



IBM Director: A Better Way to Enhance IT Efficiency



HIGHLIGHTS

- **Virtualization Manager 1.2 dramatically increases ease of use while reducing complexity and cutting costs**
- **Create System templates with your favorite system configurations for new virtual servers using the Virtual Image Management extension**
- **Migrate virtual servers between hosts without taking a server down using the new Virtual Availability Management extension.**

A recent Forrester research report cited that 77% of firms surveyed on IT spending in 2006 considered the improvement of IT efficiency their most important operational priority.¹ That's hardly a surprise given the dynamics of the IT environment. The same technology that drives down the unit cost of storage and CPU resources by 50% every 18 months also serves to drive up the complexity and cost of management.² Even strategies explicitly intended to reduce complexity can, when not executed efficiently, drive up IT costs dramatically. This is what makes products in the [IBM Systems Director](#) family, such as [IBM® Director](#) and its newly enhanced Virtualization Manager 1.2 extension, so very important to IT managers.

Problems begin with today's super-charged global business environment. Swirling around every business are the high-priority issues of cost management, regulatory compliance, security risk reduction, and above all, the meeting

of financial performance and market share growth expectations. Dealing with the tactical issues that accompany those business strategies puts pressure on IT to perform quickly and proficiently. While meeting that challenge, IT finds itself consuming growing numbers of resources at a pace that leaves little or no opportunity to leverage real savings as unit prices decline.

With lower resource acquisition costs offset by greater resource consumption, the cost of managing those computing resources takes center stage when judging the effectiveness of IT with regard to cost control. On that front, there is one well-recognized strategy to get resource management costs under control: device virtualization. It is usually simpler to manage an abstracted logical device, which is untethered from physical constraints. That's why the roadmap for the IBM Virtualization Manager calls for it to become the single point of access for managing a diverse set of virtualized

resources. As a result, Virtualization Manager can encompass systems, storage, and networks across multiple, heterogeneous environments.

The Virtualization Manager 1.2 Extension: Cut Costs and Complexity With Ease

In June, IBM introduced its latest release, Virtualization Manager 1.2, which features two important new extensions that dramatically reduce complexity – and therefore costs – of data center administration in environments running virtualization software. In fact, Virtualization Manager 1.2 is ideally suited to those IT managers who recognize the compelling advantages of virtualization but have yet to take the plunge and implement it. Virtualization Manager 1.2 offers system administrators a quick bird's-eye view of resource allocations on hosts. You don't have to be a "newbie" to virtualization to appreciate the new capabilities of Virtualization Manager 1.2. Businesses that face the constant struggle to keep IT systems synchronized to businesses' needs and costs low will also appreciate the unprecedented flexibility that Virtualization Manager 1.2 heralds. Virtualization Manager 1.2 runs on AIX as well as Windows on x86 platforms and Linux on x86 and POWER platforms and supports VMware, Microsoft Virtual Server, Xen and pHype hypervisors.

Virtualization Manager 1.2 sets itself apart from competitive offerings on two important counts. First, it dramatically increases ease of use and reduces complexity by allowing users to create system templates with their favorite system configurations for new virtual servers. All the user has to do is point and click on a screen to a Windows or Linux virtual or physical server, then Virtualization Manager will remove the host name and capture the "cleaned" image complete with the desired operating system, applications, and customized settings. This template can be deployed many times based on a hardened, pre-tested environment that the data center operator has come to trust. This capability is IBM's new Virtual Image Management extension.

What's more, the template can be created from scratch, from a running server, or from another modified template. The template is very malleable, ensuring the flexibility that IT managers want in a changing business environment. Adding to the simplicity and speed of Virtualization Manager 1.2 is that a virtual sever can be created rapidly through the use of a free clone pool.

The time savings of this template feature are huge – anywhere from one day to one week. Technicians are no longer burdened by the time-consuming tasks of locating software CDs,

installing the operating system, customizing the applications, and conducting testing each time they set up a new virtual server.

The second important new capability offered by Virtualization Manager 1.2 is the Virtual Availability Management extension for Xen environments. This capability builds on the ability to migrate virtual servers between hosts by enabling this relocation to occur without having to take a server down. Virtualization Manager 1.2 keeps the operating system and applications running while the relocation to a new server is occurring. The capability offered by Virtual Availability Management becomes especially valuable to web commerce, for instance, where downtime is not only lost time but lost money.

With Virtual Availability Management, the business can establish different policy levels so that different policies can be implemented in the event a virtual server fails. These policies can range from simple notification to the manager that a failure is imminent to an automated evacuation of work and a restart on a different host. It's the IT equivalent of "intelligent cruise control".

All of this builds on the convenience, flexibility, and cost savings that IBM introduced with its original release,



Virtualization Manager 1.0. These remain at the heart of the leading features of Virtualization Manager 1.2. Like the earlier release, Virtualization Manager 1.2 enables systems administrators to create, modify, and migrate virtual servers within virtualized environments instituted by VMware® VirtualCenter, Xen, and Microsoft® Virtual Server. In addition, Virtualization Manager can link into the Hardware Management Console (HMC) to discover and manage virtualization for IBM System i™ and IBM System p™ servers. The topology map for System i and System p has been enhanced to show a rich map of relationships between virtual servers, vLANs, switchers, shared pools, logical volumes, physical disks, and more.

More Reasons to Love Virtualization Manager 1.2

Virtualization Manager 1.2 does not stop with managing virtual servers and is clearly headed toward central management of virtualized storage with support for the open standard [Storage Management Initiative Specification \(SMI-S\)](#). Support of SMI-S enables configuration of storage devices such as the [IBM System Storage™ DS4000](#) family via integration with the DS4000 Storage Manager. To manage additional storage devices, including those from other vendors, Virtualization Manager also integrates with the IBM

SAN Synergy: A Virtual Reality

For sites making extensive use of system virtualization, system administration is greatly simplified when lab or test servers can provide virtual machines access to the same storage that they will use in production.

Nonetheless, easy access to centrally provisioned and managed storage is just a stepping-stone along the path to leveraging maximum benefits from the virtualization of systems. A key benefit, which was introduced in Virtualization Manager 1.2, is the ability to create virtual machine templates that include both the OS and applications software from installed system images via the IBM Virtual Image Management extension. Using these templates, a system administrator can easily deploy multiple virtual machines running either Windows or Linux on production servers.

Storing all of these images centrally on a SAN, rather than locally on disparate physical servers, creates a plethora of duplicate bits and an opportunity to save. An intelligent SAN array can recognize duplication and reduce storage requirements. That's exactly what the new IBM System Storage N series does through a feature dubbed Advanced Single Instance Storage (A-SIS)

For IBM System Storage N series storage systems with the NearStore® option, A-SIS provides block-level deduplication within an entire volume by only storing unique data blocks and creating a small amount of metadata to handle the copies. In particular, each data block has a digital "signature," which is compared to all other signatures in the volume. When an exact byte-for-byte block match exists, the duplicate block is replaced with a metadata pointer and the disk space is reclaimed.

Scattered, disconnected application and data storage systems unnecessarily reduce administrator productivity and increase vulnerability. System virtualization provides the opportunity to leverage the operational and the performance efficiencies of a SAN as a solution.



[TotalStorage® Productivity Center.](#)

Using Virtualization Manager to work with virtual storage volumes, storage administrators can perform important optimizations that could not be accomplished in a noninvasive manner with physical storage resources.

Few systems management tools provide for the central management of virtualized devices. Nonetheless, that is what's necessary to maximize the productivity of systems managers and the cost saving potential of logical resources. A virtualization tool set needs to provide users with a solid understanding of the relationships between all of the physical resources and all of the logical abstractions. The IBM Systems Director family is precisely intended to provide this unique level of knowledge about an entire system's environment—both the virtual and the physical.

In particular, the new IBM Virtualization Manager 1.2 was designed as an extension of IBM Director. IBM Director provides systems administrators with a powerful single-pane-of-glass solution across a heterogeneous IT environment. Through IBM Director, systems administrators are able to inventory server and storage devices, monitor and gather predictive data on the health of those devices, manage preventive

maintenance tasks, and take core corrective actions.

By extending IBM Director's deep physical knowledge of resources into the virtual world via Virtualization Manager 1.2, IBM provides IT operations managers with a topographic map, if you will, of the interrelationships existing among the physical servers and the virtual servers in their environment. This can be a very complicated and dynamic challenge. Whereas existing middleware used to balance the load on host servers, Virtualization Manager now relocates virtual servers from one host to another automatically. This can lead to serious issues if a systems administrator performs a required firmware upgrade to a physical server only to learn that the system being rebooted was hosting a virtual server running a business critical application.

The bottom line for CIOs looking to slash overhead costs associated with systems management is that all production functions can now be consistently executed in a timely, efficient manner. The end result is the optimization of IT productivity as system administrators are empowered to help eliminate redundant, manual tasks in an environment where their utilization of resources is optimized.

¹ Forrester Research "North America's 2006 Enterprise IT Spending Outlook" 3 February 2006

² Gartner Research "Gartner Says Unmanaged Storage Has Hidden Costs That Can Be Avoided With Storage Management" 9 June 2003 Press Release





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