Manage applications and resources across select heterogeneous environments with IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries, V2.1

Overview

The IBM Virtualization Engine™ and Infrastructure Services for Linux™ on System z9™ and zSeries® is at the heart of the ability to integrate and manage business processes and resources across an enterprise. It extends IBM’s Virtualization Engine capabilities to IBM System z9 and zSeries running Linux. While the power of System z9 and zSeries partitioning, when combined with the z/VM® virtualization technology, has long provided leading-edge virtualization and management functions, it is increasingly common for customers to have multiple servers and storage devices running a variety of operating systems and middleware products. Linux running on System z9 or zSeries with the z/VM virtualization technology can be used to leverage the advanced virtualization and management capabilities of IBM z/Architecture™ as implemented in System z9 and zSeries hardware. However, as business applications traverse multiple operating environments, the functions of the IBM Virtualization Engine and Infrastructure Services for Linux can be used to allow businesses to manage certain applications and resources across enabled systems comprising these heterogeneous computing environments. The virtual Linux server environments and the reliability, security, scalability, and availability of System z9 and zSeries can play a key role as a hub for managing these cross-system resources. This new product, the base and no-charge components ordered with the priced, optional feature components, comprises those components needed to set up and manage select heterogeneous virtual IT Infrastructure from a Linux on System z9 and zSeries system.

Key prerequisites

Refer to the Hardware requirements and Software requirements sections for details.

Program number

5648-F08

Planned availability dates

IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries, V2.1:

December 16, 2005

- IBM Director with Virtualization Engine Console, V5.10 (base)
- IBM Virtualization Engine Enterprise Workload Manager for Managing AIX®, i5/OS™, z/OS®, Linux, and HP-UX Servers, V2.1 (feature)

Note: Support for managing Linux servers is planned to be available 1Q06.

- IBM Virtualization Engine Enterprise Workload Manager for Managing Solaris and Windows™ Servers, V2.1 (feature)
- IBM Director Extensions, V5.10 (feature)

February 10, 2006

- IBM Resource Dependency Service, V2.1 (feature)

At a glance

The IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries, when ordered with all optional priced features, helps enable:

- Consistent systems management across a heterogeneous IT environment with the new IBM Director, V5.10
- Simplified Virtual Server Deployment on System z9 and zSeries, allowing customers fast, easy, and repeatable creation of virtual servers under z/VM with the specialized extensions in the IBM Director Extensions, V5.10 for Linux on the mainframe
- Unified console for managing your virtual experience that allows administrators to discover and explore relationships between IT resources in their virtualization environment via the Virtualization Engine Console
- Evolution toward autonomic management of customer server level objectives in heterogeneous, multitiered server environments via the Enterprise Workload Manager (EWLM)
- Representation of resources and relationships between components so they can be composed into On Demand Services with the Resource Dependency Service (RDS)

This summary announcement is provided for your information. Please refer to the complete letter for details or contact your IBM representative and/or IBM Business Partner.
This new product, the base no-charge components ordered with all optional priced feature components, comprises those components needed to set up and manage select heterogeneous virtual IT Infrastructure elements from a Linux on System z9 and zSeries system.

The IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries offers the following functions and features:

- **IBM Director with Virtualization Engine Console, V5.10 (base components, no charge)**

IBM Director is an integrated, easy to use suite of tools that enables flexible, efficient cross-platform systems management. The open design and broad platform support enable you to manage heterogeneous environments from a single point of control. IBM Director can help you reduce administrative costs while improving system availability to support your on demand business environment. The new IBM Director, V5.10 broadens its platform’s coverage to include Microsoft® Windows, Linux on Intel®, Linux on Power, AIX, i5/OS, and the System z9 and zSeries Linux environments.

Virtualization Engine Console is a portal for administering all compatible virtual resources and works with the IBM Director, V5.10 and RDS to harness their power into a consistent user experience. Administrators can discover and explore relationships between certain IT resources in their virtualization environment and manage these resources through a common set of tasks. For deeper analysis and troubleshooting, the console works with your existing tools and technology to launch tools and applications, taking users to their other tools.

**Note:** Although IBM Director, V5.10 and Virtualization Engine Console are delivered to customers in one package, the IBM Director, V5.10 installation and usage is independent of the Virtualization Engine Console. The Virtualization Engine Console can be used in conjunction with IBM Director and your existing systems management resources to harness their power into a single user experience.

- **IBM Virtualization Engine Enterprise Workload Manager for Managing AIX, i5/OS, Linux1, and HP-UX Servers, V2.1 (optional, priced feature)**

and

- **IBM Virtualization Engine Enterprise Workload Manager for Managing Solaris and Windows Servers, V2.1 (optional, priced feature)**

Enterprise Workload Manager (EWLM) provides a consolidated end-to-end view of transactions and their performance, using resource usage and delay statistics collected and correlated from various servers in the managed domain. Through the EWLM control center, administrators can view the topology and monitor how well their prioritized business goals are being met. They can detect performance problems and potentially isolate the problem area, then switch to application- and platform-specific monitoring tools to determine the root cause. If additional server capacity is needed, administrators can use other tools, such as IBM Tivoli® Provisioning Manager, to add a server to the EWLM-managed domain. EWLM will dynamically detect the new server in the topology and immediately begin leveraging it to rebalance workload. The EWLM Domain Manager continues the evolution toward autonomic management of customer service level objectives in heterogeneous, multitiered server environments. EWLM support focuses on expanding the set of operating system platforms supported as an EWLM Domain Manager and as an EWLM Managed Server to help provide end-to-end coverage of heterogeneous applications.

- **IBM Virtualization Engine Resource Dependency Service, V2.1 (optional, priced feature)**

RDS is designed to help customers better understand and manage select resources across multiple diverse platforms across their entire IT infrastructure by creating a logical representation of resources such as servers, network controllers, and storage devices. RDS is a core building block that supports virtualization solutions for the IBM Systems and Technology Group (STG) on demand technologies. It addresses the following Systems and Technology Group goals:

- Simplifying management of IT resources
- Enabling on demand heterogeneous IT infrastructure
- Reducing operational costs and improving resource utilization
- Increasing IT infrastructure flexibility to improve time-to-value of new applications, servers, and storage
- Enhancing end-to-end business service level achievement
- Augmenting the STG value proposition and revenue opportunities within and across each platform
- Streamlining implementation and delivery of common STG technologies
- Enabling natural “up sells” to Software Group products and Global Services

Access to these logical representations of physical resources is through Web services interfaces that are based on the Web Services Distributed Management (WSDM) specification. Using these logical resource representations, a topology service is provided, which can display the resources and their relationships to each other. Using the Web-based user interface provided, customers can leverage the power of manageable resource representations by logically linking business processes to the resources they need to execute. The Web services support is used exclusively for the Virtualization Engine Console in V1R2. RDS is used to discover resources in an IT environment and to build manageable resource representations. Using the Virtualization Engine Console, a customer can view the manageable resources, the properties of those resources, and the relationships between resources. This technology can help a customer quickly determine the business processes impacted if one or more resources fail. The capability to discover and manage resources through a Web services based interface is a core building block for on demand technologies and infrastructure solutions.

The on demand environment requires the ability to represent, manage, and provision a diverse set of physical and logical IT assets that are critical to customer environments. RDS is the first stage of implementing and developing a representation of the resources and relationships between components so they can be composed into on demand services.
RDS delivers the capability to define and discover relationships between resources, for example, server, storage, applications, and networks — a key ingredient for on demand solutions. It focuses on the discovery and mining of information from existing applications, tools, and IT systems, and presents a static view of those resources and assets. RDS uses techniques to both discover and extract resource and relationship data from existing applications and allows customers to map these resources to their business processes. The discovered resources include IBM and non-IBM servers, storage, networks, and applications. This is accomplished without the use of agents and is as unobtrusive as possible. The RDS topology interface allows users to modify resource representations for cases where some resources cannot be automatically discovered correctly.

- **IBM Director Extensions, V5.10 (optional, priced feature)**

Two specialized extensions in IBM Director Extensions, V5.10 for Linux on the mainframe provide integration with z/VM for simplified Virtual Server Deployment on System z9 and zSeries, allowing for fast, simple, and repeatable deployment of virtual servers under z/VM.

The Virtual Server Deployment (VSD) extension introduces a standardized way for the provisioning of z/VM virtual servers (z/VM virtual guest systems) into which Linux can be installed. It exploits a new z/VM interface that is being introduced to enable communication and management of z/VM virtual servers via the Common Information Model (CIM) standard. Other software products, such as IBM Tivoli Provisioning Manager or ISV products, may also use this CIM interface to exploit virtualization capabilities of a z/VM environment.

The Server Complexes extension improves the task of configuring Linux guests and group setup for Linux guest systems to be managed and balanced under z/VM. A group of Linux systems is thereby grouped into a Server Complex entity. Business applications that span multiple virtual Linux servers within one z/VM environment might define different Server Complex entities, with one entity representing one specific application.

**Accessibility by people with disabilities**

The following features support use by people with disabilities:

- Operation by keyboard alone
- Optional font enlargement and high-contrast display settings
- Screen readers and screen magnifiers tested for use by people with visual impairment

**Product positioning**

The IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries offers the following base components and optional features:

- **IBM Director with Virtualization Engine Console, V5.10 (base components, no charge)**
- **IBM Virtualization Engine Enterprise Workload Manager for Managing AIX, i5/OS, Linux, and HP-UX Servers, V2.1 (optional, priced feature)**
- **IBM Virtualization Engine Enterprise Workload Manager for Managing Solaris and Windows Servers, V2.1 (optional, priced feature)**
- **IBM Resource Dependency Service, V2.1 (optional, priced feature)**
- **IBM Director Extensions, V5.10 (optional, priced feature)**

The flexible program structure was chosen to allow the selection of particular virtualization components to support staged implementation of a virtual IT environment.

The products marketed under the IBM Virtualization Engine platform are available on many IBM platforms, so why run them on Linux on the mainframe? While Linux running on IBM System z9 and zSeries platforms is based on the common Linux kernel, Linux on the mainframe can take advantage of key mainframe hardware and virtualization capabilities that distinguish IBM System z9, zSeries, and z/VM technology from other architectures. (Note: Customers must acquire Linux directly from a Linux distributor.) Bottom line, choosing the correct platform for your Linux applications can provide significant advantages.

In addition, this announcement brings significant advances that deliver on the mainframe strategy, while strengthening the importance of Linux for the mainframe and the mainframe’s leadership in enterprise computing. The mainframe strategy outlines the future plans and describes the important role the mainframe plays in an intelligent infrastructure. IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries is ideally positioned to enhance the role of the mainframe.

Linux on mainframe servers have been using virtualization technologies in zSeries and z/VM for many years. With the components of the IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries, the Virtualization “Best Practices” can be extended into distributed environments. Not only the simplified provisioning offered via the IBM Director Extensions, V5.10 but also the sophisticated underlying IBM System z9, zSeries, z/VM, and Linux qualities of services might make virtual Linux servers an interesting alternative for business critical applications.

IBM Director, V5.10, together with Virtualization Engine Console, helps lay the foundation for effective, consistent, IBM systems-wide management. All enabled systems and operating systems, including select network connections and disk attachments, might be discovered and, in a consistent way, be reported and tracked within the Director inventory databases.

**Note:** Although IBM Director, V5.10 and Virtualization Engine Console are delivered to customers in one package, the IBM Director, V5.10 installation and usage is independent of the Virtualization Engine Console. The Virtualization Engine Console can be used in conjunction with IBM Director and your existing systems management resources to harness their power into a single user experience.

Beyond the base Director capability for static or dynamic Director Grouping, the Server Complex extension (a specific enhancement for the virtual Linux server environment on System z9 and zSeries, delivered with the IBM Director Extensions, V5.10 feature) enables sophisticated provisioning into a set of z/VM servers (a Server Complex) where each of the servers is customized in respect to the application tier that will be applied into the server. Application-optimized provisioning into those
z/VM Server Complexes can help ease many of the daily system management tasks such as patch verification or new software for current, as well as previous, system setup levels.

The Virtualization Engine Console is the integration point of multiple Director management servers and/or the Resource Dependency Service. Running it on Linux on System z9 or zSeries can be the better choice as an IT infrastructure information hub. From a company CIO perspective, having hardware, software, and service levels across the distributed IT environment in one place would provide an important step into the Best Practices System Management. Furthermore, this IT infrastructure information hub is based on the Common Information Model (CIM) resource model standard.

RDS is the first stage of implementing and developing a representation of the resources and relationships between select components so they can be composed into on demand services. RDS focuses on the discovery and mining of information from existing applications, tools, and IT systems, and then presents a view of those assets to the customer. This allows customers to examine select elements of their current IT environment for assets and then correlate them to their business functions to help assess potential financial and business costs associated with resource outages.

When the application setup crosses different hardware platforms, the IBM Director’s grouping on the application level enables the data collection in the context of applications. Therefore, it enables the consistent view above the IT infrastructure used by the application. EWLM complements this application hub effectively with application-related end-to-end response time specifications, allowing Linux on the mainframe to monitor workloads on AIX, i5/OS, z/OS, Linux¹, HP-UX, Solaris, and Windows platforms.

### Reference information

For information on the iSeries™ Virtualization Engine products, refer to:

- IBM Virtualization Engine Enterprise Workload Manager for i5/OS, V2.1 Software Announcement AP05-1337, dated November 8, 2005
- IBM Director with Virtualization Engine Console, V5.10 Software Announcement AP05-1338, dated November 8, 2005
- IBM Virtualization Engine Resource Dependency Service, V2.1 Software Announcement AP05-1336, dated November 8, 2005
- IBM Director with Virtualization Engine Console, V5.10 and Enterprise Workload Manager, V2.1 for iSeries, pSeries®, and xSeries® Software Announcement AP05-1340, dated November 8, 2005

For information on the xSeries Virtualization Engine products, refer to:

- IBM Director, V5.10 Hardware Announcement AG05-0426, dated September 27, 2005

For information on the pSeries Virtualization Engine products, refer to:

- IBM Director for pSeries, V5.10 Software Announcement AP05-1307, dated October 4, 2005

For information on other zSeries Virtualization Engine products, refer to:

- IBM Virtualization Engine Enterprise Workload Manager for z/OS, V2.1 Software Announcement AP05-1339, dated November 8, 2005

### Availability of national languages

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<tr>
<th>Description</th>
<th>Availability date</th>
<th>Language</th>
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<td>(simplified)</td>
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EWLM and RDS features, as well as Virtualization Engine console support, are available only in English.

¹ Support for managing Linux servers is planned to be available 1Q06.

### Trademarks

Virtualization Engine, System z9, z/Architecture, i5/OS, and iSeries are trademarks of International Business Machines Corporation in the United States or other countries or both.

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