Delivering Business Value with Remote Desktop Services

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Abstract:

Remote Desktop Services accelerates application deployment, efficiently connects remote workers, and helps increase data security by running applications on a centrally located server. This document discusses Microsoft Windows Server® 2008 R2 Remote Desktop Services from a business perspective, how it can benefit your organization, and in what scenarios it can add the most value to your company.Disclaimer

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# IT Pressures in Today’s Business Climate

In today’s difficult economic climate, IT departments face increasing pressure to deliver business value. At the same time, they must adapt to shrinking budgets, understand and take advantage of rapidly changing technologies, and be prepared for an increase in security issues. Hardware capabilities are increasing even as costs are decreasing, resulting in a large amount of under-utilized hardware in single-purpose systems. In addition, managing software takes its own toll on IT departments with regards to deployment, configuration, and support. Together, these challenges can quickly exhaust an IT department’s resources, freezing innovation and proactive planning.

Hardware capabilities are increasing even as costs are decreasing, resulting in a large amount of under-utilized hardware in single-purpose systems.

Organizations want to implement technologies that help reduce costs and increase business flexibility while continuing to meet the demands and regulations imposed on them. Analysts say that each year IT departments spend more than 70 percent of their budgets to maintain existing systems, leaving only 30 percent to spend on new capabilities that add business value[[1]](#footnote-1). The key challenge for IT is striking the right balance between managing the organization’s existing infrastructure and adding business value.

## Solving Real-World Issues with Virtualization

In traditional physical computing, every piece of the computing platform—for example the processor, storage, memory, network, and application—directly depends on the others. Virtualization removes this dependency.

Separating these pieces enables greater flexibility in your IT infrastructure. For example:

* Hardware and software can be used in more diverse ways
* Systems are easier to change
* Systems can be made more secure by isolating problem areas
* Tasks traditionally handled by the IT staff are simplified

IT will also be better prepared to handle common—but difficult—problems:

* Accelerate application deployments
* Ensure the availability of systems, applications, and data
* Take the hassle out of rebuilding servers and desktops for testing and development
* Reduce security risks
* Reduce costs
* Improve the agility of the organization’s entire environment

Virtualization technologies have the potential to transform your infrastructure. Presentation virtualization separates where people use an application from where it runs, enabling organizations to consolidate applications and data in the data center while providing broad access to local and remote users.

Desktop virtualization offers new and powerful opportunities for IT to deliver and manage corporate desktops and to respond to users’ needs in a flexible way. Virtualized desktops can either be client-hosted or server-hosted.

Client-hosted desktop virtualization creates a separate operating system environment on the desktop, allowing non-compatible legacy or line-of-business (LOB) applications to operate within their native environment on top of a more current operating system.

Server-hosted desktop virtualization, often referred to as Virtual Desktop Infrastructure (VDI), allows client desktop workloads (operating system, applications, and user data) to be hosted and run on servers in the organization’s data center. Remote Desktop Services, a key component of the Microsoft virtualization platform discussed later in this document, provides a unified solution for presentation virtualization and server-hosted desktop virtualization.

### Benefits of Presentation Virtualization and VDI

At a high level, presentation virtualization and VDI:

* Enable organizational agility through rapid operating system deployment
* Improve manageability by centrally hosting and updating operating systems, data and applications in the data center while making desktops and applications available to users
* Enhance security by keeping intellectual property local to the organization while enabling remote users access

Depending on the experience of your organization’s IT department and your business needs, it may be cost-effective to engage one or more strategic platform partners to realize the maximum benefits of presentation virtualization and VDI.

## Enhancing User Experience and Adding Value with Remote Desktop Services

Microsoft Terminal Services in Windows Server 2008 provides presentation virtualization solutions and has undergone significant enhancements in Windows Server 2008 R2. To reflect the continued focus on enhancing the remote desktop experience, in Windows Server 2008 R2 Microsoft has renamed Terminal Services to Remote Desktop Services (RDS). The change to RDS, however, goes beyond just a name change, as it now supports both presentation and server-hosted desktop virtualization technologies as part of the platform.

Presentation virtualization separates where people use an application from where it runs, enabling organizations to consolidate applications and data in the data center while providing broad access to local and remote users.

RDS is a centralized desktop and application deployment platform solution that uses presentation and desktop virtualization technologies to:

* Increase the speed and flexibility of desktop and application deployments
* Help improve remote worker efficiency
* Improve the security of critical data and applications

RDS accelerates and extends the deployment of desktops and applications to a wide array of client devices, helping make your organization more agile and responsive.

These new services provide full-featured presentation virtualization solutions that can result in:

* More flexible desktop deployment options
* Better server utilization
* Increased return on investment

In addition, RDS offers server-hosted desktop virtualization (aka Virtual Desktop Infrastructure or VDI), which is a centralized desktop delivery architecture that allows customers to centralize the storage, execution, and management of a Windows desktop in the data center. It enables your IT department to run and manage Windows 7, Windows Vista® and other desktop environments on virtual machines on centralized servers while displaying those environments on a variety of client devices. This tight integration with VDI allows you to provide access to centralized desktops with flexible deployment options according to end users’ requirements.

# Where Remote Desktop Services Can Add Value

To understand how RDS can add value to your organization, it is useful to understand the functionality it provides in certain scenarios. The following scenarios relate to specific types of employees and factors important to the IT department managing your organization’s infrastructure.

## Mobile Workers

If your organization needs to support employees who are mobile, work from home or customer sites, or work in other remote locations with Internet connectivity, an RDS solution can help you improve employee productivity and increase the effectiveness of user collaboration without compromising security features. RDS offers security-enhanced access to applications or entire desktops over low bandwidth connections without requiring the distribution of new applications to every client. Your employees will see a consistent set of applications and can access their own data regardless of location.

## Task Workers—Factory Floor, Call Center

RDS can provide a more consistent and reliable experience for structured task workers in your organization—such as call center and retail branch employees—due to its centralized and non-persistent nature, compared to installing the application on the machines used by those workers. These types of employees often only need to access one or a few applications to complete business processes, or sometimes their work environment is not appropriate for PCs (for example, a factory floor).

RDS can provide the same experience even if the client machine is a legacy desktop, a non-PC desktop, or a mobile device. This type of deployment can extend the reach of Windows–based applications within the enterprise and is a valuable way to offer access to applications that employees use infrequently.

## Contractors and Offshore Workers

In an environment with complex LOB applications or customized in-house software, RDS can reduce the burden of providing access to these applications to outsourced firms or partners. The client machines can access the applications they require from a central source, rather than requiring local installation of those applications. If needed, the IT department can also limit the access those workers have to specific LOB applications.

## Office Workers

Office workers, such as analysts, marketing managers and lawyers, use machines that connect to the corporate network most of the time, and they expect a rich client experience that can handle a broad range of tasks that fall under their responsibility. They use applications such as Microsoft Office, customer relationship management and enterprise resource planning LOB applications, and Web and project management tools. Many of these users move frequently from one workstation to another and require a free seating environment.

Occasionally, office workers may need to connect to the corporate environment from their home PCs. RDS enables organizations to help these workers achieve high levels of productivity by providing them access to their personalized set of applications and data on their PCs and on different PCs for situations where they need to continue working from a different machine.

# Business Benefits of Remote Desktop Services

Increasingly, businesses want to enable their employees and contractors to work from home or from a non-company-owned (for example, offshore) facility. Remote access capabilities provide more flexibility, cost control, and a lower environmental footprint, but consequently increase the need for security and compliance.

Key benefits of a centralized desktop strategy enabled by RDS include:

* Creating additional work flexibility above and beyond those available in traditional work environments
* Increasing data security
* Increasing regulatory compliance
* Simplifying and improving the efficiency of managing the desktop operating system and its applications

The true value of RDS comes from additional business capabilities. An ever-increasing demand for higher service levels coupled with factors like economic drivers, compliance mandates, security concerns, and management complexities drive businesses to constantly look for new alternatives in desktop deployment strategies. Organizations also face increasing end-user demands for more flexible access to desktops and applications of their choice with minimum dependency on IT staff.

## Maximizing IT Resource Utilization Through Technology Integration

Windows Server 2008 R2 Remote Desktop Services embraces the VDI architecture to deliver a complete business desktop to employees’ remote PCs and other devices. The new Remote Desktop Connection Broker, which extends the Session Broker capabilities already found in Windows Server 2008, helps administrators deliver remote resources (desktop and applications) to end-user devices. Partner solutions can further increase the overall return on investment of the RDS platform.

If your organization includes structured task workers, you can provide access to a session-based desktop deployed on the server through Remote Desktop Session Hosts. This type of deployment allows access to standard applications in a cost-effective manner and enables users to access LOB applications even from their legacy systems.

The Remote Desktop Connection Broker supports four key deployment scenarios:

* Session-based Remote Desktops
* Session-based Remote Applications (RemoteApp)
* Virtual machine-based Personal (permanent) Virtual Desktops
* Virtual machine-based Pooled (non-permanent) Virtual Desktops

In the case of virtual machine (VM)-based desktops, the out-of-the-box solution supports the storage of virtual client images on a Hyper-V host server. Hyper-V is installed as a role on Windows Server 2008 and Windows Server 2008 R2, and it is also available as a standalone hypervisor with Microsoft Hyper-V Server.

### Session-Based Remote Desktops

With session-based Remote Desktops, administrators install and manage a complete desktop on centralized servers in the data center; screen images are delivered to the users, and the users' client machines then send keystrokes and mouse movements back to the server. This deployment benefits task or office workers who require access to an entire desktop that contains few simple applications or which is not suitable for the client’s machine.

### Session-Based Remote Applications (RemoteApp)

Like session-based remote desktops, RemoteApp programs are programs that users access remotely on a Remote Desktop Session Host; these programs integrate with the client's desktop, running in its own resizable window with its own entry in the taskbar, and appear as if they are running on the end user's local computer. This feature is valuable when, for example, users need to run custom applications regardless of their client hardware. Local application compatibility problems can be avoided because the application is not installed locally.

### Virtual Machine-Based Personal Virtual Desktop

The Personal Virtual Desktop uses a dedicated VM that is assigned to a particular user. All user data (such as My Documents) and profile information (personalization) is retained on an image specific to the VM, so the experience is similar to a physical desktop client. This deployment is suitable for knowledge workers (for example software developers or testers) who require administrator rights to have full control over their virtual desktop to deploy their own applications and to customize and personalize the virtual desktop environment.

### Virtual Machine-Based Pooled Virtual Desktop

Another way of deploying VM-based desktops is through pooled VMs that are identically configured and hosted on one or more Hyper-V servers. Pooled Virtual Desktops are best suited for office or task workers who need to work on some standard applications and do not require personalized desktop configuration or customization. In this configuration, when a user’s session ends their data is not stored on the virtual machine. A typical configuration uses folder redirection to save their data to another server so it is available when they next log on, but no configuration data is saved between sessions. The Pooled Virtual Desktop is a more efficient use of VM resources—a set of VMs can support a larger number of users than the Personal Virtual Desktop.

### Additional Benefits

RDS in Windows Server 2008 R2 can provide the following benefits to your organization:

* **Achieve more efficient IT administration** by storing desktops on servers within the data center. IT has convenient access to those machines, which helps reduce the need to travel to user locations for service requests.
* **Reduce the impact of client hardware failure and increase business continuity** by storing all desktops and their data in the data center. Even if a computer’s hardware fails, or the device is lost, users can remain productive because they can access their applications and data from any client.
* **Ensure a higher level of security for intellectual property** as data resides in the data center instead of a traditional desktop environment where data resides on local client disks.
* **Enhance IT’s control over corporate desktops and applications** with built-in disaster recovery capabilities that enable administrators to back up and reimage desktops from a master image for all users.
* **Increase worker mobility** by centralizing desktop workloads and making them available over the network, so workers are no longer restricted to the physical location of their end-user devices.
* **Enable a richer end-user experience** similar to the interaction with a local desktop and applications.

## Improving Access and End-User Productivity

Businesses today operate in multiple geographical locations and need a comprehensive, high-performance application access mechanisms to help balance the challenges of security and application functionality while providing broad access to solutions.

Organizations can provide easy access to remote applications with minimal configuration requirements through the RemoteApp and Desktop Web Access feature in RDS. The RemoteApp and Desktop Web Access feature helps simplify application and desktop deployment by making those resources available to Windows 7, Windows Vista, and Windows XP clients from a Web page or a SharePoint portal. The default Web page provides an enhanced user experience, with an engaging look and feel, and includes a new Web-based logon with integrated single sign-on to ensure users do not have to enter their credentials multiple times.

The new RemoteApp and Desktop Connections feature simplifies access to a set of resources, such as session-based applications and desktops, or VM-based desktops by displaying the shortcuts to these resources in the Start menu for Windows 7 users. A new System Tray icon shows connectivity status to all the remote resources to which the user currently subscribes.

While RemoteApp and Desktop Connections improves the end-user experience, it also reduces the effort required for remote management of applications and desktops by providing a dedicated management interface that enables IT administrators to assign remote resources to users quickly and dynamically. Once RemoteApp and Desktop Connections are configured, these connections keep themselves up to date until it is removed from the user’s desktop. When an administrator adds an application or update it automatically appears on the user’s Start menu and via that user’s Web Access page.

### Additional Benefits

The new RemoteApp and Desktop Web Access, and RemoteApp and Desktop Connections features help simplify access to remote applications and desktops and can:

* **Improve end-user productivity in branch offices** where local IT support may be limited.
* **Increase the ease of deploying LOB applications** on users’ desktops, especially custom applications.
* **Improve support for remote work environments**, such as "hot desk" or "hoteling" workspaces where users do not have assigned computers.
* **Enable the deployment of multiple versions of an application**, particularly if installing multiple versions locally would cause conflicts.

## Enabling Secure, Remote Access to Corporate Resources from Anywhere

Today, businesses need to provide support to mobile workers and partners who work outside the office and need access to corporate applications. While providing access to company resources from outside the intranet or corporate firewall, organizations need to ensure the security of data and applications, and minimize the probability of sensitive information leaking due to unauthorized access.

Organizations can deliver critical applications or the entire corporate desktop to mobile employees outside the corporate firewall with a highly secure connection enabled through Remote Desktop Gateway.

Organizations can deliver critical applications or the entire corporate desktop to mobile employees outside the corporate firewall with a highly secure connection enabled through Remote Desktop Gateway.

Remote Desktop Gateway enables remote users to connect to internal network resources over the Internet by using an encrypted connection, without configuring virtual private network (VPN) connections. This helps increase the productivity of IT staff by eliminating the burden of managing VPN clients on end-user machines for remote access.

In Windows Server 2008 R2, several new security features have been introduced in Remote Desktop Gateway that provide administrators with more granular controls and ensure that granting access rights to remote users happens in accordance with corporate policies.

## Enhancing the Client Experience with Remote Desktop Protocol Capabilities

Organizations need to ensure that their employees remain productive and feel like they are working on local desktops and applications even when they access remote resources. The quality of user experience is more important than ever, as providing rich features for remote clients directly impacts the user experience and their productivity.

RDS combined with Windows 7 improves the user experience for remote users, bringing the experience closer to that enjoyed by users accessing local computing resources. The remote user experience in RDS includes support for rich multimedia capabilities[[2]](#footnote-2). These capabilities provide an enhanced user experience for knowledge workers who need access to standard video applications (such as corporate training videos) or who consume rich media content such as 3D, Flash or Silverlight..

RDS enables support for up to 16 monitors of almost any size, resolution, or layout with RemoteApp and remote desktops; applications will behave as though they were running locally in a multi-monitor configuration.

Windows Server 2008 R2 provides users with the ability to use advanced desktop functionality for both Remote Desktop Session Hosts and Windows 7 client hosts, ensuring that remote desktop sessions look and feel like local desktop sessions. This functionality helps to increase users’ productivity, as they can avoid switching between local and remote desktops. Remote Desktop Protocol improvements in Windows Server 2008 R2 are also designed to provide closer synchronization of audio and video in most scenarios for a more natural multimedia experience. The Windows Aero Desktop, a new and intuitive navigation experience introduced in Vista is also supported, which helps ensure a consistent user experience no matter how people choose to connect.

RD Easy Print, a feature introduced in Windows Server 2008, allows remote users to quickly and reliably print to a local printer without installing a printer driver on the server. End users are no longer limited by the server’s print drivers and can more productively work from remote locations. It also provides users with a more consistent printing experience between local and remote sessions.

## Seamlessly Integrating Remote Desktop Services with Windows 7

Windows Server 2008 R2 includes several technology improvements aimed at providing client computers running Windows 7 with the most reliable and flexible network productivity feature set ever offered by Microsoft. Capabilities enabled by Windows Server 2008 R2 in combination with Windows 7 can significantly improve the remote user experience. The RemoteApp and Desktop Connection feature provides administrators the ability to group RemoteApp programs and remote desktops, and make them available to end users on the Start menu of a computer that is running Windows 7. RDS integration with Windows 7 can increase user satisfaction, because even remote applications appear in the Start menu as though they were local. A new System Tray icon shows connectivity status to all of the user’s connections, and administrators can dynamically add and remove applications from a remote location. These centralized administration capabilities make it easier for the IT staff to manage applications for large numbers of desktop users.

## Reducing IT Administrative Overhead with Simplified Management Features

Several enhancements have been made in the RDS role services in Windows Server 2008 R2 that help simplify administrative tasks and increase productivity. Administrators can more easily configure the user experience on Remote Desktop Session Hosts with the Client Configuration page centralized with the server manager.

Windows Server 2008 R2 includes support for PowerShell, which enables administrators to access RDS configuration settings and its various role services. Using Windows PowerShell to manage RDS role services, IT administrators can script administrative tasks, thus enabling them to automate complex and recurring tasks. Administrators can change settings and perform tasks directly from the Windows PowerShell command line, without having to write, save, and run a script.

Remote Desktop Licensing has been improved in RDS to simplify the task of installing, issuing, and tracking the availability of RDS client access licenses on a Remote Desktop license server. Enhancements in RDS configurations related to licensing allow administrators to more easily handle different license servers.

From the Licensing Management perspective, IT departments can reduce workload with a new wizard available in Remote Desktop Licensing Manager. These wizard-based interfaces provide centralized administration for Remote Desktop client access licenses, including their migrations from one license server to other license servers and rebuilding the Remote Desktop licensing database.

# Summary

The centralized desktop strategy enabled by RDS can help your organization improve its flexibility and compliance while improving data security and IT’s ability to manage desktops and applications.

The centralized desktop strategy enabled by RDS can help your organization improve its flexibility and compliance while improving data security and IT’s ability to manage desktops and applications. Together with technology from Microsoft ISV partners that leverage the platform capabilities found in Windows Server 2008 R2, RDS can be a cost-effective solution for any type of organization, particularly those with a mobile workforce, structured task workers, or knowledge workers with a need for flexible desktop or application access, including contractors, offshore workers and office workers who require a free seating environment or have a need to work from home. Regardless of the size of your organization, deploying RDS can provide the flexibility and functionality needed to deliver real value to your business.

From an IT management perspective, RDS enables a centralized desktop strategy that enables quick and secure access to applications and desktops from any network-connected location, including new PCs, older hardware, and thin clients. In addition, all data and applications are stored centrally, ensuring a higher level of data security and helping simplify regulatory compliance.

From a user perspective, RDS provides an environment where individuals, regardless of their location, have effective and efficient access to the business applications and information they need to do their jobs.

# More Information

Windows Server 2008 R2 Remote Desktop Services

<http://www.microsoft.com/windowsserver2008/en/us/rds-product-home.aspx>

Microsoft Virtualization Strategy

<http://www.microsoft.com/virtualization/default.mspx>

Technical Resources

<http://technet.microsoft.com/en-us/library/dd391873.aspx>

1. IDC 2006 [↑](#footnote-ref-1)
2. Windows Media® Player redirection, bi-directional audio as well as enhanced support for bitmap acceleration that enables 3D, Silverlight, Flash and other rich media content to be rendered using host- side resources [↑](#footnote-ref-2)