

Virtualization Reaches A Tipping Point

Research reveals that CIOs are struggling to manage complexity arising from virtualization adoption.

Furthermore, this complexity is having a negative impact on their ability to achieve a fast return on their virtualization technology investments. On average, IT leaders have achieved on 58 percent of their expected ROI. This paper examines these and other results and explores what can be done to minimize complexity and maximize ROI.

Virtualization has reached a tipping point and has moved into the mainstream of enterprise IT strategies. CIOs are now looking to expand its use to multiple platforms, adopt new technologies, and build on its capabilities to prepare for desktop virtualization and cloud computing. According to a recent IDG Research Services survey of CIOs and IT leaders in the U.S., Europe and Asia:

- **Virtualization is the top priority or one of the top five priorities in the coming year for 87 percent of respondents.** It is the number one priority for half the organizations in EMEA.
- **Organizations, particularly in the U.S., are turning to virtualization in production environments and for mission-critical tasks.** The level of adoption has jumped from 31 percent to 38 percent in the last year alone.
- **Virtualization is moving beyond development and test environments.** Nearly all IT organizations are virtualizing mission-critical production applications, with an average of 38 percent virtualized. In the next 18 months, they expect to reach 56 percent.

As a result, it is essential to manage computing environments more effectively and holistically. Adding to the challenge: Companies are rapidly migrating from one primary server virtualization platform to multiple platforms, including VMware, Microsoft, and RedHat/Xen. And they're increasing usage of desktop virtualization.

Demonstrating ROI gets tougher

Demonstrating additional ROI is getting tougher. Developing a focused virtualization strategy is paramount to drive continued ROI. Among other things, an organization must:

- **Adopt automation tools.** These can streamline processes and help alleviate skills shortages and deficiencies.
- **Implement common management tools and processes** to provide a holistic view of physical and virtual devices.
- **Involve business owners and executive sponsors** to drive greater adoption in production environments, VDI, and cloud initiatives.
- **Improve problem-resolution processes and times** across multiple platforms, technology vendors, and organizational groups.
- **Lay the groundwork for a more flexible infrastructure** that may include cloud computing.

Not surprisingly, a best-practice approach can build a more flexible and agile enterprise.

The Need for Converged Management

As organizations have adopted virtualization and put it at the center of enterprise computing, the number of platforms, tools, and solutions has grown dramatically. Yet many companies have adopted virtualization in an ad hoc manner, with different departments and divisions embracing their own approaches and solutions. The result is an increasingly heterogeneous environment that spans platforms and vendors. Over time, managing the environment becomes exponentially more difficult.



Efficiency can prove elusive. Organizations must move beyond multiple systems and methodologies and find a more centralized way to manage and monitor the IT environment. Respondents say they increasingly recognize that virtualization spans numerous systems, including business continuity and disaster recovery, cloud computing, server consolidation, application delivery, and desktop systems.

In fact, companies are adopting multiple virtualization platforms to address specific yet complex needs, often across departments and divisional boundaries. As they achieve success with these systems—and significant cost and efficiency gains—they're turning to even more virtualization solutions to drive additional results. Unfortunately, this approach leads to a mixed virtualization environment, each with its own administration tools.

A New Virtualization Landscape

The virtualization arena is changing rapidly. IDG Research found that investments in Microsoft virtualization software (Hyper-V) spiked from 35 percent of U.S.

companies in 2008 to 60 percent in 2009.

At the same time, organizations are continuing to make investments in VMware and other tools; three-quarters of U.S. firms are planning to invest in VMware in 2009. Over half of U.S. firms are planning to invest in storage virtualization, and more than 40 percent in desktop and application virtualization.

In Europe, we see similar trends as in the U.S. IT organizations are investing in multiple platforms and multiple vendors

and there is notable interest in desktop virtualization. In Asia, where Microsoft has traditionally been dominant, organizations are turning to other vendors and tools. Also, the use of virtualization is growing rapidly. For example, the percentage of Asia-based organizations there using virtualization for mission-critical tasks has risen from 34 percent to 39 percent in the past year.

Although organizations are reaping significant return on investment from virtualization initiatives, it's clear there's plenty of room for improvement. As stated previously, IDG respondents worldwide have achieved

58 percent of the total expected ROI. At the same time, 73 percent recognize that automation is a "critical" or "very important" element in improving ROI. Increasingly, organizations are focusing on configuration and discovery automation to boost performance.

The trend toward virtualization isn't likely to slow down. As companies look to generate greater efficiencies and manage costs, automation becomes not an option but a requirement.

The Downside of Virtualization

A changing business and IT environment is creating new opportunities but also new challenges. Because of advances in virtualization and more widespread deployment of the technology, line-of-business managers and executives play an increasingly important role in defining initiatives. Decisions aren't always made based on technical issues; they're driven by business requirements.

It's no small issue: 67 percent of worldwide respondents said their company's data center is more complex due to the deployment of server virtualization platforms, up from 47 percent last year. As server virtualization becomes mainstream, more core issues emerge:

- *Difficulty managing multiple server virtualization environments and emerging desktop technologies.*

As virtualization has become more heterogeneous, organizations have tapped products and management tools from a variety of vendors. This has created a couple of challenges. First, the tools that vendors provide only work within their own virtualization environment. Second, most of these tools exist in silos with no technology or organizational integration.

- *Virtualization vendor products that do not address physical dependencies.* As organizations deploy servers, storage and other systems, physical devices become more widespread across the enterprise. Although provisioning and management software from a specific vendor may attempt to manage devices within a virtual environment, it's a tough task. Organizations remain bound by the physical limitations of provisioning tools for servers, the network and storage devices.

- *Lack of automation tools.* Provisioning requires more than managing an array of devices. Without robust

73% of CIOs say automation plays a critical/very important role in the virtual server environment.

Effects of Server Virtualization Deployment

Percent strongly/somewhat agree with statement

	2008	2009
The company's data center is more complex due to deployment of server virtualization platforms	47%	67%
The availability and performance of my computer's business services are at greater risk due to the deployment of server virtualization platforms	31%	46%
My company's business services are at a greater security risk due to deployment of server virtualization platforms	28%	43%

Source: IDG Research, November 2009

automation tools, the virtualization provisioning process becomes complex and unwieldy. In some cases, IT administrators may find that it takes six minutes or longer to provision a virtual machine, and six days or longer to provision the hardware, network and storage.

■ *Multiple provisioning and monitoring tools operating in silos.* As a virtualization environment expands, so do the number of management systems—bringing a greater need for centralized management consoles. However, because departments and different lines of business adopt tools specific to their needs, an overarching strategy may not exist. Worse, a siloed environment spawns independent decision making, and managers within silos wind up circumventing and bypassing IT governance. This results in disconnected business processes, that ultimately drive up costs and undermine service levels.

■ *Lack of automation to enforce compliance.* When IT spends hours or days provisioning virtual machines, systems frequently wind up out of compliance. Organizations often lack crosschecks across multiple systems and administrators handle processes manually. Also, the enterprise has no consolidated record of what's been done. As a result, an organization may face sanctions and fines in the event of an audit. It can also find itself mired in inefficient processes and a lack of ownership.

■ *A lack of needed IT skill sets.* Managing a variety of

provisioning tools from a tangle of vendors can place an enormous burden on an IT department. It's difficult to find staff proficient in using these dashboards and tools, and if they are in place, it's difficult to provide the ongoing training to use them effectively. Not surprisingly, errors and inefficiencies become more commonplace.

■ *The inability to streamline change and configuration management.* As needs and requirements change, an organization must evolve with them. However, when IT is locked into multiple administration tools, it's no simple endeavor to make changes to systems and configurations across an enterprise and ensure consistency. The result is higher costs and entrenched inefficiency. This situation also leads to lengthy resolution times—particularly when a business process changes or a failure occurs.

■ *Security risks.* Without powerful administration tools the risk of a security breach grows. That's because a virtualized application on a server is linked to the operating system, and without a systematic approach to patches, malware protection and intrusion detection, a virtualized system can become compromised. In fact, viruses and other malware are increasingly virtual-aware and able to exploit specific weaknesses.

According to the IDG Research survey, several factors diminish ROI within the server virtualization arena: increased management complexity (37 percent of worldwide respondents); difficulty managing change in virtual environments (37 percent); ensuring high availability (36 percent); controlling virtualization sprawl (32 percent); increased management overhead (30 percent); and performing problem isolation (30 percent).

Mastering ROI From Virtualization

Maximizing the ROI from virtualization is paramount. The common denominator for success is a comprehensive approach that spans virtual and physical environments while supporting multiple virtualization technologies. This strategy becomes all the more critical as virtualization moves into the mainstream and as a greater number of production applications, including mission-critical tasks, become virtualized and deployed.

One of the most important factors in achieving a high ROI is the adoption of automation tools for common

Barriers to Achieving Greater ROI in Server Virtualization Initiatives

	2008	2009
Increased management complexity	35%	37%
Difficulty managing change in virtual environments	31%	37%
Ensuring high availability	28%	36%
Controlling virtualization sprawl	30%	32%
Increased management overhead	27%	30%
Performing problem isolation	21%	30%
Identifying VM configuration information	21%	27%
Lack of automation for discovery provisioning and patching	23%	24%
Lack of business owner buy-in	17%	18%

Source: IDG Research, November 2009

IT processes—particularly those in cross-virtual and physical environments. Provisioning, configuration, change management and patching typically fall within this category. Ultimately, physical and virtual systems must mesh and a management tool must span different virtualization platforms in a seamless and comprehensive way. This helps eliminate silos and the breakdowns that result from them. In addition, the virtualization management solution must provide a common view of physical and virtual devices, and bridge platforms and individual vendor products in order to isolate and resolve various problems.

No less crucial is the ability to involve business owners and executive sponsors in the virtualization management process and ensure that there's clear communication across the enterprise. As organizations place more and more production applications into virtualized environments, it is key to involve these stakeholders in buying and deployment decisions. At present, 68 percent of IDG respondents do this. Unfortunately, this leaves nearly one-third of organizations lacking a desired level of management oversight and backing for virtualization initiatives.

Best-practice organizations also tap into analytics to monitor results and constantly adjust strategies and tactics. The net result, when this software is used

effectively, is an ability to resolve problems faster and achieve a better overall understanding of the IT environment, including how to deploy virtualization across multiple servers, storage devices and other systems. Simply put, analytics can capture elusive data and help guide decision making in a more focused and effective way.

Finally, an effective virtualization strategy builds a framework for cloud computing. An overwhelming 62 percent of IDG survey respondents worldwide indicated that virtualization is either the first step toward a more comprehensive cloud strategy or the two are intertwined and part of their IT future. Private and public clouds are rapidly moving into the mainstream of enterprise IT, and they will clearly play a key role in defining and aiding the enterprise in the months and years ahead.

When an organization adopts a solution that addresses virtualization in a consolidated way and provides visibility across heterogeneous solutions, ROI and success inevitably follow. The ability to provision on the fly and automate processes empowers virtualization to go mainstream. Companies finally achieve the agility and flexibility they require and unleash the full power of virtualization.

Achieving Full ROI

As virtualization moves into the mainstream, the need for standard procedures, common tools and clearly defined organizational oversight grows exponentially. Rather than viewing IT environments as distinct virtual and physical elements, business leaders and IT executives must instead view these two domains as a common virtualized world.

Consider virtualization as the on-ramp for both public and private cloud initiatives. Following this logic shows the importance getting the virtualization management (people, process, technology) in place because virtualization provides the framework for cloud computing. Getting virtualization management right sets the stage for a sound cloud strategy and greater ROI down the road.

For more information, visit www.unifyvirtualization.com.