

## Top 10 Reasons to Upgrade to Windows Server 2008 R2

Windows Server® 2008 R2 is the newest Windows Server operating system from Microsoft. Designed to help organizations reduce operating costs and increase efficiencies, Windows Server 2008 R2 provides enhanced management control over resources across the enterprise. It is designed to provide better energy efficiency and performance by reducing power consumption and lowering overhead costs. It also helps provide improved branch office capabilities, exciting new remote access experiences, streamlined server management, and expands the Microsoft virtualization strategy for both client and server computers.

### #1. Powerful Hardware and Scaling Features

Windows Server 2008 R2 was designed to perform as well or better for the same hardware base as Windows Server 2008. In addition, R2 is the first Windows Server operating system to move solely to a 64-bit architecture.

Windows Server 2008 R2 also has several CPU-specific enhancements. First, this version expands CPU support to enable customers to run with up to 256 logical processors. R2 also supports Second Level Translation (SLAT), which enables R2 to take advantage of the Enhanced Page Tables feature found in the latest AMD CPUs as well as the similar Nested Page Tables feature found in Intel's latest processors. The combination enables R2 servers to run with much improved memory management.

Components of Windows Server 2008 R2 have received hardware boosts as well. Hyper-V in Windows Server 2008 R2 can now access up to 64 logical CPUs on host computers. This capability not only takes advantage of new multicore systems, it also means greater virtual machine consolidation ratios per physical host.

### #2. Reduced Power Consumption

Windows Server 2008 introduced a 'balanced' power policy, which monitors the utilization level of the processors on the server and dynamically adjusts the processor performance states to limit power to the needs of the workload. Windows Server 2008 R2 enhances this power saving feature by adding more granular abilities to manage and monitor server and server CPU power consumption, as well as extending this ability to the desktop via new power-oriented Group Policy settings.

Active Directory® Domain Services Group Policy in Windows Server 2008 already gave administrators a certain amount of control over power management on client PCs. These capabilities are enhanced in Windows Server 2008 R2 and Windows® 7 to provide even more precise control in more deployment scenarios for even greater potential savings.

### **#3. Hyper-V™ in Windows Server 2008 R2**

Windows Server 2008 R2 also holds the much-anticipated update to Microsoft's virtualization technology, Hyper-V™. The new Hyper-V™ was designed to augment both existing virtual machine management as well as to address specific IT challenges, especially around server migration.

Hyper-V™ is an enabling technology for one of Windows Server 2008 R2's marquee features, Live Migration. With Hyper-V version 1.0, Windows Server 2008 was capable of Quick Migration, which could move VMs between physical hosts with only a few seconds of down-time. Still, those few seconds were enough to cause difficulties in certain scenarios, especially those including client connections to VM-hosted servers. With Live Migration, moves between physical targets happen in milliseconds, which means migration operations become invisible to connected users. Making this even easier is a new feature called processor compatibility mode, which allows administrators to migrate machines between different generations of same-brand CPUs.

Customers employing System Center Virtual Machine Manager for Hyper-V will also enjoy additional management and orchestration scenarios, including a new VM-oriented Performance and Resource Optimization feature and updated support for managing failover clusters.

The new Hyper-V™ also has core performance enhancements, including the previously mentioned ability to take advantage of up to 64 logical processors and to beef up that CPU performance with host support for Second Level Translation (SLAT). Finally, VMs can also add and remove storage without requiring a reboot and also boot from VHD as well.

### **#4. Reduced Desktop Costs with VDI**

Much of the interest in virtualization solutions is in the server world. However, equally exciting advances are being made in presentation virtualization, where processing happens on a server optimized for capacity and availability while graphics, keyboard, mouse, and other user I/O functions are handled at the user's desktop.

Windows Server 2008 R2 contains enhanced Virtual Desktop Integration (VDI) technology, which extends the functionality of Terminal Services to deliver certain business programs to their employee's remote desktops. With VDI, programs that Remote Desktop Services sends to a computer are now available on the Start menu right alongside programs that are locally installed. This approach provides improved desktop virtualization and better application virtualization.

Desktop virtualization will benefit from features including improved personalization management, a near-invisible integration of virtualized desktops and applications in Windows 7, better audio and graphics performance, a seriously cool Web access update and more. VDI provides more efficient use of virtualized resources and better integration with local peripheral hardware as well as powerful new virtual management features.

## #5. Easier and More Efficient Server Management

Although increasing the capabilities of your server operating system is always a good thing, the perceived downside has always been additional complexity and workload for day-to-day server managers. Windows Server 2008 R2 specifically addresses this problem with lots of work evident across all of its management-oriented consoles. Features in these tools include:

- Improved data center power consumption and management, as evidenced earlier
- Improved remote administration, including a remotely-installable Server Manager
- Improved identity management features via the updated and simplified Active Directory Domain Services and Active Directory Federated Services

Windows Server 2008 R2 also improves on the popular PowerShell feature introduced in Windows Server 2008. PowerShell 2.0 significantly enhances the earlier version with the inclusion of more than 240 new pre-built cmdlets as well as a new graphical user interface (GUI) that adds professional-level development features for creating new cmdlets. The new GUI includes colored syntaxing, new production script debugging capabilities, and new testing tools.

## #6. Ubiquitous Remote Access

Today's mobile workforce is increasing the demand on IT to provide remote access to corporate resources. However, managing remote computers is an ongoing challenge, with low wide area network (WAN) bandwidth and sporadic connection and re-connection processes interfering with lengthier desktop management tasks such as Group Policy changes and up-to-date patching.

Windows Server 2008 R2 introduces a new type of connectivity called DirectAccess—a powerful way for remote users to seamlessly access corporate resources without requiring a traditional VPN connection and client software. Using technologies that shipped in Windows Server 2008, Microsoft has added simple management wizards that enable administrators to configure SSTP and IPv6 across both R2 and Windows 7 clients to enable the basic DirectAccess connection, and then augment that connection with additional R2 management and security tools, including management policies and NAP.

With DirectAccess, every user is considered remote all of the time. Users are no longer required to distinguish between local and remote connections. DirectAccess handles all of these distinctions in the background. IT professionals retain precise access control and full perimeter security, helping to ease both desktop security and management headaches on both sides of the connection.

## #7. Improved Branch Office Performance and Management

Many branch office IT architectures have relatively low bandwidth. Slow WAN links impact the productivity of branch office employees waiting to access content from the main office, and costs for branch office bandwidth allocation can amount to as much as 33 % of overall corporate IT spending. To address this challenge, Windows Server 2008 R2 introduces a feature called BranchCache™, which reduces WAN utilization and improves the responsiveness of network applications.

With BranchCache™, clients who request access to data on the organization's network are sent directions to the file on the local (branch office) network if the file has ever been requested there before. If the file is stored locally, those clients get immediate high-speed access. Such files can be stored either on a local BranchCache™ server for larger branch offices or simply on local Windows 7 PCs.

## **#8. Simplified Management for SMBs**

With Windows Server 2008 R2, Microsoft is focusing more attention at the SMB and mid-market customer. This new focus provides these customers with a rich landscape of Microsoft product offerings, from Small Business Server up to Windows Essential Business Server and now Windows Server 2008 Standard. All SKUs are being outfitted with new management tools to make SMB IT Pro life easier.

Active Directory's new Active Directory Administration Center is one example—all those disparate management GUIs now hosted in a single interface and all based on PowerShell. Additionally, there are the Best Practice Analyzers, which Microsoft has extended to every server role to keep all your server configs in sync with the latest know-how.

And last but not least, there's the new Windows Server Backup utility. Long a second-class citizen, this updated, in-the-box backup app has been significantly upgraded to include more granular support for designing backup jobs, including support for system state operations; and, it's been optimized to run both faster and to use less disk space.

## **#9. The Strongest Web and Application Server To Date**

Windows Server 2008 R2 includes many updates that make it the best Windows Server application platform yet, but one of the most important is the new Internet Information Services 7.5 (IIS 7.5).

The updated Web server includes features that streamline management by extending IIS Manager, implementing the IIS PowerShell Provider and taking advantage of .NET on Server Core. IIS 7.5 also integrates new support and troubleshooting features, including configuration logging and a dedicated Best Practice Analyzer. Last, we've integrated several popular optional extensions associated with Windows Server 2008, including URLScan 3.0 (now known as the Request Filter Module).

## **#10. Managing Data Not just Managing Storage**

Managing storage isn't just about managing disks. Storage volume is increasing at a 51% compounded annual growth rate between 2008 and 2012 according to IDC\*. To keep pace and stay competitive, organizations must begin managing data, not just disks. Windows Server 2008 R2 gives IT administrators the tools for precisely this kind of initiative with the new File Classification Infrastructure (FCI). This new feature builds an extensible and automated classification mechanism on top of existing shared file architectures; this enables IT administrators to direct specific actions for specific files based on entirely customizable classification. FCI is also extensible to partners, which means Windows Server 2008 R2 users can expect to see additional capabilities around FCI being delivered by ISVs in the near future.

