Virtualization is no longer just the purview of the large enterprise: Today many small and mid-sized businesses are turning to virtualization to reduce costs, reduce energy consumption and get a better handle on their IT resources. For many of these companies it helps that Microsoft now has some skin in the game. If you’re a small or mid-sized business thinking about virtualization, particularly in the world of Microsoft, it makes sense to upgrade your database servers as well. This article explains why to upgrade and provides several examples of companies that have successfully made the move.
Thinking About Virtualization? Don’t Forget The Database

The issues around virtualization for small and mid-sized businesses have changed dramatically during the past couple of years. The big question used to be: Why do it? Now many small and mid-sized businesses want to know: How quickly can I get it done?

Microsoft is helping to fuel this trend. By offering Hyper-V as part of Windows Server 2008, Microsoft has made it simpler than ever for small and mid-sized businesses to go to virtual server environments.

For small and mid-sized businesses the benefits of virtualization come down to utilizing current technology to reduce costs without taking on major increases in staffing or overhead. Among the advantages of virtualization are:

- **REDUCED COSTS** through server consolidation. This often helps improve performance as well, since the organization will also upgrade the power and quality of its servers to increase stability and scalability.

- **REDUCED ENERGY CONSUMPTION** to save money (and be good corporate citizens).

- **GREATER MANAGEABILITY**, improved backup, greater redundancy and an enhanced ability to recover from disasters and other unplanned disruptions.

These benefits are finding a welcoming audience among businesses in today’s challenging economic environment, where many companies are trying to deliver greater performance with fewer resources. The fact that Microsoft now has some skin in the virtualization game is certainly helping to pique interest.

“Among small and mid-sized businesses, what we’re starting to see is that a lot more companies are accepting virtualization as the norm,” says Rick Heiges, a senior solutions consultant at Scalability Experts. “By using Windows Server 2008 with Hyper-V
built-in, it’s a lot easier for virtualization to grow in small to medium businesses. People trust Microsoft and the attitude is, ‘If Hyper-V is here, I may as well try it. If it’s built-in anyway, I may as well give it a try and save some money that way.’”

For those small or mid-sized businesses that plan to take the virtualization route – particularly those doing so with Microsoft Windows Server 2008 – it is also important that they look at upgrading their database servers to Microsoft SQL Server 2008 to gain the most benefit out of their deployment. “If you’re going to use Windows Server 2008 for virtualization, it makes sense to upgrade to SQL Server 2008 as well,” Heigës notes.

In fact, in some instances making the move to Windows Server 2008 could be a strong impetus for companies to turn to SQL Server 2008. “One of the great features of Windows Server 2008 is Hyper-V,” says Allan Hirt of Megahirtz, a database consulting firm based in Boston. “Maybe the organization doesn’t have a large SQL database, but it gets virtualization built into the server platform. They can get some dedicated SQL servers and don’t have to pay extra for virtualization. This starts to make sense in terms of cost savings. The combination of Windows Server 2008 and SQL Server 2008 can be a more compelling story than just SQL Server 2008 alone.”

**DO VIRTUALIZATION RIGHT: UPGRADE TO SQL SERVER 2008**

There are many benefits in upgrading to SQL Server 2008 as an organization moves toward a virtual environment. As the leading-edge database platform offered by Microsoft, SQL Server 2008 has been designed with features that recognize and support virtualization efforts by small and mid-sized businesses as well as larger enterprises. Among the key features for virtualization are:

- **POLICY-BASED MANAGEMENT.** This enables an organization to manage all of its SQL Server 2008 instances from a single location. This is a feature that is available on both the Standard Edition and Enterprise Edition of SQL Server 2008. With Policy-Based Management, the busi-
ness can create and centrally manage policies for security, object naming conventions and database options. In a virtualized environment, Policy-Based Management also reduces the time it takes to deploy new servers and applications.

**REduced Licensing Costs.** SQL Server 2008 Server in multiple virtual machines on the same physical computer. This generally applies to mid-sized businesses with more than 75 users or devices.

**Resource Governor.** This is also a feature that is in the Enterprise Edition and targeted more at the mid-sized business as opposed to the small business. Resource Governor is a tool that allows the business to allocate resources to those applications that need them the most. By using Resource Governor, businesses can more accurately predict database performance and prevent performance from being negatively effected by resource-intense applications or processes.

**High Availability.** Microsoft recently announced SQL Server support for Guest Failover Clustering in a virtual environment. This means that, in the event of an unplanned downtime of a SQL Server instance running in a virtual machine, another SQL Server instance running in a different virtual machine can come online instantaneously. Another benefit of this feature is the reduction in the planned downtime of the server, with the ability to do rolling patches and updates to the guest operating system.
SUCCESS STORIES IN VIRTUALIZATION

Although the combination of Windows Server 2008 with Hyper-V and SQL Server 2008 has been around for less than two years, there are already many organizations – large and small – that are using the technology to deploy virtual computing environments that have delivered on the promises of reduced costs and improved operations. Here are several examples of successful deployments, provided by the users in cooperation with Microsoft:

BRICK TOWNSHIP BOARD OF EDUCATION: This is a school district that serves 11,000 students in Ocean County, N.J. The district started by migrating six virtual machines to Hyper-V and then deployed a two-node cluster hosting Hyper-V with a connection between them for failover. The district has virtualized 14 applications, including Windows Server Update Services and SharePoint Server 2007. The district also purchased a Dell EqualLogic iSCSI storage array to store all of its virtual hard disks. One storage array is in the board administration building and another is in a high school across town.

According to Microsoft, the school district is already benefiting from reduced data center costs, improved hardware and consolidation, streamlined server management and better business continuity across the school district. One of the key benefits cited by the district is the ability to virtualize transactional applications, most of which are based on SQL Server. Two key applications – called InfoCenter and Versa-Trans – are already running on SQL Server 2008, according to the district.

The district estimates it has already saved approximately $30,000 in electrical costs. The goal is to virtualize approximately 90 percent of the district’s servers, accounting for about 20 physical machines. The district estimates it will save about $52,000 a year in electrical costs and another $80,000 in hardware elimination costs. The district also claims it has reduced its rack space by approximately 50 percent.
SERVICEU: ServiceU is a Memphis-based company that provides software-as-a-service (SaaS) that helps companies plan, manage and run events. Its business is built on SQL Server and it was an early adopter of SQL Server 2008. Among the reasons it upgraded to SQL Server 2008 were some of the new features including data compression, security and performance improvements. The company looked to virtualization as an opportunity to simplify server management and reduce costs. It already had Dell PowerEdge R805 servers, which were designed for virtualization. So, when ServiceU moved to a virtualization environment, it was able to deploy the new environment in just three weeks. The company claims it has been able to consolidate its IT infrastructure by eliminating 43 percent of servers. It also claims it has been able to cut power consumption by about 50 percent by adopting energy efficient servers.

UNIVERSITY OF MIAMI: The university’s IT department has a staff of 10 people who support the university’s Windows-based infrastructure. Among the challenges faced by the IT team were limited server rack space, A/C cooling thresholds and power. By migrating to virtual machines, the university has decreased the number of physical servers. According to Microsoft, it is currently running 27 production virtual machine guests – which would otherwise have been physical servers – on three physical hosts. The university claims it is saving 40 percent by purchasing two Datacenter edition licenses compared to purchasing 11 individual Windows Server licenses. The university is also reaping tremendous savings in energy costs: It claims energy savings of about 80 percent, according to Microsoft.

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