

## EXECUTIVE SUMMARY

As virtualization proves its mettle throughout the enterprise, companies of all sizes are looking for ways to reap the rewards without succumbing to the traditional complexity. Dell's virtualization solution paired with Microsoft's Windows Server® 2008, featuring Hyper-V™ technology and System Center Virtual Machine Manager (SCVMM) 2008, is a business-ready virtual infrastructure that answers this call with simplified, cost-efficient deployment and management.

# The Realization of Virtualization

Dell and Microsoft partner to simplify  
the transition to virtualization.

By [Sandra Gittlen](#)

COMPLIMENTS OF



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— CHARLES KING, PRINCIPAL ANALYST, PUND-IT INC.

Server virtualization has proven enormously beneficial to IT by speeding application deployments, decreasing infrastructure costs, optimizing resource utilization, and simplifying IT operations. But, for the most part, these gains and a rapid return on investment seem to have eluded smaller enterprises due to the cost and complexity of solutions.

“Virtualization traditionally has meant that IT shops have had to purchase a separate hypervisor and server management console and bring in specialized skills to handle that environment,” says Gordon Haff, principal IT adviser at Nashua, N.H.-based consultancy Illuminata Inc.

Charles King, principal analyst at Pund-IT Inc. in Hayward, Calif., agrees. “The complexity of today’s virtualization deployment process is considerable, and so is managing [the virtual servers] once they’re in the production process,” he says.

This reality has kept the technology out of the reach of small to midsize firms that don’t have the budget and staffing to deploy and manage an additional server environment.

However, a new integrated solution from Dell and Microsoft makes virtualization accessible to enterprises of all sizes. Dell coupled its virtualization solution with Microsoft Windows Server 2008, which features the Hyper-V hypervisor and System Center Virtual Machine Manager (SCVMM) 2008. The two industry veterans closely collaborated during development of Windows Server 2008, enabling Dell to gain significant expertise in the functionality and features of the new platform, especially those involving virtualization.

The result: Together, they’ve created a fully engineered virtual infrastructure designed to simplify and accelerate virtualization deployments in an easy-to-manage, cost-effective way while simultaneously helping to ensure high availability, enterprise performance and stability.

Engineered from the ground up for virtualization, this tightly woven architecture is fine-tuned for Windows shops and comprises a full range of virtualization-optimized server and SAN hardware; systems management software, including virtual

machine management; and a built-in hypervisor that supports multiple operating systems as well as 32- and 64-bit operating system environments.

“Strategies like those from Dell and Microsoft don’t require heroic efforts to achieve base-level functionality, making it much easier to acquire, deploy and manage your virtual server environment,” Haff says. “If you’re already running SQL, Exchange or any other Microsoft environment, the Dell/Microsoft virtualization tools will be very familiar to you and won’t require additional skill sets.”

In addition, Dell Global Infrastructure Consulting Services, which offers extensive virtual environment expertise, is available to get organizations up and running quickly and to help at every critical juncture in a project.

## VIRTUAL VALOR

While much of the hype surrounding server virtualization has focused on large enterprises, industry experts agree that organizations of all sizes have a lot to gain from this technology.

“Small to midsize companies have similar challenges to large companies when it comes to their server environments,” Haff says. For instance, all IT teams struggle with physical server sprawl whether their infrastructure is bursting out of a wiring closet or threatening to outgrow the data center. In the past, IT teams would provision a server for each new application, leading to out-of-control farms that wasted valuable floor space as well as valuable cooling and power resources.

Virtualization combats this problem by enabling IT teams to consolidate multiple virtual servers onto a single physical server. For instance, enterprises typically put between four to eight virtual servers on a single physical server, according to Haff. This can enable them to boost their utilization rates from less than 20% per physical machine to between 50% and 60%, he says.

It’s this kind of efficiency that attracted HotSchedules, a workforce scheduling provider for the restaurant, hospitality

and retail industries, to virtualization.

The company, which faced 100% annual growth, was rapidly depleting its data center space and facing skyrocketing power costs. Simultaneously, the Microsoft-based shop saw increased demand for high availability and optimized performance of its applications.

HotSchedules met these demands and stemmed its server sprawl issue by tapping Dell Global Infrastructure Consulting Services to design and deploy a Dell virtualization implementation with Dell™ PowerEdge™ servers, PowerVault™ storage arrays and PowerConnect™ switches, as well as Microsoft Windows Server 2008 with Hyper-V and System Center Virtual Machine Manager 2008.

Each physical server now holds up to 19 virtual machines while cutting power costs up to 77%. In fact, the company predicts it will reduce its server farm from 120 physical machines to just 12. It also expects to reduce overall power costs from \$11,000 per month to \$2,500. In addition, virtualization has enabled the company to keep pace with growth by decreasing server deployment time from upwards of a month to less than an hour, saving thousands of dollars in lost productivity.

Illuminata's Haff says a drastic reduction in server deployment times is one of the biggest benefits virtualization holds for small to midsize companies. Traditionally, IT teams can spend months provisioning new servers between gaining approval, procuring equipment, configuring hardware and software, testing applications, and deploying the technology. In virtual environments, this time is cut to hours, if not minutes,

because IT teams can deploy an automatically configured virtual machine based on preestablished standards.

This represents a savings in not only hardware, but also time spent across the organization to seek approvals. "Some organizations have a multilevel, multiperson approval and testing process that can bog down the application process. Virtualization provides the perfect opportunity to streamline these procedures," Haff says.

In addition, such streamlining can help improve a company's ability to carry out compliance and avoid configuration errors that can result from piecemeal server provisioning.

## ALL IN ONE

IT organizations can also save time by managing their physical and virtual servers from a single console toolset. "Dell and Microsoft have been quite proactive in ensuring that their virtualization solution has the same management tools and dashboard as their other products. Therefore, if your data center personnel understand that interface, they won't struggle with the Dell/Microsoft virtual management," says Pund-IT's King.

The Dell virtualization solution, through its tight integration with Microsoft System Center Virtual Machine Manager 2008 and Microsoft Hyper-V, eliminates the complexity that IT teams usually face in trying to manage physical and virtual systems together. Enterprises can use SCVMM with Microsoft System Center and Dell OpenManage™ to manage their entire server environment—physical and virtual—with a single system management solution. This simplification enables enterprises to proactively manage all of their assets and helps



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increase efficiency, maximize resources, and ultimately reduce total cost of ownership.

ServiceU Corp., a Memphis-based provider of hosted event management applications, knows this firsthand. The company’s data center supports Web-based event management tools for more than 2,000 customers in the United States and more than a dozen countries worldwide. Since the whole of ServiceU’s business is done online—with between 15,000 and 20,000 users connected to the network during peak times—availability is critical.

Using the Dell virtualization solution atop Dell PowerEdge servers, as well as Microsoft Windows Server 2008 with Hyper-V and Microsoft SQL Server, the company can now manage its production environment from one interface, ensuring optimal visibility into network performance and uptime.

ServiceU credits the Dell PowerEdge servers it has recently upgraded to for being able to get the most out of Microsoft’s Hyper-V technology. The company says the Dell/Microsoft partnership has resulted in an exceptional technology in terms of performance and reliability and even throughput.

In addition, the company says the Dell/Microsoft out-of-the-box functionality simplifies management and is extremely efficient overall because you can simply plug the physical server in and easily run multiple virtual servers.

This plug-and-play strategy has other benefits as well. “It’s definitely been proven that virtual server environments take less people to administer them than physical ones, and that’s a big cost-saving opportunity for smaller organizations,” King says.

#### POWER PLAY

In addition to providing a unified view of the entire server environment, the Dell virtualization solution also helps

companies with their efforts to conserve power.

For instance, ServiceU says that upgrading to Dell PowerEdge rack servers that are optimized from the chipset up for virtualization has helped decrease power consumption and its data center footprint. In fact, the company cites an approximately 50% reduction in power needs for its servers.

Some companies are going beyond power consumption reduction to create dynamic, or flexible, data centers. “Once you’ve abstracted the operating systems through consolidation and don’t have deep hardware dependencies, workloads can easily be moved around for high availability, disaster recovery, workload management and power management,” Haff says. For instance, at night and on weekends, IT teams can shift workloads to a few servers and shut off the rest to conserve energy. Organizations can also use virtualization management tools to forecast peaks and valleys for various applications and load-balance traffic loads accordingly without the need for more hardware.

It’s this type of long-term thinking that will help keep virtualization ROI high over the next few years, long past initial consolidation, according to King. And IT teams should tap into their vendor’s expertise to ensure they consider these strategies from the start.

#### KNOWLEDGE BASE

Dell has spent thousands of hours in lab and engineering time certifying Microsoft virtualization and management technology across a broad range of Dell’s server and storage platforms. In addition, Dell has designed many of its server and storage products for virtualization’s density, flexibility and performance needs by beefing up memory capacity, boosting I/O performance, adding multicore processors, and embedding integrated hypervisors.

Dell has focused its lab efforts on meeting the demands

of enterprises of all sizes. For instance, optimized virtualization is available on rack and blade form factors so that organizations can choose the environment that best suits their needs. Also, the Dell virtualization solution supports iSCSI for storage because it's easy to manage, low cost, and makes a good complement to virtual server environments.

Enterprises can also benefit from Dell's founding principle of having a direct pipeline of communication between the labs, field teams and customers so that the virtualization solution can continue to grow. King says this sharing of

information through numerous channels, including Dell Global Infrastructure Consulting Services, is instrumental in helping newcomers to virtualization find success.

"Companies like Microsoft and Dell can provide customers not just with coaching, but significant value around long-term virtualization management and what offers the greatest value," King says.

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#### FOR MORE INFORMATION

Want to learn more about virtualization powered by solutions from Dell and Microsoft? Visit [www.dell.com/hyper-v](http://www.dell.com/hyper-v).

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## Recipe for success

Add these ingredients to your virtual environment to ensure maximum ROI.

### VIRTUALIZATION OPTIMIZED PLATFORMS

#### Microsoft Windows Server 2008 with Hyper-V:

Provides partitioning for virtual machines and supports 32- and 64-bit VMs running side by side.

**Dell PowerEdge Servers:** Deliver powerful performance as a result of a focus on optimizing design for virtualization. Dell's virtualization optimized servers include design features like expanded memory capacity and available I/O, multicore processors and factory-installed hypervisors to provide incredible virtualization capabilities.

**Dell Storage:** Offers a broad choice of affordable, easy-to-manage and highly scalable Fibre Channel and iSCSI-based storage platforms designed to meet an organization's data management and protection needs.

### INTEGRATED MANAGEMENT

#### Microsoft System Center

- **Virtual Machine Manager (SCVMM) 2008:** Centralizes management of the virtual machine infrastructure.
- **Management Suite (SCMS):** Unifies management of servers, client computers, hardware, software and IT services.

**Operations Manager (SCOM) 2007:** Automates routine, redundant tasks and provides intelligent reporting and monitoring to help increase efficiency and control over the IT environment.

**Configuration Manager (SCCM) 2007:** Comprehensively assesses, deploys and updates software, servers, storage and clients across physical, virtual, distributed and mobile environments.

- **Essentials (SCE) 2007:** Manages IT servers, software and hardware through a single console in midsize organizations.

### DELL OPENMANAGE TOOLS

- **Dell Management Pack and Dell Hardware Update Catalog Tools:** Integrate with Microsoft System Center and System Center Essentials to enable management of Dell's servers, clients, storage and printers in a multi-vendor hardware and software environment.
- **Dell PRO-Pack:** Designed to simplify management of virtual machines hosted on PowerEdge servers.

### LIFECYCLE SERVICES

- **Dell Consulting Services:** Provides comprehensive assessment and design services, implementation services to accelerate adoption of Microsoft virtualization technologies, and virtualization health check services to keep virtualized environments in optimal condition.
- **Dell ProSupport:** Aligns support to address critical challenges such as maximizing uptime of server and storage infrastructure.
- **Dell ProSupport Remote Advisory Option:** Offers fast access to technical experts by telephone for hourly consulting on virtualization implementations.