May. 28, 2008

With little flair, Microsoft CEO Steve Balmer kicked off the official launch of Windows Server 2008 on February 28, 2008. I was personally involved with several other trainers in presenting 24 consecutive hours of virtual launch covering not only Windows Server 2008, but also Visual Studio 2008, SQL Server 2008 and the Microsoft Official Distance Learning (MODL) program. The launch event continues with live events around the world touting the benefits of Microsoft's new server operating system. In addition, with even less flair, SP1 for Windows Vista was officially released. The code base for the desktop operating system (Windows Vista) and the server operating system (Windows Server 2008) are now combined, so in effect the release of Windows Server 2008 contains all the updates and patches from a year of Windows Vista. When SP2 releases, it will apply to both Vista and Windows Server 2008.

With all of the new features and technology built into Windows Server 2008 and given limited time, which was chosen as the one technology to highlight in these virtual sessions? I was not surprised at the answer to this question: Virtualization with Hyper-V. Virtualization is clearly the new frontier for Microsoft (who has been running far behind rival VMWare for some time) in a technology that will definitely change the way we do things.

To those of you who haven't heard of or perhaps need a refresher on the technology, virtualization gives us the ability to operate multiple virtual machines on a single hardware host. The benefits are as follows:

Lower number of physical servers. This is made possible by consolidating multiple physical machines onto a single hardware host. Besides the obvious positive result of taking up less space, this also allows previously

under-utilized hardware resources to be fully used, making the investment in

on separate servers, the interruption associated with a reboot or repair of a misbehaving application is significantly reduced. For example, my e-mail server stops responding so I reboot the virtual server that hosts only my e-mail while separate virtual servers continue to provide access to shared files and yet another virtual server continues to provide access to tax and/or accounting applications.

Rapid recovery from disaster. Virtual machines are software images and can be easily backed up on a regular schedule so that if something unforeseen happens that brings the server down, like the failure of the hardware host or unintended results from the installation of a program update or a security event (malware), a previous copy can be relatively quickly restarted on the same hardware host or another (backup) hardware host if the original host is the cause of the disaster.

Snapshot: Benefits of Virtualization

- Lower number of physical servers
- Server application isolation
- Rapid recovery from disaster
- Great testing environment

Great testing environment. We would all like to have an environment to test how an application or update might affect an otherwise functional server. By utilizing the backup capabilities of virtualized servers, we can duplicate a functional server environment and use that duplicate for testing to give us the peace of mind that if the test goes well, we can use the test machine as the production server and, if not, we can simply delete the test machine.

It's important to put the excitement around the virtualization technology

the Windows Server 2008 platform is a significant improvement to Microsoft's prior virtualization initiative, which provided virtualization as a pure software application. With hypervisor, the virtualization layer now sits directly on top of the hardware so it has greater access to hardware resources. This provides for better management of hardware resources.

It's important to note that although Windows Server 2008 has been officially released, the virtualization piece was not included and won't be for a period of up to six months.

I wanted to give the new technology a spin myself, so I built a hardware host (server) with an Intel S5000 server board, which supports virtualization and a v-based processor. Two requirements of the hypervisor technology are a CPU that supports hardware assisted virtualization (both Intel and AMD have such CPUs) and support for Data Execution Protection (DEP), which provides hardware-level
protection against security threats.

This makes sense since an attacker that can breach the hardware that is a host for many virtual servers could also affect those virtual servers. I had to enable in the BIOS the hardware support for virtualization; it wasn't enabled by default. Once done, I installed the Windows Server x64 (64-bit) version with Hyper-V (currently in beta). I used the new management interface to create a virtual machine and then restored an image of our production SharePoint 2003 server to that virtual machine. The process went very smoothly — so smoothly that we decommissioned the aging hardware that was hosting our SharePoint 2003 site. Since then, we have carefully backed up our SharePoint server at critical steps along the way, but have used the virtual server to do an in-place upgrade from SharePoint 2003 to SharePoint 2007. The process has been completely

transparent

Technology

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