

Seamless Physical and Virtual Server Management

An integrated management approach

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Virtualization is delivering significant benefits to IT organizations that employ virtualized server, storage, and file system solutions. As enterprise demand for new applications and capabilities shows no sign of slowing, neither do most IT budgets show any sign of expanding to match the need. Enterprises are turning to virtualization to maximize platform resources, and the approach is spreading beyond application development and testing labs to production systems—including application and Web server infrastructures. Yet, while virtualized resources help enterprises meet their growing capacity needs, they also pose serious new management challenges. The long-term success of virtualization strategies will depend on how well virtualized systems can be managed.

The Benefits of Virtualization

According to the Yankee Group's 2006 Global Server Virtualization Survey, 76 percent of enterprises have or will deploy server virtualization. So far, virtualization usually supports server consolidation, server migration, and application isolation projects, and enterprises report significant capital cost savings, energy savings, and improved server utilization rates from a virtualized approach. Virtualization has also delivered other advantages to many data centers:

- Flexibility to add capacity on demand for maintaining high performance during peak usage periods or for running temporary services
- The ability to run multiple applications with minimal CPU requirements on a single server
- The ability to dedicate applications or resources to a specific physical server or virtual machine
- Cost-effective support for business continuity and disaster recovery failover strategies
- Reduced footprint, conserving expensive rack real estate

In addition, vendors are stepping up to support customers' virtualization needs with a broader range of solutions, making it easier to virtualize operations. The original virtualization solution provider, VMware, is now joined by Sun Solaris 10, Microsoft Virtual Server, IBM LPAR, and XenSource. Not only can server resources be virtualized, now they can be virtualized on a wide range of platforms, which leads directly to virtualization's most significant challenge—management.

Managing the Virtualization Phenomenon

Like any successful technology solution, once proven in an enterprise environment, virtualization spreads quickly. IT organizations soon find that for every physical server under management, there may be three or four virtual servers running... but there are likely many more unmanaged and unmonitored virtual servers out there. High complexity quickly erases the capital cost savings gained from a virtualized approach and transfers those costs to the management column. Virtual machine "sprawl" also makes it difficult to ensure that the rapidly changing IT environment remains secure and compliant.

Not only must virtual systems be configured and managed like physical servers, they add unique management challenges to the mix:

Multiple Management Tools

Multiple virtual server solutions require vendor-specific management tools. Without centralized authentication or auditing capabilities, now multiple management systems must be secured, tracked, and reconciled—which simply adds to IT's tasks.

A Gap Between Physical and Virtual Environments

There is no way to easily manage across physical and virtual environments—even on the same operating system platform. Multiple views must be tracked and reconciled to know exactly which physical servers and virtual servers are running which resources.

No Visibility Across Multiple Platforms

Multiple virtual and physical server management systems mean that IT cannot optimize specific applications with their associated data and resources when these reside on multiple virtualization platforms. A holistic view of any application environment becomes impossible.

Host and Guest Relationships a Mystery

In virtualized environments, there has been no integrated view of the guest and host relationship. Without knowing how applications are interacting between the virtual and physical servers, usage monitoring and capacity planning becomes more difficult.

Delivering a Virtualization Management Framework

According to the Yankee Group, the long-term value of virtualization depends on integrated management—"Integration is the rule for evaluating tools. Systems administrators should not have to create a number of new, manual processes to incorporate server virtualization." (Yankee Group Decision Notes Technology Analysis, August 16, 2006)

Successfully managing a virtual environment will happen when IT can use the same—or better—processes that they use to manage the physical environment, and achieve this without added operational cost, complexity, or staff. Therefore, a successful virtual server management solution will include capabilities can also manage the physical world while integrating the unique properties of virtual servers.

Manage Virtualization Platforms

An integrated virtualization management platform will enable IT to provision, configure, and manage heterogeneous virtualized platforms, such as ESX, Solaris 10, Xen, and others. IT must be able to update and patch virtual servers as easily as they do physical servers—even to the point of automating these tasks. They should also be able to fully automate the creation and provisioning of a large number of physical and virtual servers, as well as ensure compliance with security policies.

Manage Virtual Life Cycles

From creation of virtual machines to their deletion, IT must be able to completely manage the server life cycle. As flexible extensions of a physical server, virtual servers are highly dynamic. IT should be able to create, start, stop, and delete them at any time and with little effort.

Track Relationships

Relationships between each virtual server and its host, as well as between multiple virtual servers—on the same host or otherwise—must be visible and easy to track.

Unify Management of All Servers

The management solution must enable IT to use the same policies and best practices on virtual servers as they currently use on physical servers. Ideally, an integrated management solution will help improve management of both.

Opware Server Automation System—Integrated Virtualization Management

Significant experience and success with data center automation makes Opware the leading choice for an enterprise’s virtualization management framework. Opware Server Automation System 6 automates management of Windows, Linux, and Unix servers, and their applications, using a comprehensive policy framework that captures best practices and standard settings across servers, software, patches, and application configurations.

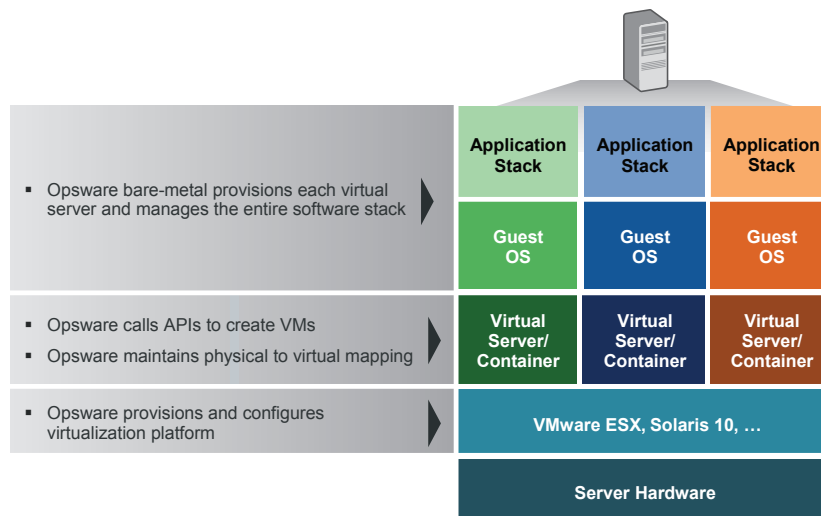


Figure 1: Opware automates management of the virtual environment across physical and virtual servers and a broad range of virtualization technologies.

Unlike a series of point solutions, Opware Server Automation System enables IT to discover, map, visualize and maintain knowledge of all server relationships—physical and virtual—and to integrate these management capabilities with underlying technologies.

Brings Virtual Environment Under Management

Opware discovers and bring all physical servers under management in alignment with the enterprise's provisioning, configuration management, security, and audit policies. The same capabilities are used to discover, map, and deploy automated agents to the virtual environment. These agents monitor the virtual environment in real time, detecting any newly created or deleted virtual servers.

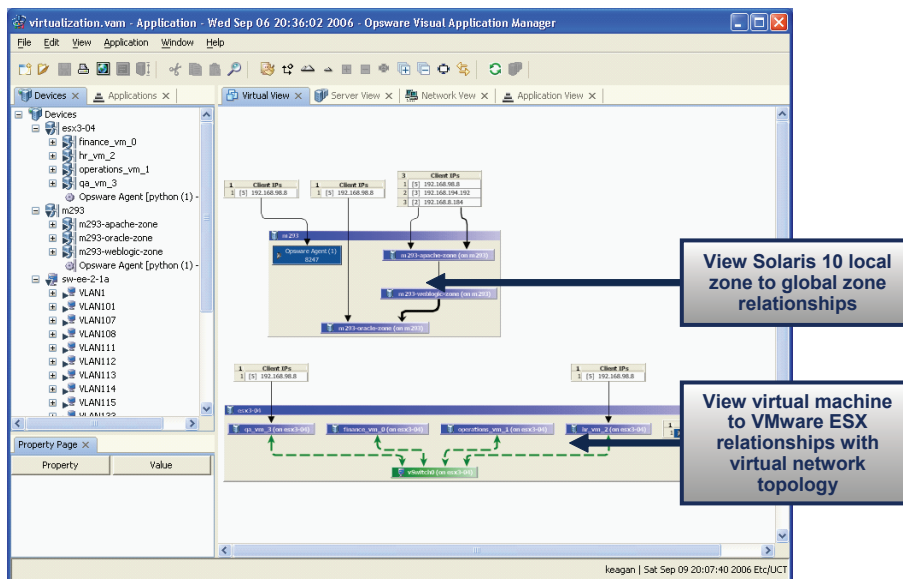


Figure 2: Track virtual-to-physical relationships across multiple platforms.

Unified User Experience

Opware is the only data center automation vendor that offers three levels of virtual serverware support, as well as support for vendor-specific solutions. IT follows the same wizard-based process for provisioning Linux, UNIX, or Microsoft Windows servers—across the physical and virtual environment. One tool and common management operations minimize platform-specific training and accelerate deployment. A single management environment also supports centralized authentication and auditing, greatly simplifying troubleshooting, enhancing security, and streamlining compliance.

Manage the Entire Server Life Cycle

IT manages virtual server life cycles the same way as they manage physical ones. In minutes, IT can create virtual servers and allocate resources; provision, patch, and maintain compliance; and start, stop, suspend, and remove servers and their operations.

Track Server Relationships

Only Opsware allows IT to discover, map, and manage the relationships between physical and virtual servers. Integrated searching, audit trail, and server group features enable IT to automatically track movement of virtual servers across physical servers and use host/guest relationships to construct dynamic groups.

Visualize Dependencies

When combined with the Opsware Visual Application Manager, the Opsware Server Automation System offers the only solution for automatically discovering physical and virtual server, application, and network device dependencies and presenting them in an easy-to-understand visual map.

When combined with Opsware Server Automation System, Opsware Visual Application Manager provides a fully integrated discovery, visual mapping, and change automation system. IT gains instant visibility into physical servers, virtual machines, and the resources running on each virtual machine, as well as the relationships between virtual and physical servers.

Manage the Physical and Virtual Servers with Confidence

Opsware extends the ability of the Opsware Server Automation System 6 to manage traditional server environments with the integrated capabilities required to successfully manage virtual server environments as well. For more information about managing virtualized server environments, please visit www.opsware.com, or call Opsware at 408.744.7770.



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