, based on processor utilization.

**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).

**Accessibility by people with disabilities**

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


**Section 508 of the U.S. Rehabilitation Act**

IBM Systems Director Active Energy Manager for Linux on System z, V4.2 is capable as of December 11, 2009, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the U.S. Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

**Product positioning**

IBM Systems Director Active Energy Manager V4.2 is an IBM Systems Director V6.1 plug-in. It is an energy management solution building block that returns control of energy costs to the client. Active Energy Manager is a cornerstone of the IBM energy management framework.

Active Energy Manager advances the IBM initiative to deliver price/performance per square foot. This offering enables monitoring and management of power usage across systems equipment within the IT and facility infrastructures, which can decrease the cost of computing through improved power utilization and reduced labor cost. Active Energy Manager provides a broader scope of energy information across systems within the data center while including a view of facilities equipment.

By enabling you to meter energy use and trend data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate
with higher-level management software such as Tivoli. AEM interfaces with the IBM Tivoli Monitoring products and other Tivoli products.

AEM V4.2 is focused on multisystem resource management of energy across IBM servers and provides heterogeneous monitoring support for systems and IT facilities, enabling clients to manage actual energy consumption.

Reference information

Refer to:

- Software Announcement 209-330, dated October 20, 2009, for IBM Systems Director Active Energy Manager for x86, V4.2
- Software Announcement 209-303, dated October 20, 2009, for IBM Systems Director Active Energy Manager for Power Systems, V4.2

Program number

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<td>V4.2</td>
<td>IBM Systems Director Active Energy Manager for Linux on System z</td>
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<td>V1.1</td>
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Product identification number

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Evaluation software

If you download from the Web, you are offered the product to evaluate the AEM management functions for up to 60 days under the terms of the IBM International License Agreement for Evaluation of Programs (ILAE). During the evaluation period, an option to purchase a permanent license will be offered. If a permanent license is purchased, a keyfile will be shipped on a CD-ROM to enable AEM management functions to remain active. When installing the keyfile, no changes are made to AEM and everything will continue to work as it did. If a permanent license is not purchased and installed, then the AEM management functions will be disabled when the evaluation period ends; however, AEM monitoring functions will continue to work after the evaluation period ends. Otherwise, the AEM management functions will be disabled. AEM monitor functions do not require the keyfile to remain enabled. AEM monitoring functions and the key-enabled management functions are licensed under the terms of the IBM International Program License Agreement (IPLA).

Offering Information

Product information is available via the Offering Information Web site

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

Publications

No licensed hardcopy publications are shipped with this program.
Publications are available in U.S. English versions from the IBM Systems Director Information Center.

The IBM Systems Director Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Director Information Center is located at

   http://publib.boulder.ibm.com/infocenter/director/v6r1x/index.jsp

To find information, you can search, browse the contents, follow links from one topic to related topics, and print the topics you want to read offline.

**Technical information**

**Specified operating environment**

**Hardware requirements**

IBM DPI® PDU+s may require firmware updates. The firmware version can be found on the Active Energy Manager Web site


Hardware requirement information is also available from the IBM Systems Director V6.1 software announcements and from the IBM Systems Director V6.1 Information Center at

   http://publib.boulder.ibm.com/infocenter/director/v6r1x/index.jsp?topic=/director.plan_6.1/fqm0_r_supported_hardware_and_software_requirements.html

**Software requirements**

AEM V4.2 requires:

- IBM Systems Director for Linux on System z, V6.1, or later
- One of the following operating systems:
  - Red Hat Enterprise Linux AS, Version 4 for IBM System z
  - Red Hat Enterprise Linux AS, Version 5 for IBM System z
  - SUSE Linux Enterprise Server 9 for IBM System z with Service Pack 4 and earlier
  - SUSE Linux Enterprise Server 10 for IBM System z with Service Pack 2 and earlier

Software requirement information is also available from the IBM Systems Director V6.1 product documentation and from the IBM Systems Director V6.1 Information Center at

   http://publib.boulder.ibm.com/infocenter/director/v6r1x/index.jsp?topic=/director.plan_6.1/fqm0_r_operating_system_and_software_requirements.html

Further information on the program's specifications and specified operating environment 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.

**Limitations**

AEM can monitor but not manage power data on servers that do not have native support.
Platform or OS-specifics:

- System z servers are supported for monitoring functions only.
- Power Systems servers are supported for monitoring, power saving, and capping.
- System x servers are supported for monitoring and capping but not power saving.
- Storage devices are enabled when utilizing PDUs for monitoring only.

For additional information, 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 Web site


Performance considerations

Performance considerations are available from the IBM Systems Director Information Center

http://publib.boulder.ibm.com/infocenter/director/v6r1x/index.jsp

Planning information

Refer to the planning Web site for additional information


Packaging

The IBM Systems Director Active Energy Manager package contains one CD-ROM that includes product installation documentation and files.

Your Proof of Entitlement for this program is a copy of a paid sales receipt, purchase order, invoice, or other sales record from IBM or its authorized reseller from whom you acquired the program, provided that it states the license charge unit (the characteristics of intended use of the program; for example, number of processors, number of users) and quantity acquired.

Information about how you may obtain program services will be provided by the party (either IBM or its authorized reseller) from whom you acquired the program.

AEM will be available on or before December 11, 2009, for electronic download from


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

Security, auditability, and control

AEM V4.2 installed on systems with Linux uses the security and the auditability features of the Linux operating system. 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

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<td>Per server</td>
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<td>IBM Systems Director Active Energy Manager V4.2 Subscription and Support</td>
<td>5648-PES</td>
<td>Per server</td>
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Server

Server is the unit of measure by which this program is licensed. A server is a computer system that executes requested procedures, commands, or applications to one or more user or client devices. A Proof of Entitlement (PoE) must be obtained for each server regardless of the number of processor cores or partitions in the server on which the program runs or each server managed by the program. Where blade technology is employed, each blade is considered a separate server.

Basic license

IBM Systems Director Active Energy Manager uses a "per managed server" charging metric. A license is required for each server being managed by IBM Systems Director Active Energy Manager, based on the size of the server. As of this announcement, servers are categorized as small, medium, or large, based on the following categories.

- Small server
  - IBM System x models
  - IBM BladeCenter x86 technology-based blades
  - IBM Power Systems, System p® models in Processor Groups C5, D5, and E5
  - IBM Power Systems, System i® models in Processor Groups P05, P10, and P20
- Medium server
  - IBM Power Systems, System p models in Processor Group F5
  - IBM Power Systems, System i models in Processor Groups P30 and P40
- Large server
  - IBM System z models
  - IBM Power Systems, System p models in Processor Groups G5 and H5
  - IBM Power Systems, System i models in Processor Groups P50 and P60

For example, for a customer running AEM V4.2 on a Power Systems 595 to monitor the energy control components built into System z10 servers and manage the energy control components built into one System p 570 (Group F5), the Power Systems 595, plus two additional System p 595 servers (Group H5), one license for managing medium servers and three licenses for managing large servers need to be purchased. No additional license is required for the IBM System z10 server because the monitoring functions of AEM V4.2 are available at no charge.

AEM requires a keyfile to make the management component of the product operational after the 60-day evaluation period. This keyfile is sent on a CD-ROM after placing an order for the 5765-AEP product. This software license includes one
year of Software Maintenance. AEM monitor functions do not require the keyfile. Download of AEM V4.2 is required before the keyfile can be applied.

Orders may be placed beginning with configurator availability.

Current customers with AEM for Linux on System z, V4.1 can download AEM for Linux on System z, V4.2 from the IBM Systems Director download site beginning December 11, 2009. New customers must order AEM for Linux on System z, V4.2.

AEM for Linux on System z, V4.1 will be available until December 10, 2009, at which time it will be withdrawn from marketing. Any order received with a customer requested arrival date (CRAD) specified as December 11, 2009, or later, will receive the license key for AEM for Linux on System z, V4.2 and the product can be downloaded from the IBM Systems Director download site.

To order, specify the program number and the appropriate quantity of licenses for each of the applicable numbers or entitlement identifiers. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

**Licensing for AEM**

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**Specific authorizations for AEM**

**Program name:** IBM Systems Director Active Energy Manager for Linux on System z, V4.2

**Program number:** 5648-AEZ

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**AEM for Linux on System z, V4.2 (5648-AEZ) - S0154DP**

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Subscription and Support

To receive voice technical support via telephone during normal business hours (Support) and to receive future releases and versions (Subscription) at no additional charge, Subscription and Support (Maintenance) must be ordered.

The Subscription and Support (Maintenance) offering is purchased separately under the terms of the IBM International Agreement for Acquisition of Software Maintenance (Z125-601). This offering:

- Includes a reasonable amount of remote assistance via telephone, mail, facsimile (fax), or e-mail to address suspected IBM program defects, where available, during normal IBM business hours from Monday through Friday, except local holidays. Exceptions from normal IBM business hours are Severity 1 (high impact) problems. Support for high impact suspected IBM defects is available 24 hours a day, 7 days a week (Support).
- Entitles customers to future releases and versions during the term at no additional charge (Subscription). Note that the customer is not entitled to new products.

The quantity of Subscription and Support (Maintenance) licenses must be equal to the quantity of product licenses ordered. To order, specify the program number and the appropriate number of licenses for each of the applicable one-time charge feature numbers or entitlement identifiers.

When Subscription and Support (Maintenance) is ordered, the charges will renew automatically annually unless canceled by the customer.

Subscription and Support (Maintenance) annual support charges will be automatically added to your order. If you do not desire the Subscription and Support (Maintenance) license for AEM for Linux on System z V4.2, you must take specific action to decline this support.

Subscription and Support PID

Program number: 5648-PES

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AEM for Linux on System z, V4.2 (5648-PES) - S014NKB

Orderable supply ID  Language  Distribution medium
S014NSD      US English  CD

AEM for Linux on System z, V4.2 (5648-PES) - S014NK9

Orderable supply ID  Language  Distribution medium
S014NS9      US English  CD

AEM for Linux on System z, V4.2 (5648-PES) - S014NK8

Orderable supply ID  Language  Distribution medium
S014NSC      US English  CD
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 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 following agreement applies for Software Subscription and Support (Software Maintenance) and does not require customer signatures:

• IBM Agreement for Acquisition of Software Maintenance (Z125-6011)

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Maintenance with the initial license acquisition of each program acquired. The initial period of Software Maintenance can be extended by the purchase of a renewal option, if available. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

IBM System z Operational Support Services - SoftwareXcel is an option if you desire added services.

License Information form number

GC52-1262

The program’s License Information will be available for review on the IBM Software License Agreement Web site


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
IBM United States Software Announcement

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).

**Program support**

Enhanced support, called Subscription and Support, includes telephone assistance, as well as access to updates, releases, and versions of the program as long as support is in effect. You will be notified of discontinuance of support with 12 months' notice.

**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 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.

**Authorization for use on home/portable computer**

You may not copy and use this program on another computer without paying additional license fees.

**Volume orders (IVO)**

No

**Passport Advantage applies**

No

**Software Subscription and Support (Software Maintenance) applies**

Yes. All distributed software licenses include Software Subscription and Support (also referred to as Software Maintenance) for a period of 12 months from the date of acquisition, providing a streamlined way to acquire IBM software and assure technical support coverage for all licenses. Extending coverage for a total of three years from date of acquisition may be elected.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, consult your IBM Software Support Handbook at

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

Software Subscription and Support (Software Maintenance) does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

**IBM Operational Support Services - SoftwareXcel**

Yes
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No

**Variable charges apply**
No

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

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