IBM LoadLeveler V3.2 advances with support on AIX V5.2 and the new IBM @server pSeries High Performance Switch

Overview

LoadLeveler® for AIX® 5L schedules applications to clusters of IBM @server pSeries® servers and/or nodes. LoadLeveler supports load balancing for interactive Parallel Operating Environment sessions, and focuses on parallel job scheduling and scalability.

This new release of LoadLeveler for AIX 5L:

- Supported on the new pSeries High Performance Switch (HPS). The pSeries HPS provides significantly greater communication bandwidth along with reduced latency and improved fault tolerance.
- Runs on the latest AIX 5L for POWER V5.2 operating system.
- Adds cluster security services, which allows identity authentication of LoadLeveler daemons and users. These identities are then used to determine authorizations.
- Supports multi-adapter connection support. This means you can use multiple adapters for job processing, and allocate separate memory support for each.
- Supports dynamic configuration of adapters in a Reliable Scalable Cluster Technology (RSCT) peer domain.
- Allows the use of multiple IBM technologies by coexisting in clusters that are managed by IBM Cluster Systems Management (CSM).

At a glance

LoadLeveler for AIX 5L is a job management program, which allows users to run more jobs in less time by matching processing needs with the available resources.

New in this release, LoadLeveler V3.2:

- Runs with the latest AIX 5L for POWER V5.2
- Supports the new IBM @server pSeries High Performance Switch (HPS)
- Provides additional security for authentication
- Allows clusters managed by IBM Cluster Systems Management (CSM).

Key prerequisites

AIX 5L for POWER V5.2

Planned availability dates

- October 31, 2003, for LoadLeveler V3.2
- December 19, 2003, running with Parallel System Support Programs (PSSP) V3.5

For ordering, contact:
Your IBM representative, an IBM Business Partner, or the Americas Call Centers at 800-IBM-CALL
Reference: RE001
### Description

V3.2 is available for LoadLeveler for AIX 5L. This new release runs with AIX V5.2 only.

**New switch support**

LoadLeveler V3.2 supports the new pSeries High Performance Switch (HPS). This switch provides greater communication bandwidth along with reduced latency and improved fault tolerance.

**Cluster security**

LoadLeveler now includes an additional security mechanism. AIX cluster security services, a component of RSCT, allows for identity authentication of LoadLeveler daemons and users. These identities are then used to determine authorization. This prevents unauthorized users and programs from misusing resources or disrupting services. Cluster security services is similar to Distributed Computing Environment (DCE) but tailored for a clustered environment.

**Multi-adapter connections**

Support is provided for multi-adapter connections. You can now use multiple adapters for job processing and allocate separate memory support for each adapter. You also request multiple windows per task per protocol and have the adapters automatically share the workload for the number of requested windows.

**Dynamic adapter configuration**

LoadLeveler V3.2 offers the option to dynamically detect and handle adapters and adapter changes for machines in the cluster which are in RSCT peer domains.

**Large system enhancements**

- Improved switch management allows LoadLeveler to automatically resume a startd which was drained due to switch table errors.
- An option is added to queue interactive jobs when resources are not immediately available.
- Job class information is available through the Data Access API.
- Options change the job class and account number and options to extend the wall clock limits on your jobs via an llmodify command are added.

**Note:** Support for checkpoint/restart and gang scheduling is not available with V3.2 at this time. Refer to the Statement of direction in this announcement for planned availability. If this function is important to your configuration needs, you should remain with LoadLeveler V3.1.

LoadLeveler supports a job_type, PVM3, for submitting (Parallel Virtual Machine (PVM) public domain software distributed by Oak Ridge National Laboratory) parallel jobs. This is the last release that provides this function.

### Product positioning

LoadLeveler is ideal for users who need to submit jobs as necessary, not according to any preset schedule. Other job schedulers provide a rule-based batch workload management for interjob dependencies. Scheduling jobs at predetermined schedules can be integrated with LoadLeveler function.

LoadLeveler supports load balancing for interactive Parallel Operating Environment sessions and focuses on parallel job scheduling and scalability.

### Statement of direction

IBM plans to provide support for checkpoint/restart and gang scheduling preemption with LoadLeveler V3.2 in third quarter 2004. This function, which is available with LoadLeveler V3.1, is not supported in V3.2 at this time.

All statements regarding the future direction and intent of IBM are subject to change or withdrawal without notice, and represent goals and objectives only.

### Reference information

For SOD describing support with PSSP, refer to Software Announcement 203-118, dated May 6, 2003, and Hardware Announcement 103-285, dated October 14, 2003, for details on the HPS.

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

For software offerings, operation by keyboard alone is a feature supported for people with disabilities.
Offering information

Product information is available through the Offering Information Web site at:

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

You can also visit the Passport Advantage® Web site at:

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

Publications

No publications are shipped with this program.

The following publications are available from the Web:

- IBM LoadLeveler® for AIX® 5L: Using and Administering (SA22-7881)
- IBM LoadLeveler for AIX 5L: Diagnosis and Messages Guide (GA22-7882)
- Installation Memo for IBM LoadLeveler (GI11-2816)

Visit the IBM @server Cluster Information Center at:

http://publib.boulder.ibm.com/clresctr/windows

The IBM Publications Center:

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

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The PNS enables subscribers to set up profiles of interest by order number/product number. PNS subscribers automatically receive notifications by e-mail of all new publications defined in their profiles. These may then be ordered/downloaded via the Publications Center.

Technical information

Hardware requirements

IBM @server pSeries® servers

Software requirements

- LoadLeveler V3.2 requires the AIX 5L V5.2 operating system (5765-E62).
  - To run parallel operating environment (POE) jobs, Parallel Environment for AIX 5L, V4.1 (5765-F83) is required.
  - If using the GUI, AIXwindows® Environment, V5.2 (5765-E62) and Java™ Runtime Environment, V3.1 are required.
  - If using the Config Tasks Wizard, TaskGuide Runtime Environment, V5.2 is required.
  - To run in a PSSP domain, Parallel System Support Programs for AIX, V3.5 (5765-D51) and APAR #IY49007 is required only:
    - If you plan to run POE jobs in user space mode with LoadLeveler on an RS/6000® SP™ system, then the Job Switch Resource Table Services fileset (ssp.st or later compatible releases) of the PSSP install image is required.
    - If you plan to configure LoadLeveler to support Distributed Computing Environment (DCE) security services then the SP Authenticated Clients Commands fileset (ssp.clients) of the PSSP installp image is required.
  - To run in a RSCT peer domain or configure LoadLeveler to support RSCT security services, RSCT 2.3.1.0 or a later compatible release is required.

Limitations:

LoadLeveler V3.2 does not:

- Support running in an AIX V5.1 environment
- Support running with PSSP at this time (APAR IY49007)
- Support checkpoint/restart function at this time
- Include the Gang Scheduling function

Planning information

LoadLeveler supports a job_type, PVM3, for submitting PVM (public domain software distributed by Oak Ridge National Laboratory) parallel jobs. This is the last release that will provide this function.

Packaging: LoadLeveler for AIX 5L, V3.2 is distributed on a single CD-ROM (LCD4-5569). The products License Information (LI) is provided with the product in softcopy. Publications are not shipped on the product media but are available online.

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: http://www.ibm.com.
Security, auditability, and control

LoadLeveler uses the security and auditability features of the AIX 5L, V5.2 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.

Ordering information

LoadLeveler V3.2 has one charge unit based on the active number of processors in the server or cluster running LoadLeveler for the supported operating environment. A new order includes one-year IBM Software Maintenance. Upgrades may be acquired via the IBM Software Maintenance program up to the current level of use authorized for the qualifying program.

Program name: LoadLeveler for AIX 5L, V3.2

New users of LoadLeveler V3.2 should specify Type 5765, Model E69, and the one-time charge (OTC) feature number with a quantity equal to the total number of active processors in the server or cluster running the supported operating system in which LoadLeveler will be installed.

<table>
<thead>
<tr>
<th>Description</th>
<th>Program number</th>
<th>OTC feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per active processor</td>
<td>5765-EB9</td>
<td>0006</td>
</tr>
<tr>
<td>Block of 250 active processors(1)</td>
<td>5765-EB9</td>
<td>0007</td>
</tr>
</tbody>
</table>

1 The feature for a block of 250 active processors is provided for convenience with large orders. A quantity of one for this feature will order a license for 250 active processors.
2 One-time charge

Program name Medium Media supply feature number
LoadLeveler V3.2 CD-ROM 5819

Ordering information for IBM software maintenance

This software license includes IBM Software Maintenance, previously referred to as Software Subscription and Technical Support. All distributed software licenses include Software Maintenance for a period of 12 months from the date of acquisition. Extending coverage for a total of three years from date of acquisition may be elected.

For a new user to register for future upgrades of the program described in this announcement, specify 5771-LLV for one-year registration, or 5773-LLV for three-year registration and the billing feature with a quantity equal to the number of licenses in the base 5765-E69 license contract.

Customers who have current maintenance coverage are entitled to receive LoadLeveler V3.2 at no charge.

For existing customers of LoadLeveler V2 (5765-D61) or V3 (5765-E69) who wish to renew their Software Maintenance contract, specify the renewal feature for one-year (5771-LLV) or three-years (5773-LLV) for a quantity equal to the total number of active processors in your current cluster or server. If maintenance has expired (or you are new to Software Maintenance), specify the after-license feature number.

Note: The appropriate billing features either must have been previously purchased and must currently be on a customer’s record as proof of eligibility to receive this upgrade, and future upgrades, at no charge.

- The appropriate one-year registration feature (no additional charge feature) will transfer automatically to the customer order record when one-year 5771-LLV is selected.
- Customers should select the renewal billing feature for one- or three-year contract renewal.
- Customers should select the maintenance-after-license billing feature to re-enter one of the programs after a contract has lapsed.

OTC, one-year Software Maintenance (5771-LLV)

<table>
<thead>
<tr>
<th>Program name</th>
<th>Registration feature number</th>
<th>Renewal billing feature number</th>
<th>Maintenance after-license billing feature number</th>
<th>Current licensee supply feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LoadLeveler V3.2</td>
<td>0422</td>
<td>0423</td>
<td>0424</td>
<td>5819</td>
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<tr>
<td>Per active processor</td>
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</tr>
<tr>
<td>Block of 250</td>
<td>0425</td>
<td>0426</td>
<td>0427</td>
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OTC, three-year Software Maintenance 5773-LLV

<table>
<thead>
<tr>
<th>Program name</th>
<th>Registration feature number(3)</th>
<th>Renewal billing feature number</th>
<th>Maintenance after-license billing feature number</th>
<th>Current licensee supply feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LoadLeveler V3.2</td>
<td>0398</td>
<td>0399</td>
<td>0400</td>
<td>5819</td>
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<tr>
<td>Per active processor</td>
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<tr>
<td>Block of 250</td>
<td>0401</td>
<td>0402</td>
<td>0403</td>
<td></td>
</tr>
</tbody>
</table>

3 The registration features for 5773-LLV are priced for the second and third years only of the three year contract.

Customization options (5765-E69): Select the appropriate feature numbers to customize your order with delivery options desired. These features can be specified on the initial or MES orders.

<table>
<thead>
<tr>
<th>Description</th>
<th>Feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Shipments</td>
<td></td>
</tr>
<tr>
<td>Serial number only (suppresses shipment of media and documentation)</td>
<td>3444</td>
</tr>
<tr>
<td>Expedite Shipments</td>
<td></td>
</tr>
<tr>
<td>Local IBM office expedite (for IBM use only)</td>
<td>3445</td>
</tr>
<tr>
<td>Customer expedite process charge ($30 charge for each product)</td>
<td>3446</td>
</tr>
</tbody>
</table>

Terms and conditions

Licensing: IBM International Program License Agreement. Proofs of Entitlement are required for all authorized use.

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203-271 -2-
This software license includes Software Maintenance, previously referred to as Software Subscription and Technical Support.

The following agreements apply for maintenance and do not require customer signatures:

- IBM Agreement for Acquisition of Support (Z125-6011)
- Addendum for Support (Software Maintenance) for Select iSeries™ and pSeries Programs (Z125-6495)

**Limited warranty:** Yes

**Money-back guarantee:** If for any reason you are dissatisfied with the program, return it within 30 days from the invoice date to the party (either IBM or its reseller) from whom you acquired it for a refund. This applies only to your first acquisition of the program.

**Copy and use on home/portable computer:** No

**Volume orders (IVO):** No

**Passport Advantage (IVO):** Yes, contact your IBM representative.

**Software maintenance applies:** Yes.

IBM Software Maintenance is a one-year or three-year contract offering that enables customers to maintain software product version and release currency, with voice support during normal business hours included at no additional charge for the first year, for selected AIX and UNIX®-based software products at a predetermined cost.

One year of Software Maintenance is included in the price of the original license. For products participating in IBM Software Maintenance, customers can receive all software product version and release upgrades and voice support, announced during the contract period. If customers allow either the one-year or three-year software maintenance offering to expire without renewal, there will be an “Maintenance-after-license” option to enable reinstatement in the Software Maintenance offering, on a product by product basis.

The following is general information regarding the Software Maintenance agreement:

**Structure**

- Each eligible licensed software program will include one year of Software Maintenance (Software Subscription and Technical Support) in the price of the license.
- A one-year and three-year prepay option (represented by two separate type/models) associated with each eligible licensed program are available.
- The Software Maintenance type/models will have the same pricing structure as the license type/models they are associated with.
- Each one-year and three-year Software Maintenance program number will have three sets of feature numbers for each priced entity:
  - A no-charge registration feature for the one-year contracts and a two-year priced feature (since the first year is included in the price of that license) for the three-year contracts.
  - A renewal feature of one or three years.
  - A Software Maintenance “after license” charge for customers who want to renew but have lapsed coverage.
  - The Software Maintenance order generated for this product will be a new order and have a new starting/ending period, separate from the one for the license already in effect.

**Definition of software upgrade:** An upgrade is either a new version (3.x.x to 4.x.x) or a new release (x.3.x to x.4.x) of an IBM program announced as eligible for which a customer enrolled under the IBM Software Maintenance. Software Maintenance entitles customers to future upgrades from only the latest announced version or release of an available eligible product.

Upgrades do not include programs sold separately from the enrolled program, but enhance the performance of that program, or are considered add-ons or utilities. Programs that perform the same functions as the enrolled program but are installed on a non-AIX platform are not considered upgrades.

**Note:** Software preventative-maintenance releases x.x.1 to x.x.2 (modification level changes, updates, or refreshes) are released under the one-year or three-year maintenance program numbers but only when a supply feature has been announced. Supply features are only announced under the one-year and three-year options when there is an announced version/release change against the original program product. No-charge preventative maintenance releases should be obtained by Software Maintenance customers in the same manner as non-Software Maintenance customers.

**Example:** Product A is offered under IBM Software Maintenance and three months later program fixes are incorporated into the program package. This is considered an update that would not be obtained under the one-year or three-year maintenance program numbers under the IBM Software Maintenance. Using the example above, three months after the program fixes were incorporated into the program package, IBM announces a new version of product A. At that time, a supply feature is announced for product A under the one-year and three-year maintenance program numbers. This allows customers who are entitled by purchase or when the first year of maintenance is included with the license, or either the one-year or three-year maintenance offering to order the upgrade under the one-year or three-year offering.

IBM may announce a product that can be substituted for an enrolled product. This product is neither a new version, a new release, nor a preventative maintenance release of that enrolled product. In most cases, this product has a different architecture, more function, and a higher license charge than the enrolled product. IBM may provide those customers enrolled in the IBM Software Maintenance offering access to this product at a discounted rate. The terms of this transaction will be included in the new product announcement.

**Note:** IBM will not offer stand-alone upgrades as a standard product offering. Stand-alone upgrades to this product/release, and its future versions and releases, will be considered only on a special request basis by IBM.

**Contract duration:** The IBM Software Maintenance contracts are on a product by product basis and are offered for one or three years. One year of Software Maintenance is included with the purchase of a new license for the product. The three-year prepay option covers two additional years of coverage since the first year is included in the product license. The three-year prepay option can be purchased at the same time a license for an eligible product is purchased. Refunds do not apply if cancellation occurs during the one or three year contract period. Customers are not required to
renew under either the one-year or three-year offering when the contract expires but will need to use the Maintenance-after-license option should they let the contract expire and want to acquire a new version or release of an eligible product. If the one-year or three-year contracts are not renewed, the one or three year contracts will be removed from IBM administrative systems. Contract transfers within an enterprise are allowed.

**Payment options:** Customers enroll in the plan at a reduced “initial” price at the same time a new license for an eligible program product is purchased. Customers can also enroll in the plan after purchase of a new license for an eligible program product but must purchase the “Maintenance-after-license” option.

**Software Maintenance prices:** The IBM Software Maintenance program prices are based on the published price of the software program at the time of the contract preparation.

**Minimum contract value:** None

**Notification of upgrade availability and ordering:** The Software Maintenance component of the Web server where customers may register for e-mail notifications when Software Maintenance products are upgraded can be found at:

http://techsupport.services.ibm.com/ server/support

**IBM Operational Support Services — Support Line:** No

**Other support:** SW Maintenance for pSeries

**AIX/UNIX upgrade protection applies:** Yes

**Entitled upgrade for current AIX/UNIX upgrade protection licensees:** Yes

**iSeries Software Subscription applies:** No

**Variable charges apply:** No

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

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The IBM Electronic Service Agent is a no-additional-charge software that resides on your IBM eServer system. It is designed to proactively monitor events and transmit system inventory information to IBM on a periodic customer-defined timetable. The IBM Electronic Service Agent tracks system inventory, hardware error logs and performance information. If the server is under a current IBM maintenance service agreement or within the IBM Warranty period, the Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to provide proactive service that maintains higher system availability and performance. In addition, information collected through the Service Agent will be made available to IBM service support representatives when they are helping answer your questions or diagnosing problems.

To learn how IBM Electronic Services can work for you, visit:

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

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### Prices

**LoadLeveler for AIX 5L, V3.2**

<table>
<thead>
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<th>Description</th>
<th>Program number</th>
<th>OTC number</th>
<th>OTC</th>
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<td>$514</td>
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**OTC, one-year Software Maintenance (5771-LLV)**

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<th>Renewal billing number</th>
<th>Maintenance after license number</th>
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<tbody>
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<td>Per active processor</td>
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**OTC, three-year Software Maintenance (5773-LLV)**

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<td>Per active processor</td>
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     Atlanta, GA 30301-2690

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