



Highlights

- Multisystem virtualization to improve z/VM® systems management and provide high levels of virtualization, I/O bandwidth, and system availability
 - Virtual server mobility to help clients avoid planned outages for virtual servers when performing maintenance
 - Rapid deployment of Linux virtual servers for under \$1.45 per day on IBM zEnterprise™ System¹
 - High server consolidation ratio with support for more Linux virtual servers than any other platform in a single footprint
 - Optional participation in a multiplatform system managed with the IBM zEnterprise Unified Resource Manager
-

z/VM Version 6 Release 2

Accelerate the Journey to Smarter Computing

As our planet becomes smarter, we are seeing a dramatic shift in the way the world works. Nothing is changing more than IT. Today's businesses are challenged to accelerate the deployment of new applications to address the needs of the business while also reducing cost, improving service, and managing risks. Operational costs need to be more than just contained. Businesses are looking to reduce complexity and achieve breakthrough productivity gains through virtualization, optimization, energy stewardship, and flexible sourcing. But while the demands placed on the data center have never been greater, the IT budget remains nearly flat. This is leading to an emerging era of information technology where enterprises address this challenge through IT transformation IBM calls smarter computing. Smarter computing is based on an IT infrastructure that is designed for data, tuned to the task, and managed in the cloud. A key element of creating an infrastructure that is tuned to the task is virtualization. z/VM V6.2 focuses on virtualization enhancements to help reduce sprawling IT and provide flexibility to meet customer demands with the underpinnings of the security, availability, scalability, and manageability of System z®.



Multisystem Virtualization

z/VM V6.2 introduces the next step in the evolution of main-frame virtualization. Multisystem virtualization helps clients avoid the virtual machine sprawl challenges of competitive systems and extends z/VM virtualization technology to a new level allowing up to four instances of z/VM to be clustered together as members in a Single System Image (SSI). SSI is provided with the IBM z/VM Single System Image Feature (VMSSI).

Simplified z/VM systems management is realized when z/VM instances are members of an SSI cluster and can be serviced and administered as one system. Coordination of members joining and leaving the cluster, maintaining a common view of member and resource states, and negotiating access to shared cluster resources are all done seamlessly. Servicing the z/VM software components in an SSI cluster is simplified by using a single service stream for all members. Sharing service resources allows service to be rolled out to each member of the cluster on individual schedules, avoiding an outage for the entire cluster.

A fundamental strength of z/VM, the ability to share all system resources with very high levels of resource utilization, is extended with z/VM V6.2. Within a Single System Image, resources used by the z/VM hypervisors and the virtual machines are shared. This set of shared resources can be managed as a single resource pool and provides a more manageable infrastructure for cloud computing. These resources include User Directory, Minidisks, Spool files and Network device MAC addresses. Sharing minidisks among members improves the integrity and performance of the system. Through this sharing of resources, virtual servers have access to the same devices and networks regardless of which z/VM member they are logged on within the SSI. The functionality of the SSI provides the foundation for Live Guest Relocation.



Live Guest Relocation

The most prevalent outage type in a System z environment is for software or hardware maintenance or upgrades. The IBM z/VM Single System Image Feature (VMSSI) provides live guest relocation, a process where a running virtual machine can be relocated from one z/VM member system in an SSI to

another member. Virtual servers can be moved to another LPAR on the same or on a different System z without disruption to the business. Virtual servers can even be moved across the System z family between IBM System z10 EC, IBM System z10 BC, IBM zEnterprise 196, and IBM zEnterprise 114 servers. This ability to provide flexible workload balancing now allows work to be moved to available system resources in addition to the long standing capability to non-disruptively move system resources to work and reduces the impact of planned z/VM outages when performing z/VM or hardware maintenance. Delivering the application continuity clients need is an important factor contributing to an optimized system, tuned to the task.

Tuned to the task: Optimized Systems to Control Operational Costs

The VMSSI feature provides the basis for live guest relocation and extends the pool of resources that can be managed by administering multiple instances of z/VM as if they are one integrated system. While VMSSI contributes to an optimized system, tuned for the task of driving greater performance and efficiency for each Linux workload, base z/VM capability provides a good deal more.

IBM System z with z/VM helps users optimize their spending on software, staffing, energy, and floor space by delivering superior resource sharing and virtualization efficiency. One of the greatest strengths of z/VM is the ability to share physical resources among virtual machines. z/VM allows customers to virtualize processor, memory, communications, I/O, and networking resources to help reduce the need to duplicate and manage hardware, programming and data resources. z/VM can significantly over-commit these real resources and allow users to create a set of virtual machines with assets that considerably exceed the amount of real hardware available.

High levels of resource sharing within z/VM include the sharing of Linux program executables and file systems. z/VM support for Discontinuous Saved Segment (DCSS) support enables users to store Linux program executables in a single z/VM memory location and share the executables with any or all of the hosted Linux systems. z/VM also offers several data-in-memory techniques that further enhance the scalability and performance of memory-intensive workloads. In-memory emulated storage, called virtual disks, allow Linux systems to achieve memory-speed data transfers for read and write I/O operations and has proven beneficial when used to store Linux swap (paging) data. z/VM also supports virtual networks (HiperSockets™) to help reduce cabling, hubs, switches, and routers, as well as help to reduce maintenance effort.

Enterprises that require multisystem server solutions will find that z/VM can help them address their IT infrastructure needs with concurrent supports for virtual machines running different operating systems in a secure isolated environment. z/VM supports z/OS®, z/VSE®, z/TPF, and Linux on System z operating environments in addition to supporting the CMS application development platform. The ability to support multiple machine images and architectures enables z/VM to run multiple production and test versions of System z operating systems, all on the same System z server providing a highly flexible test and production environment. The test environment, which can be architected to reflect the server production environment, can help simplify migration from one release to another and facilitate the transition to newer applications, providing a test system whenever one is needed. The efficient use of shared resources results in z/VM utilization of nearly 100 percent of available system resources nearly 100 percent of the time.

Meeting Customer Expectations for Service Levels

Ensuring high availability and the quality of existing services is expected, but meeting customer expectations for real-time, dynamic access to innovative new services such as cloud, places requirements for an innovative approach. Today's security, resiliency, and compliance challenges need to be managed while also preparing for the new risks posed by an even more connected and collaborative world. IBM System z with z/VM, with its superior IT optimization and consolidation capabilities, offers a clear advantage over competitive alternatives by delivering better business value in these key areas.

Increased availability is achieved with z/VM support for System z dynamic reconfiguration which features the non-disruptive dynamic configuration of processors, channels, OSA network adapters, and memory to both the z/VM system itself and to individual guests, helping to reduce the requirement to re-IPL z/VM. Real and virtual memory management is optimized for Linux and other guests, enabling additional workloads to run simultaneously supporting the need for sizeable applications and expanding file systems.

z/VM 6.2 supports both the new FICON Express8S feature for storage area network (SAN) and the new OSA-Express4S feature for local area network (LAN) for single mode fiber and multimode fiber environments.

z/VM offers several data-in-memory techniques that further enhance the scalability and performance of memory-intensive workloads. z/VM support for System z dynamic reconfiguration features allows the nondisruptive dynamic configuration of processors, channels, network adapters, and memory to individual Linux servers, helping to increase availability.

Managing Risk and Compliance with Enterprise Security

Now more than ever you have to protect your business from threats large and small, from external and even internal sources. Designed to work with the System z, z/VM provides advanced security features that deliver value to the customer:

Common Criteria certification³

The security certification of z/VM helps secure sensitive data and business transactions and allows you to run production servers side by side on the same machine as test and development servers. This can help to improve resource utilization and offer significant operational benefits as well.

Disk and tape encryption

To help ensure your data-at-rest stays safe and secure, z/VM supports the use of the IBM Full Disk Encryption features of the IBM DS8000. z/VM also supports the ability of guests to use encrypted tape.

SSL server

The TCP/IP for z/VM SSL server is available to facilitate security-rich and private conversations between z/VM servers and external clients. With z/VM support for SSL and TLS, a VM server can communicate with a secure client without a change to the server itself.

Cryptographic Acceleration

z/VM makes the Crypto Express2 and Crypto Express3 features available to guests with either dedicated access for use for both secure-key and clear-key operations or with shared access for clear-key operations. z/VM can virtualize System z cryptographic devices so they can be shared by many Linux systems. z/VM can balance the workload across multiple cryptographic

devices, and should one device fail or be brought offline, z/VM can transparently shift Linux systems using that device to use an alternate cryptographic device without user intervention.

The Cryptographic features of the IBM System z are designed to satisfy high-end server security requirements. They can be configured as coprocessors for secure key transactions or as an accelerator for Secure Sockets Layer (SSL) acceleration, providing significant improvements in the performance of cryptographic algorithms used for encryption and public-private key pair generation and verification.

The CP Assist for Cryptographic Function (CPACF) is a part of each processor in the IBM System z server. It provides a set of cryptographic functions that focuses on the encryption/decryption function of SSL, Virtual Private Network (VPN), and data-storing applications. The CPACF is used by SSL/TLS functions included in the z/VM Lightweight Directory Access Protocol (LDAP) client and server, and by the SSL functions provided by the z/VM SSL server. Any virtual machine can access the functions of the CPACF by using the Message-Security Assist (MSA) extensions of the IBM System z processor architecture. No explicit z/VM authorization or configuration is required.

z/VM 6.2: A Key Cloud Infrastructure Component

Virtualization is the first key step in building a cloud infrastructure. The fundamentals of virtualization have been part of the System z platform since its inception and it is a leader in platform virtualization. Realizing the benefits of cloud computing begins with the foundation of smarter computing. z/VM is an integral component of that foundation where servers, operating systems, network resources, and disk storage are virtualized,

shared, and dynamically provisioned as Infrastructure as a Service. The VMSSI feature with its ability to manage and administer multiple instances of z/VM as if they are one integrated system, extending the pool of resources that can be managed, and providing the basis for live guest relocation contributes to an optimized system, tuned for the task of driving greater performance and efficiency for each Linux workload.

z/VM V6.2 provides the ability for a guest to have multiple unique access ports connected to the same virtual switch instance. With this support, configuring a server to provide connectivity to multiple VLANs is easier because the guest does not need to be VLAN-aware. In addition, customers can choose which port numbers will be used. Because the mapping of systems to switch ports is known ahead of time, SNMP monitoring of the switch status is more useful, allowing virtual switches to be monitored and managed more like real switches.

The business value of cloud computing can be realized with the benefits of virtualization provided by z/VM and the security, availability, efficiency and scalability of the IBM zEnterprise System.

IBM zEnterprise System: Freedom by Design

The IBM® zEnterprise™ System (zEnterprise) offers a revolutionary system design that addresses the complexity and inefficiency in today's multiarchitecture data centers. As a workload-optimized, multiarchitecture compute system capable of hosting many workloads integrated together, and efficiently managed as one single entity, the zEnterprise System is designed to deploy and intelligently manage workloads across both mainframe and distributed technologies with the same

tools, techniques and single management interface. The zEnterprise System includes a central processing complex (CPC)—either the zEnterprise 196 (z196) or the zEnterprise 114 (z114), the zEnterprise BladeCenter Extension (zBX) with its integrated optimizers and/or select IBM blades, and the zEnterprise Unified Resource Manager. Both the z196 and z114 are designed to work together with system software, middleware and storage to be the most robust, cost effective, efficient and reliable data serving and transaction processing environment.

For more than 10 years clients have deployed solutions on Linux on IBM System z with z/VM virtualization because of the outstanding consolidation capabilities and the unsurpassed qualities of service of the mainframe. The latest offerings, the IBM zEnterprise 196 (z196) and 114 (z114) strengthen these qualities:

- Consolidation capabilities are extended with increased total system capacity of up to 80 user-configurable cores, a quad-core 5.2 GHz processor chip designed to help improve the execution of Java and CPU-intensive workloads, out of order instruction execution, up to 3 TB of real memory per server, increased internal networks (HiperSockets™), the ability to extend the amount of addressable storage capacity, and improved power efficiency. With the z196 and z114 design for increased capacity and the number of available processor cores per server, and reduced energy usage and floor space, it is a perfect fit for large-scale consolidation.
- Qualities of service improvements such as the concurrent add/delete of I/O, the redundant array of independent memory (RAIM), the new multichip module design, the HiperSockets network traffic analyzer, and the Crypto Express3 cryptographic enhancements.

- The ability to deploy and run Linux workloads at sustained high processor utilization made possible by a system designed that incorporates server assist processors for network and disk I/O traffic.
- The ability to run Linux in a hardware environment with built in processor failover capabilities for both memory and processor resources.

The z196 server virtualization capabilities can support on average the equivalent of 47 distributed servers on a single core, up to thousands of virtual servers in a single system with unsurpassed qualities of service, more virtual Linux servers than any of its competitors delivering a virtual Linux server for under \$1.25 per day.¹

The virtualization capabilities of the z114 can support an average of 30 distributed servers or more on a single core depending on the workload, and scale out to consolidate up to 300 distributed servers in a single footprint delivering a virtual Linux server for under \$1.45 per day.¹

Transforming the way assets are managed and deployed

The zEnterprise System is the only platform that allows the definition of z/VM virtual servers and distributed blades as virtual servers within a tightly integrated and centrally managed enterprise computing environment. Virtualization means fewer physical resources are required to meet peak workload demands. While the virtualization and integration of heterogeneous platforms brings new collaboration of technical resources together, the real value is in the integrated, advanced management of all the virtual servers using the IBM zEnterprise Unified Resource Manager.

The Unified Resource Manager integrates multiarchitecture platform resources as a single virtualized system and provides unified and integrated management across the zEnterprise System. The Unified Resource Manager provides energy monitoring and management, goal-oriented resource management, increased security, virtual networking, and information management, all integrated into a single easy-to-use interface—dramatically simplifying operations.

With the Unified Resource Manager, you are able to apply fundamental strengths of the System z environment to a multiplatform infrastructure—think of it as governance taken to the next level. When new z/VM resources are installed, the Unified Resource Manager will be able to run discovery and identify them, add them to the inventory, and turn them on or off. It can also perform a physical configuration of the resources and establish a plan for disaster recovery (backup or restore). And from a serviceability standpoint, z/VM virtual servers will be able to monitor themselves and log errors that occur—with time stamps to keep data and transaction integrity. A notification of an issue can be sent to operations and a “call home” is placed to the IBM System Service Representative to come out and take a repair action. Hardware management functionality that is similar to what you get on any standalone System z server today.

Every IT department wants to make the best use of its resources and maintain the highest possible throughput to meet Service Level Agreements. Unified Resource Manager manages your resources to user specified business service level objectives. It can define a group of virtual servers that support

an application. With the ability to monitor and manage the group, dynamic adjustments can be made to ensure that all applications are provided sufficient resources.

IFL Specialty engines offer affordable technology for workload optimization

System z Integrated Facility for Linux (IFL) specialty engines expand the use of the mainframe for a broader set of applications, while helping to dramatically improve mainframe economics. These integrated and aggressively priced offerings provide a cost-effective Linux application execution environment. They can be used independently from or complement general purpose processors to optimize workload execution and lower costs by enabling you to purchase additional processing capacity without affecting IBM software pricing and the MSU rating of the IBM System z model designation. This means that adding an IFL⁺ will not cause increased charges for IBM System z software running on general purpose processors and may even help reduce the utilization and demands on general purpose processors and possibly lower overall MSU requirements and associated IBM software costs.

IFL specialty engines offer support for z/VM, Linux and open standards creating a great opportunity for consolidation and infrastructure simplification. Linux brings a wealth of available applications that can be run in a real or virtual environment within System z. If you need a virtualized stand-alone Linux environment, both the z196 and z114 can be configured as an IFL only server offering to run z/VM and Linux for System z.

System z Solution Edition Series offers new levels of affordability

With the new Solution Edition Series, System z is delivering bottom-line priced solutions for many of the key workloads you may need, without compromising qualities of service.

A Solution Edition is packaged offering that brings together key components of hardware, software and maintenance, all at a single, affordable, bottom-line price. Each Solution Edition is tailored to meet key business needs and designed to help you get maximum value from your current IT infrastructure in the fastest possible time and at the lowest cost.

The Solution Edition Series offerings that include z/VM are designed for deployment across key workload areas. The Solution Edition for Enterprise Linux is a system offering that provides a basic level of cloud infrastructure support well suited for deploying a development or test cloud. The Solution Edition for Cloud Computing and the zEnterprise Cloud Starter Edition offer solutions focused on establishing an Infrastructure as a Service (IaaS) delivery model that extend the Enterprise Linux Server or the Solution Edition for Enterprise Linux. Contact your IBM Sales representative for more information on how the Solution Edition Series can help deliver the value your business needs at an affordable cost.

Smarter Computing-based Infrastructure Enables a Smarter Planet

Smarter computing is the IT infrastructure that enables a smarter planet and provides a holistic approach to reversing the IT conundrum of satisfying data center demands on a finite budget. To achieve the goal of smarter computing, successful companies are taking a new approach to designing their IT infrastructures to create new opportunities. These forward thinking organizations are designing, tuning and managing their IT infrastructure to make it designed for data, tuned to the task, and managed in the cloud. With z/VM and the IBM zEnterprise System, the next generation of enterprise computing, companies are poised to achieve superior economics with new optimized systems that allow them to turn to the task of real business innovation to achieve better outcomes for their businesses.

Optional Features for z/VM

The following optional priced features of z/VM ship preinstalled on the z/VM V6 base product media.

IBM z/VM Single System Image Feature (VMSSI)

The new IBM z/VM Single System Image Feature (VMSSD) is designed to enhance the z/VM systems management, communications, disk management, device mapping, virtual machine definition management, installation, and service functions to enable multiple z/VM systems to share and coordinate resources within a single system image (SSI) structure. This combination of enhanced functions provides the foundation that enables live guest relocation, which is the ability to move a Linux guest from one z/VM system to another within the SSI cluster without disruption to the business.

Directory Maintenance Facility (DirMaint)

IBM DirMaint is designed to provide efficient and highly secure interactive facilities for maintaining the z/VM system directory. Extensive error checking ensures that only valid changes are made to the directory by authorized personnel. When integrated with the security management functions of the RACF® Security Server, manual definition and management of z/VM resources is eliminated. DirMaint also provides support for Systems Management APIs.

RACF Security Server

The RACF Security Server provides improved z/VM system access and data security controls. RACF is designed to help meet today's need for industrial-strength information security by providing a more secure, audit-ready foundation for users and virtual servers.

If your z/VM system will have access to sensitive programs or data you should consider an external security manager such as the IBM RACF Security Server to help ensure that access to those programs or data can be properly managed and audited in conformance with organizational and/or regulatory security policies.

Performance Toolkit for VM

The Performance Toolkit for VM provides enhanced capabilities for a z/VM systems programmer, operator or performance analyst to monitor and report performance information.

Remote Spooling Communications Subsystem Networking (RSCS)

RSCS is a networking product which enables users on one system to send messages, files, commands, and jobs to other users within a network. RSCS can also be used to print documents locally and remotely.

Additional systems management products from IBM

IBM provides additional products to assist in the management of z/VM systems including:

IBM Operations Manager for z/VM

IBM Operations Manager for z/VM is designed to help improve the monitoring and management of z/VM systems and virtual machines, including guests such as Linux on System z by providing the ability to automate routine maintenance tasks and automatically respond to predictable situations that require intervention. Operations Manager allows z/VM system programmers and administrators to devote their time to other critical tasks. It also assists with monitoring and problem determination by allowing authorized users to view and interact with live consoles of z/VM service machines or Linux virtual servers.

IBM Backup and Restore Manager for z/VM

IBM Backup and Restore Manager for z/VM is designed to provide z/VM system administrators and operators the ability to efficiently and effectively backup and restore files and data on z/VM systems, including guest operating systems, such as Linux on System z. Source files and data can be both CMS and non-CMS format and the target media can be disk or tape. Backup and Restore Manager's full flexibility is apparent in its ability to do full physical and logical backup and restore operations with support for inclusion and exclusion of files, user IDs, and more.

IBM Tape Manager for z/VM

IBM Tape Manager for z/VM is designed to provide z/VM system administrators and operators the ability to manage, monitor, and protect tape resources on z/VM systems. By helping to automate common daily tape operations and eliminate tedious, often error-prone, manual steps, Tape Manager can help increase data availability and improve administrator productivity.

IBM Archive Manager for z/VM

IBM Archive Manager addresses storage and data management concerns by allowing users to archive historical or other infrequently used data to increase data availability and helps companies comply with data storage requirements mandated by fiscal or legal regulations and policies.

IBM Systems Director for Linux on System z

Delivers a simplified platform management solution that streamlines the way physical and virtual systems are managed across a multisystem environment. Leveraging industry standards, IBM Systems Director supports multiple operating systems and virtualization technologies across IBM and non-IBM platforms. Through an easy-to-use, point-and-click, single user interface, IBM Systems Director provides consistent views for visualizing managed systems and determining how these systems relate to one another while identifying their individual status, thus helping to correlate technical resources with business needs. The z/VM Manageability Access Point (zMAP) agent is provided for IBM Systems Director to communicate with z/VM. This agent, now packaged with z/VM V6, allows IBM Systems Director server to obtain information about guest virtual machines as well as take action on behalf of these virtual machines such as create, manage, and delete. This agent runs in a Linux guest on z/VM.

IBM Systems Director VMControl Image Manager for Linux on System z

IBM Systems Director VMControl Image Manager for Linux on System z, V2.1 is designed to simplify the management of virtual environments across multiple virtualization technologies and physical platforms to support the growing requirements of a dynamic infrastructure. IBM Systems Director VMControl Image Manager V2.1 is a plug-in to IBM Systems Director V6.1, providing support to manage and automate the deployment of virtual appliances (images) from a centralized location.

IBM Tivoli OMEGAMON XE on z/VM and Linux

OMEGAMON® XE on z/VM and Linux provides a wide range of information about the z/VM and Linux on System z operating systems, including information about Linux virtual servers and the Linux workloads, revealing how they are performing and affecting z/VM and each other.

Tivoli zSecure Manager for RACF z/VM

IBM Tivoli zSecure Manager for RACF z/VM is designed to provide administrators with tools to help unleash the potential of your mainframe system—enabling efficient and effective RACF administration, while helping use fewer resources. By automating many recurring system administration functions, Tivoli zSecure Manager for RACF z/VM can help you maximize IT resources, reduce errors, improve quality of services and demonstrate compliance.

IBM Tivoli® virtualization management products for Linux on System z

Tivoli provides a host of systems management products for managing Linux on System z. For specific products and releases, refer to the Tivoli platform support matrix at:

ibm.com/software/sysmgmt/products/support/Tivoli_Supported_Platforms.html

Simple ordering, installation, and maintenance

ShopzSeries productivity tool is designed for planning and ordering of System z software products and service. ShopzSeries capabilities for z/VM include:

- Access to reports for planning System z upgrades
- Request release-to-release upgrades of z/VM
- Place new orders for z/VM
- Order z/VM Base Operating System and Base options for delivery via tape cartridge, DVD, and electronic delivery in countries where ShopzSeries is available.
- Order z/VM SDO licensed products for delivery via Internet in countries where ShopzSeries is available.
- Track order status
- Order CORrective (APAR/PTF) and preventive (RSU or ESO) service for VM licensed products.
- Order a variety of tailored software packages for the z/OS, z/OS.e, OS/390, z/VM, VM/ESA and VSE/ESA environments.
- ShopzSeries also lets you review your software licenses in these environments.

For details (including geographical availability), please see the ShopzSeries page: ibm.com/software/ShopzSeries

Note: Not all ShopzSeries features are supported in all countries.

For more information

To learn more about z/VM V6.2 and the zEnterprise environment, please contact your IBM marketing representative or IBM Business Partner, or visit the following websites:

- ibm.com/vm
- ibm.com/systems/z

Additionally, IBM Global Financing can help you acquire the IT solutions that your business needs in the most cost-effective and strategic way possible. We'll partner with credit qualified clients to customize an IT financing solution to suit your business goals, enable effective cash management, and improve your total cost of ownership. IBM Global Financing is your smartest choice to fund critical IT investments and propel your business forward.

For more information on IBM Global Financing, visit: ibm.com/financing



© Copyright IBM Corporation 2011

IBM Systems and Technology Group
Route 100
Somers, NY 10589

Produced in the United States of America
October 2011
All Rights Reserved

IBM, the IBM logo, ibm.com, z/VM, zEnterprise, System z, z/OS and z/VSE are trademarks of International Business Machines Corporation in the United States, other countries or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the web at “Copyright and trademark information” at ibm.com/legal/copytrade.shtml

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

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

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

¹ Linux on System z virtual servers can be: Less than \$1545 for 3 years; Less than \$515 per year; Less than \$1.45 per day. Based on US Enterprise Linux Server pricing. Pricing may vary by country. Model configuration included 10 IFL cores running a mixed workload averaging 31 virtual machines per core with varying degrees of activity. Includes IBM zEnterprise System and z/VM virtualization software. Does not include Linux OS or middleware software.

² The HiperSockets function is an integrated function of System z servers that provides users with attachments to virtual Local Area Networks with minimal system and network overhead. The HiperSockets function does not use an external network.

³ z/VM V5.3 with the RACF Security Server feature was certified by the German Federal Office of Information Security (Bundesamt für Sicherheit in der Informationstechnik [BSI]) for conformance to the Controlled Access Protection Profile (CAPP) and Labeled Security Protection Profile (LSPP) of the Common Criteria standard for IT security, ISO/IEC 15408, at Evaluation Assurance Level 4, augmented by flaw remediation procedures (EAL4+). z/VM V6.1. is designed to meet the same standards and EAL4 Certification is currently in progress.

⁴ No IFL is required unless ordering an IFL only server.



Please Recycle