



# Creating a World of Value for LINUX: S/390 Virtual Image Facility for LINUX and the IBM S/390 Integrated Facility for LINUX

## Overview

LINUX® is one of the fastest growing operating systems, providing a UNIX®-like application environment with a wealth of available applications. If you want to run either a single image or multiple Linux servers, you will appreciate the new **S/390® Virtual Image Facility™ for Linux**, an **IBM S/390 Integrated Facility for Linux** for independent Linux workspaces available on 9672 G5 and G6 Parallel Enterprise servers, and Linux for S/390 **financing options** by IBM Global Financing.

## S/390 Virtual Image Facility for Linux

The Virtual Image Facility offers a complete server environment for multiple Linux systems on one S/390 server. The Virtual Image Facility is an easy-to-use, high-performance environment that operates within a logical partition or in native S/390 mode and provides the capability to create a significant number of Linux images. An internal network provides high-speed communication among Linux images.

## Key Benefits

The Virtual Image Facility will enable you to:

- Run tens to hundreds of Linux images on a single system
- Create and manage Linux images quickly and easily
- Share system resources among Linux images
- Simplify system resource management
- Port UNIX-like applications more easily to the S/390 platform
- Isolate Linux images from one another
- Consolidate operations, servers, and networks onto a single physical system for improved manageability

## Easy to Install and Use

The Virtual Image Facility is easy to install and use, requiring familiarity only with S/390 hardware concepts.

## Centralized Management

With many Linux images on a single server, centralized management and operation of this environment reduces complexity, eases administration, and lowers costs.

## IBM S/390 Integrated Facility for Linux

This exciting optional facility, available on G5 and G6 servers, enables you to purchase additional processing capacity, exclusively for Linux workload, with no effect on the G5 or G6 model designation.

## Linux for S/390 — Solution Financing from IBM Global Financing

IBM Global Financing provides financial packages to enable your company smooth transition to the open source world and Linux for S/390.

## Key Prerequisites

Refer to the **Hardware Requirements** and **Software Requirements** sections for details.

## Planned Availability Dates

- September 29, 2000 — S/390 Virtual Image Facility for Linux
- September 29, 2000 — IBM S/390 Integrated Facility for Linux

## At a Glance

Providing a S/390 platform solution for Linux, the S/390 Virtual Image Facility for Linux, new services, and the IBM S/390 Integrated Facility for Linux offer:

- Ability to run tens to hundreds of Linux images on a single S/390 platform
- Integrated high-speed connections among Linux images
- Simplified installation and administration for a multi-Linux S/390 server environment
- Dynamic real-time creation of additional Linux images as needed
- Cost-efficient use of system resources in support of a very large number of Linux servers on a single processor complex
- Services support for Linux provided by IBM Global Services
- An optional Linux workspace that is independent of the traditional S/390 workload on G5 and G6 servers
- S/390 reliability, availability, and serviceability now available for the exciting world of Linux

### For ordering, contact:

Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at

**800-IBM-CALL**

Reference: YE001

*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>.*

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## Description

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LINUX® is a genuinely open system. There is a wealth of applications written for Linux that can be brought to S/390, in most cases with a simple recompile. This rapid application portability gives you real flexibility in optimizing your development and deployment platforms.

You can run Linux natively on a stand-alone S/390, within an S/390 logical partition (LPAR), or under VM/ESA®. A fourth way to execute Linux applications on S/390 processors is with the new S/390 Virtual Image Facility™ for Linux. Finally you can isolate your Linux applications on a G5 or G6 server in its own workspace, using the IBM S/390 Integrated Facility for Linux — a new hardware option for capacity dedicated to Linux workload. The Virtual Image Facility also works in conjunction with the hardware facility for Linux.

### *S/390 Virtual Image Facility for Linux*

#### **Hundreds of Linux Images**

If you want to run more Linux images than can be deployed using LPARs (15) on an S/390 server, then the Virtual Image Facility may be right for you. The Virtual Image Facility is an easy-to-use environment that provides the capability to create a significant number of Linux images either within a logical partition or natively on S/390. The number of Linux images is limited only by system capacity and the characteristics of the Linux system workloads. This Virtual Image Facility enables you to:

- Consolidate multiple applications on one piece of hardware, though not necessarily on a single Linux instance
- Isolate applications from each other
- Dynamically create additional Linux images as needed
- Automatically exploit expanded storage
- Test new distributions or versions of Linux while running older versions in production
- Run different version or release levels of Linux

#### **Communication Options**

The Virtual Image Facility must be connected to a Token Ring, Ethernet, FDDI, or Fast Ethernet network through an Open Systems Adapter-2 (OSA-2), an OSA Express adapter, a channel-attached 3172 Interconnect Controller, or equivalent.

If desired, each Linux image can be directly connected to a Token Ring, Ethernet, or Fast Ethernet network through an OSA-2, an OSA Express adapter, or a channel-attached 3172 Interconnect Controller, or equivalent. The Virtual Image Facility also provides a method of communication among Linux images. This Internet Protocol (IP) communication allows multiple Linux for S/390 images to share a single network interface.

#### **Disk Management**

The Virtual Image Facility allows partitions to be created for Linux images on 3390 disk volumes and multiple partitions can be created on a single volume. Virtual Image Facility also provides expanded storage exploitation, cache control unit support, and FICON™ channel support without requiring additional programming in Linux for S/390 servers.

Sharing of disks among Linux images is also controlled by the Virtual Image Facility.

## Installation

The Virtual Image Facility is easy to install and use, requiring little or no S/390 system software skills. It is installed via a simple restore from the 3480 tape medium to a 3390 disk device. In addition to installing the Virtual Image Facility, an initial Linux image must be obtained (from a Linux for S/390 distribution such as those provided by SuSE or TurboLinux), installed, and booted. The configuration of this initial Linux image is adequate to accommodate a full installation. A Linux client program is provided to allow the initial Linux image to communicate with the Virtual Image Facility to create and manage additional images, disk partitions, and other resources.

#### **Performance**

The Virtual Image Facility uses paging to allow real storage to be shared among all the Linux images it supports. Adequate 3390 disks for paging must be provided to the Virtual Image Facility before it will allow new images to be created. The supplied client program may be used to manage paging volumes and to obtain a summary of system configuration and performance information at any time.

#### **Reliability, Availability, and Serviceability**

Applications running on a high-availability hardware architecture such as S/390 can isolate and recover from many hardware and software failures, ensuring the availability of the application to the end user. These include computational integrity, fault-tolerant cache hierarchy, transient error recovery, memory chip sparing, CPU sparing, zero-outage hardware repair, and concurrent microcode updates. No other platform can recover from failure without impact to the application as well as S/390.

The Virtual Image Facility is self-diagnosing and provides problem data collection procedures that can be activated using the supplied client program.

### *The IBM S/390 Integrated Facility for Linux*

This exciting optional facility, available on G5 and G6 servers, enables you to purchase additional processing capacity exclusively for Linux workload, with no effect on the G5 or G6 model designation. For example, a G6 model X57, with additional workspace added by the IBM S/390 Integrated Facility for Linux, will report its S/390 capacity as a model X57. Consequently, executing Linux workload on the IBM S/390 Integrated Facility for Linux will not result in any increased IBM software charges for OS/390®, VM, VSE, or TPF operating systems/applications. Moreover, your independent software vendor (ISV) who provides S/390 applications to you, may be among those ISVs who have now adopted this policy for the hardware workspace dedicated to Linux. To determine if ISV software charges for existing S/390 applications on your G5 or G6 server will be unaffected by adding the IBM S/390 Integrated Facility for Linux to the server, contact your ISV. Installations should note that the Linux workspace enabled by this facility will not support any of the S/390 traditional operating systems (OS/390, TPF, VSE, or VM). Only Linux applications or Linux operating in conjunction with the Virtual Image Facility are supported by the IBM S/390 Integrated Facility for Linux. Up to 7 IBM S/390 Integrated Facility for Linux features may be ordered for G5 models and up to 11 features may be ordered for G6 models, depending upon the server model and its number of unreserved ICFs. G5 RX6 and YX6 models, as well as G6 XZ7 and ZZ7 models

have no unreserved ICFs, and therefore cannot have the hardware feature for Linux installed.

The IBM S/390 Integrated Facility for Linux will be managed by PR/SM™ as a logical partition with dedicated CPs. Depending upon the customer's level of server Licensed Internal Code, the installation of features 0995 or 0996 may be non-disruptive. However, implementation of this facility will require an LPAR definition, following normal LPAR activation procedure. As with any change in the LPAR configuration of a processor, the introduction of additional resources to manage may have an impact on the capacity of the existing partitions and workloads running on the server. The size of the impact will be dependent on the quantity of added resources and the type of applications being introduced. A tool is available to aid in assessing the impact to any server; contact your IBM representative for details.

### ***Benefit from G5/G6 Hardware Features and the Virtual Image Facility***

The IBM S/390 Integrated Facility for Linux together with the Virtual Image Facility, enable you to:

- Add processing capacity dedicated to running Linux on most models of your G5 or G6 server
- Run multiple Linux images independent of the traditional S/390 workload, with associated savings of IBM S/390 software charges
- Define many virtual Linux images on fewer real G5 or G6 resources

### ***Linux on S/390 Service and Support: IBM Global Services***

IBM Global Services will provide consulting, planning, and implementation services, remote technical support, and defect support for Linux for S/390. IBM consultants are available to help customers evaluate their Linux for S/390 requirements, and to assist in implementing and optimizing their Linux for S/390 solutions.

Key services that will be available include:

- Consulting and planning services
- Implementation services
- Infrastructure design
- Application enablement services
- Database enablement services

For additional information, refer to:

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

### ***Financing Linux for S/390: IBM Global Financing***

Moving your company to the world of e-business presents significant opportunities, but with real challenges that include sourcing, integrating new applications, and establishing better ways to serve your customers. Today's highly competitive environment often requires creative financial solutions to execute timely IT projects that are essential to your future.

**Solution Financing for Linux for S/390** is a worldwide offering by IBM Global Financing that can help you perform a successful and cost-effective transition to the e-business marketplace.

#### **A Financing Solution with Important Benefits:**

- Customized payments to match benefit flow: Flexibility is crucial because the financial rewards of Linux

implementation are realized at project end, while costs are incurred at the start.

- Possible off-balance-sheet financing that may eliminate the need for additional equity by spreading up-front costs over the project life.
- A single invoice for all financed elements of the Linux project.

#### **Finance Some or All of your Linux for S/390 Solution:**

- S/390 9672 Parallel Enterprise Server or Multiprise® 3000 acquisition, and any associated additional hardware
- Linux for S/390, Virtual Image Facility, IBM WebSphere™ and other IBM Initial License Charge (ILC) software, and ISV one-time charge (OTC) software
- Services, either from IBM, IBM Business Partners, or an ISV
- Extended maintenance offerings

### ***Beta Program Opportunity***

IBM is seeking a limited number of customers to participate in a Beta evaluation of the S/390 Virtual Image Facility for Linux Version 1.1 prior to the planned availability date. Beginning August 2, 2000, refer to:

<http://www.ibm.com/s390/linux/vif/beta/>

if you are interested in participating in this Beta program.

### ***Year 2000***

These products are Year 2000 ready. When used in accordance with its associated documentation, it is capable of correctly processing, providing, and/or receiving date data within and between the twentieth and twenty-first centuries, provided that all products (for example, hardware, software, and firmware) used with the product properly exchange accurate date data with it.

The service end date for the Virtual Image Facility product is December 31, 2002.

### ***Euro Currency***

This program is EuroReady.

For more information on the implications of the euro, visit the IBM euro Web site at:

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

#### **EuroReady Products**

IBM considers an IBM product to be EuroReady if the product, when used in accordance with its associated documentation, is capable of correctly processing monetary data in the euro denomination and of respecting the euro currency formatting conventions (including the euro sign). This assumes that all other products (for example, hardware, software, and firmware) that are used with this product are also EuroReady. IBM hardware products that are EuroReady may or may not have an engraved euro sign key on their keyboards.

Currently, EuroReady status applies primarily to IBM products specific to the EMU countries. Products that are not specific to these countries are deemed to be "not ready" for euro unless otherwise stated in the product's country-specific specifications.

## IBM Hardware Ready

IBM supplies certain IBM products which include third party software (pre-loaded or not) and/or third party attached hardware. In these instances IBM is not in a position to assert that these third party products are, in themselves, EuroReady.

Therefore, such IBM products will be designated as Hardware ready.

## EuroReady Solutions

IBM considers a solution to be EuroReady when the solution providers have:

- Analyzed the euro requirements, including the need to comply with relevant EC rules
- Built in appropriate function

and can clearly demonstrate this by:

- Detailing euro related requirements
- Describing how these will be implemented in the solution
- Declaring when the implementation will be generally available

The euro capabilities of a EuroReady solution will be clearly identified as features of the Solution specification as described in the contracts document.

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## Product Positioning

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The Virtual Image Facility enables you to run a large number of Linux server images on a single S/390 server, considerably more images than the fifteen supported by the IBM S/390 LPAR mode of operation. The Virtual Image Facility is ideally suited for those who want to move Linux and/or UNIX workloads deployed on multiple servers onto a single S/390 processor, while maintaining the same number of distinct server images. This eliminates the need to reduce the number of server images as the workload is moved to S/390. Since the number of real servers (hardware) is reduced to one, your cost savings may be realized by managing large server farms deployed on virtual servers instead of multiple hardware servers. The networking environment is simplified, using high-speed networking among Linux images. Deploying Linux workload on the Virtual Image Facility is particularly attractive if the workload interacts with S/390 servers, applications, or data located on the same S/390 server.

The Virtual Image Facility enables multiple Linux server images to run in a logical partition or on a S/390 server in native mode. The Virtual Image Facility is priced attractively for Linux environments and requires minimal S/390 skills to install and manage within the S/390 environment.

VM/ESA supports all S/390 operating systems as well as Linux for S/390. You should consider VM/ESA if you need additional flexibility offered by the virtual machine environment which would include:

- Additional processor support, such as S/390 Multiprise 2000 and S/390 Parallel Enterprise Server™ Generation 3 and 4, although IBM does not support Linux for S/390 on these processors
- Guest support for S/390 operating systems including OS/390, VSE/ESA™, TPF, Linux, or VM/ESA itself
- System administration tools for performance, accounting, auditing, and more

- Enhanced security features
- Wider variety of supported disk and tape storage devices

## Trademarks

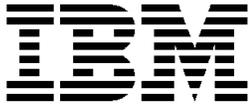
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LINUX is a registered trademark of Linus Torvalds.

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# IBM US Announcement Supplemental Information

August 1, 2000

## Offering Information

Product information is available on day of announcement through Offering Information (OITool) at:

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

## Publications

The S/390® Virtual Image Facility™ for LINUX® publication will be available in printed format, or Adobe Portable Document Format (PDF) files. One copy of the following publication will be supplied with your order at no additional charge:

Title	Order Number
S/390 Virtual Image Facility for Linux Guide & Reference	GC24-5930-00

This displayable manual can be used with the Adobe Acrobat Reader, or an HTML browser in any of the supported environments.

The Adobe Acrobat browser can be found at the Adobe Web site:

<http://www.adobe.com>

This publication will also be available on the Internet at general availability of the Virtual Image Facility from the Linux for S/390 Web site at:

<http://www.ibm.com/s390/linux/vif/>

**Redbooks:** Additional information on Linux for S/390 is available in a new Redbook: *Linux for S/390*, SG24-4987. The Redbook is planned to be published in August 2000, but it is currently available as a Redpiece, from the Web at:

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

## Technical Information

### Specified Operating Environment

#### Hardware Requirements

- S/390 Parallel Enterprise Server™ — Generation 5 or 6 for the IBM S/390 Integrated Facility for Linux
- S/390 Parallel Enterprise Server — Generation 5 or 6 or an S/390 Multiprise® 3000 for the Virtual Image Facility
  - Natively on an S/390 processor or in logical partitions
- One 3390 DASD

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- A tape drive capable of reading 3480 tapes
- An OSA-2 adapter, an OSA Express adapter, a channel-attached 3172 Interconnect Controller, or equivalent to connect a Linux image directly to a Token Ring, Ethernet, or Fast Ethernet LAN
- An OSA-2 adapter, an OSA Express adapter, a channel-attached 3172 Interconnect Controller, or an equivalent device to connect the Virtual Image Facility to a Token Ring, Ethernet, FDDI, or Fast Ethernet network

**Software Requirements:** Linux for S/390 is not provided with the Virtual Image Facility. It must be obtained from distributors. Refer to:

<http://www.ibm.com/s390/linux/dist.html>

for availability and for the most current information on distributors of Linux for S/390.

**Compatibility:** None

#### Limitations

- The Virtual Image Facility may only be used in a Linux for S/390 environment.
- Only 3390 disk, LCS, channel-to-channel adapter (CTCA), and internal network devices are supported.
- The size of a Linux disk partition cannot exceed the capacity of a single 3390 disk device.
- The number of images is limited by the available disks, central storage, and expanded paging resources, as well as by the number and speed of processors.

**Performance Considerations:** System performance depends on the hardware resources allocated to the Virtual Image Facility and on the level of activity within each Linux image. For assistance in understanding the performance implications for a particular situation, contact your IBM representative or your IBM Business Partner.

### Planning Information

**Customer Responsibilities:** The customer must order the S/390 Virtual Image Facility for Linux, with applicable feature numbers, and the program number for Software (SW) Subscription and Support, if desired. The customer must also obtain the Linux for S/390 code from one of the distributors that have a marketing relationship with IBM. These can be found at:

<http://www.ibm.com/s390/linux/dist.html>

**Direct Customer Support:** Additional fee support will be provided through the IBM Support Line and country specific service offerings. Contact IBM for further information on what is available in your country.

**Packaging:** S/390 Virtual Image Facility for Linux product package is distributed with the following:

- International Program License Agreement (Z125-3301)
- License Information Document (GC24-5933)
- One 3480 tape labeled S/390 Virtual Image Facility for Linux
- S/390 Virtual Image Facility for Linux Guide and Reference (GC24-5930-00)

### **Security, Auditability, and Control**

The S/390 Virtual Image Facility for Linux uses the security and auditability features that are inherent in the virtual server and ESA/390™ architecture.

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

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### **Ordering Information**

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The S/390 Virtual Image Facility for Linux is an S/390 operating system designed to run only Linux servers and has one charge unit: One-Time Charge (OTC) per processor engine.

The Virtual Image Facility must be ordered for each S/390 processor engine that is designated to run Linux. The product is shipped on 3480 tape for restore to a 3390 disk. To order the Virtual Image Facility, specify medium feature number 5812, and asset registration 9001 (under program number 5739-A01) and feature number 0101. Specify the quantity of licenses required which must equal the number of processor engines running Linux.

Order entry capability for Virtual Image Facility will be available beginning August 1, 2000. Production of Virtual Image Facility orders will begin on the general availability date, September 29, 2000.

**Basic License:** To order a basic license for one processor engine, specify the program number, 5739-A01, feature number 9001 for asset registration, the feature number of the desired distribution medium, and the OTC feature number 0101. You must also specify the quantity of OTC licenses equal to the number of processor engines that will be designated as running Linux for S/390.

With the ordering of 5739-A01, you will receive a 3480 tape containing the program code for Virtual Image Facility, an International Program License Agreement for 5739-A01, a License Information Document, and one copy of each publication available for Virtual Image Facility. If you are specifying more than a quantity of one on your order, you will be entitled to operate Virtual Image Facility on the number of processor engines specified, but you will not receive distribution media or publications for the additional processor engines specified. The maximum quantity ordered should not be more than 2 for each S/390 Multiprise 3000 (7060), 7 for each S/390 Parallel Enterprise Server (9672) Generation 5, or 11 for each S/390 Parallel Enterprise Server (9672) Generation 6.

For example, if you will be licensing Virtual Image Facility on a 9672 and designating 4 processor engines as running Linux, you would order feature numbers 9001 (asset registration), 5812 (3480 tape medium), and 0101 with a quantity of 4.

If you desire to purchase the Virtual Image Facility SW Subscription and Support per processor engine, you must order under 5739-SPT.

**Program Name:** S/390 Virtual Image Facility for Linux

**Program Number:** 5739-A01

<b>Description</b>	<b>OTC Feature Number</b>	<b>Medium Feature Number</b>	<b>Medium</b>
Virtual Image Facility	0101	5812	3480 Tape

### **Support for S/390 Virtual Image Facility for Linux**

**Program Name:** SW Subscription and Support

**Program Number:** 5739-SPT

Support for Virtual Image Facility is provided and licensed under the IBM Agreement for Acquisition of Programs and Support (Z125-5790), or IBM International Agreement for Acquisition of Support (Z125-6011), or IBM International Agreement for Acquisition of Programs and Support (Z125-5599) with the Attachment for Support and its Addendum for Linux for S/390 Programs (Z125-6284).

This 5739-SPT order establishes entitlement records worldwide as well as support for Virtual Image Facility. If a 5739-SPT order is not placed, the customer will only be entitled to support under the basic warranty for the Virtual Image Facility, 5739-A01.

The SW Subscription and Support provides:

- Corrections that fix substantial deviations of unmodified products from the then-current code, publications, and informal documentation (that is, release notes and memos).
- Software product updates that are improvements, extensions, and other changes that IBM, at its discretion, deems to be reasonable.
- Service tapes and new releases will be made available at no additional charge.
- Technical support:
  - Voice, fax, mail, or e-mail assistance for defect-related and technical questions, where available, during normal IBM business hours from Monday through Friday, except local holidays.
  - Temporary fixes for problems (where known), answers questions, and provides fixes where they exist.

Refer to the *Addendum for Linux for S/390 Programs* (Z125-6284) for contact information.

On-site (local) support, although available, is provided as part of the IBM portfolio of fee-based services.

Service fixes will be available on 3480 tape from IBM Software Distribution and Fulfillment (SDF). These fixes must be applied using a function supplied with the Virtual Image Facility and it is the customer's responsibility to invoke this function.

To order the SW Subscription and Support annual charge per processor engine for the Virtual Image Facility, you must specify feature number 0201 and the quantity of licenses. The quantity of SW Subscription and Support licenses must be equal to the number of processor engines that will be designated as running Linux for S/390

and should also be equal to the number of OTC licenses ordered for the Virtual Image Facility (5739-A01). The maximum quantity ordered should not be more than 2 for each S/390 Multiprise 3000 (7060), 7 for each S/390 Parallel Enterprise Server (9672) Generation 5, or 11 for each S/390 Parallel Enterprise Server (9672) Generation 6.

Support for Program Name	Support for Program Number	Order under Program Number 5739-SPT Standard Support Annual Charge Feature Number
Virtual Image Facility	5739-A01	0201

**Customization Options:** Select the appropriate feature numbers to customize your order with delivery options desired. These features can be specified on the initial or MES orders.

Description	Feature Number
<b>Expedite Shipments</b>	
Local IBM Office Expedite (for IBM use only)	3445
Customer Expedite Process Charge (\$30 charge for each product)	3446

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

## Terms and Conditions

**Licensing:** IBM International Program License Agreement (IPLA), IBM Agreement for Acquisition of Programs and Support (Z125-5790), or IBM International Agreement for Acquisition of Support (Z125-6011), or IBM International Agreement for Acquisition of Programs and Support (Z125-5599) with the Attachment for Support and its Addendum for Linux for S/390 (Z125-6284) and an Order Form. Proofs of Entitlement (PoE) are required for all authorized use.

**Limited Warranty Applies:** Yes

**Program Services:** Program services for Virtual Image Facility are available until December 31, 2002.

The base set of Program Services is provided as part of the IBM Basic Software License Agreement. Problems may be reported via e-mail, facsimile, or regular mail and will be answered using the same method by which they were submitted.

Problems should be submitted using one of the following methods:

- E-mail Address  
vifserv@vnet.ibm.com
- Fax number  
607-752-1497
- Postal Mail  
IBM Corporation  
Dept C7NG  
c/o Virtual Image Facility Service  
1701 North Street  
Endicott, NY 13760

**Money-Back Guarantee:** Two-month, money-back guarantee

**Copy and Use on Home/Portable Computer:** No

**Volume Orders (IVO):** No

**Passport Advantage Applies:** No

**Passport Advantage Subscription Applies:** No

**Usage Restriction:** Yes.

The S/390 Virtual Image Facility for Linux may only be used in a Linux for S/390 environment and only for the quantity of processor engines licensed.

Additional licenses must be obtained if Virtual Image Facility will be run on additional processor engines.

**Support Line:** No

**AIX®/UNIX® Upgrade Protection Applies:** No

**Entitled Upgrade for Current AIX/UNIX Upgrade Protection Licensees:** No

**Variable Charges Apply:** No

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

## Charges

**Program Name:** S/390 Virtual Image Facility for Linux  
**Program Number:** 5739-A01

Description	Type/ Model Number	OTC Feature Number	OTC
Virtual Image Facility	5739-A01	0101	\$20,000/engine

**Program Name:** SW Subscription and Support  
**Program Number:** 5739-SPT

Support for Program Name	Support for Program Number	Order under Program Number 5739-SPT Standard Support Annual Charge Feature Number	Annual Charge
Virtual Image Facility	5739-A01	0201	\$5,000/engine

### Product Charges: IBM S/390 Integrated Facility for Linux

**Note:** The hardware and maintenance prices for the features listed are available from your IBM representative.

Description	Machine Type	Model	Feature Number	Charge/ No Charge	MMMC Indicator	Init/ MES		
S/390 Parallel Enterprise Servers	9672	RA6 R16						
		RB6 R26						
		RC6 R36						
		RD6 R46						
		R56 R66						
		R76 R86						
		R96 Y16						
		Y26 Y36						
		Y46 Y56						
		Y66 Y76						
		Y86 Y96						
		S/390 Integrated Facility		G5	0995	C	1	Both

<sup>1</sup> Prices are available upon request.

**Note:** If field installed on a purchased machine, parts removed or replaced become the property of IBM and must be returned.

Description	Machine Type	Model	Feature Number	Charge/ No Charge	MMMC Indicator	Init/ MES		
S/390 Parallel Enterprise Servers	9672	X17 Z17						
		X27 Z27						
		X37 Z37						
		X47 Z47						
		X57 Z57						
		X67 Z67						
		X77 Z77						
		X87 Z87						
		X97 Z97						
		XX7 ZX7						
		XY7 ZY7						
		S/390 Integrated Facility		G6	0996	C	1	Both

<sup>1</sup> Prices are available upon request.

**Note:** If field installed on a purchased machine, parts removed or replaced become the property of IBM and must be returned.

**Customer Financing:** IBM Global Financing offers attractive financing to credit-qualified commercial and government customers and Business Partners in more than 40 countries around the world. IBM Global Financing is provided by the IBM Credit Corporation in the United States. Offerings, rates, terms, and availability may vary by country. Contact your local IBM Global Financing organization. Country organizations are listed on the Web at:

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

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## Order Now

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Use Priority/Reference Code: YE001

Phone: 800-IBM-CALL  
Fax: 800-2IBM-FAX  
Internet: [ibm\\_direct@us.ibm.com](mailto:ibm_direct@us.ibm.com)  
Mail: IBM Atlanta Sales Center  
Dept. YE001  
P.O. Box 2690  
Atlanta, GA 30301-2690

You can also contact your local IBM Business Partner or IBM representative. To identify them, call 800-IBM-4YOU.

**Note:** Shipments will begin after the planned availability date.

### **Trademarks**

S/390 Parallel Enterprise Server, ESA/390, and Virtual Image Facility are trademarks of International Business Machines Corporation in the United States or other countries or both.

S/390, Multiprise, and AIX are registered trademarks of International Business Machines Corporation in the United States or other countries or both.

UNIX is a registered trademark in the United States and other countries exclusively through X/Open Company Limited.

LINUX is a registered trademark of Linus Torvalds.

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### **Year 2000 Readiness Disclosure**

*Statements made in this announcement regarding Year 2000 are "Year 2000 Readiness Disclosures" under the Year 2000 Information and Readiness Disclosure Act of 1998, a U.S. statute enacted on October 19, 1998.*