

**Delivering Business Value with Terminal Services**

***Abstract:***

Presentation Virtualization with Terminal Services accelerates application deployment, efficiently connects remote workers and helps increase security by running applications on a shared, centrally-located server. This document discusses Windows Server 2008 Terminal Services from a business perspective, how it can benefit your organization and in what scenarios it can add the most value.

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# Introducing Windows Server® 2008 Terminal Services

## The Business Challenge

In today’s complex business environment, there is more pressure than ever on Information Technology (IT) departments to deliver business value, despite challenges such as shrinking budgets, rapidly changing technologies, and increasing security issues. As companies grow, their IT infrastructures typically grow along with them. More often than not however, the pace of that growth is uneven, driven as much by the conditions under which they operate as the model they aspire to. Most organizations increasingly view IT as a key value generator. The focus is shifting from keeping the business up and running to a critical engine that drives responsiveness and agility across the organization.

Organizations are looking to implement technologies which help them to manage their changing workforce and enhance their customer’s experience, as well as continuing to meet the demands and regulations imposed on them. The key challenge is to strike the right balance between managing the infrastructure and adding business value. Analysts say that each year, more than 70 percent of IT budgets are being spent on maintaining what is already in place, as opposed to a mere 30 percent of IT budgets being spent proactively on new initiatives that add business value and increase productivity.

## Microsoft Infrastructure Optimization Model

To help companies address the challenge of balancing maintenance with new, more strategic projects, Microsoft has introduced the Infrastructure Optimization (IO) Model. This model outlines the steps companies can take to analyze their current state, and to plan for and create an IT environment that is well managed, more-secure, and efficient. In the most mature state, IT is incorporated into business strategy and is used as a valuable asset in the growth and success of the company.

As part of the IO Model, Microsoft has delivered a set of virtualization technologies allowing IT organizations to significantly reduce operating costs, drive up server utilization, and achieve better return on investment. As a result of moving IT from a cost center to a strategic asset, organizations can free up resources and budget to allow for deeper investment in value-added activities.

## Promise of Virtualization

Virtualization technologies isolate or unbind one computing resource from others and can be applied from the data center to the desktop. Rather than locking the various layers together—the operating system (OS) to the hardware, the application to the OS, and the user interface to the local machine—virtualization loosens the direct reliance these parts have on each other. This results in many opportunities to create efficiencies. For instance, the OS can be decoupled from the physical hardware it runs on using hardware virtualization (including server and desktop virtualization). Similarly, presentation virtualization allows you to separate an application's user interface from the physical machine the application runs on. This makes it possible to run an application in one location but have it be controlled in another.

## Solving Real-World Issues

Separating these layers enables much greater flexibility in every aspect of your IT infrastructure. Hardware and software can be used in more diverse ways, and the separation makes them both easier to change. Systems become more secure as a result of isolating problem areas. Tasks traditionally handled by the IT staff become more simplified, and it can eliminate previously unsolvable problems that plague IT every day. From accelerating application deployments; to ensuring systems, applications, and data are always available; to taking the hassle out of rebuilding and taking down servers and desktops for testing and development; to reducing risk, slashing costs, and improving agility of your entire environment, virtualization has the power to transform your infrastructure.

## Presentation Virtualization with Terminal Services

Presentation virtualization, one of the core virtualization technologies available in Windows Server 2008, makes it possible to run an application in one location but have it be controlled in another. With Terminal Services presentation virtualization, you can install and manage applications on centralized servers in the datacenter; screen images are delivered to the users, and the user’s client machine, in turn, sends keystrokes and mouse movements back to the server.

When using Terminal Services, administrators can present users with the individual applications and data they require to complete their task, or the whole remote desktop. From a user perspective, these applications are integrated seamlessly—looking, feeling, and behaving like local applications.

# The Benefits of Using Terminal Services

Terminal Services enables greater IT flexibility and increased security by running applications on a shared, centrally-located server. This architecture offers many benefits, including:

**Accelerating Application Deployment and Operating System Migration**

* Application deployment can be greatly accelerated and ongoing management simplified. Instead of updating applications on each individual desktop, only the single shared copy on the server needs to be installed initially and updated.
* With Terminal Services, you can deploy new applications to a wide variety of clients—even clients on which the new application cannot run natively. PC hardware upgrades are not required to deploy new applications.
* Since applications are not installed locally, Terminal Services enables simpler desktop OS images on PCs, accelerating your organization’s ability to adopt new operating systems such as Windows Vista® and use thin clients, both of which can lower management costs.

**Improving Worker Efficiency**

* Remote or mobile workers can easily connect to critical resources from their laptop, home computer, or airport kiosk, by accessing a secure Web page to launch applications or access data that is not installed or available on the client machine.
* Terminal Services applications appear no different from local applications, tightly integrated with the task bar and new Windows Vista features like 3-D flip. End users have a familiar user experience—eliminating the need to add additional training costs.
* Terminal Services instantly Web-enables native Windows® applications without costly re-coding. Remote users can quickly and easily access the critical applications they need from a secure Web page or a Microsoft SharePoint® portal.
* Terminal Services optimizes application performance for high or low bandwidth. Data-intensive applications, such as enterprise resource planning (ERP), that slow end-user productivity receive a performance boost when delivered via Terminal Services.

**Helping secure Data and Applications**

* With Terminal Services, applications and data reside only in the datacenter, and only encrypted keyboard and mouse strokes are transmitted over the network. As a result, Terminal Services helps to eliminate the risk of data theft when a laptop is lost or stolen.
* Terminal Services centralization helps radically simplify the burden of regulatory compliance.
* Using Terminal Services, you can securely connect users outside the firewall, for example, from home, hotels, or customer sites, to critical internal applications and data without additional virtual private network (VPN) infrastructure.
* In conjunction with Network Access Protection, client machines can be scanned for the latest anti-virus updates and patches to ensure that unhealthy clients cannot access Terminal Services applications.

## Where Terminal Services Can Add Value

To understand how Terminal Services can add value to your organization, it is useful to understand the functionality provided using the following scenarios or solutions. The solutions relate to both the type of employee base you are working with (location) as well as factors which need to be considered by the IT department (management).

**Location Usage Solutions**

**Mobile Workers**

If your organization needs to support employees who are mobile, work from home, or work while travelling, a Terminal Services solution can help you to enable employee productivity anywhere. It can also increase effective user collaboration without compromising security. Terminal Services can offer security-enhanced access to applications via low bandwidth connections, without requiring new applications to be distributed 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 Centers**

If your organization includes structured task workers, such as call center and retail branch employees, Terminal Services can provide a better and more productive user experience. Often these types of employees do not need to access many applications to complete tasks, or sometimes the location they are working from is not appropriate for PCs, for example, a factory floor. The same experience can be provided 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, cost-effective way to deliver the right business tools.

**Branch Office**

In an environment with remote or branch offices, Terminal Services can provide enhanced capabilities to these sites and reduce the network bandwidth used by line-of-business (LOB) applications. For example, a bank might use essential financial software applications that would not be cost-effective to deploy and maintain in every branch. With Terminal Services, you can run the software at central headquarters; however employees in difference locations can access it remotely.

**Management Usage Solutions**

**Easier to Meet Regulatory Compliance**

For the IT department, data security and the ability to meet regulatory requirements remains a priority. With Terminal Services, you can manage an application and its data in a central location, reducing the risk of accidental data loss caused by, for example, the loss of a laptop. Key features of Terminal Services, such as Terminal Services Gateway (TS Gateway) and Terminal Services RemoteApp™ (TS RemoteApp), provide you the ability to limit user access. Instead of granting full network access to partners and users in a remote location, you can limit them to a single application, if needed.

**Difficult to Manage Applications**

In an environment with complex applications such as LOB programs or customized in-house software, Terminal Services can greatly reduce the burden of having to run multiple applications across the entire environment. The client machines can access the applications they require from a central source, rather than everything having to be installed on users’ local machines.

**Merger Integration or Outsourcing**

In the case of a merger, the merging companies will typically need to use consistent LOB applications on a variety of Windows versions and configurations. This also occurs in an environment where an organization is working with outsourced or partner organizations that need access to specific LOB applications but not to the full corporate network. Rather than going through the cost of deploying the entire set of LOB applications to all the computers in the merged company or outsourcer, these applications can be installed on a terminal server and made available to the employees who require access, when they need it.

## Key Features of Terminal Services

A number of key features in Terminal Services, including TS RemoteApp, TS Gateway, and Terminal Services Web Access (TS Web Access) greatly enhance the solution. The following functionality is provided by these features.

* TS RemoteApp applications appear to be no different from local applications—tightly integrated with the task bar and new Windows Vista features like 3-D flip. TS RemoteApp helps improve end-user productivity and reduces training requirements.
* TS Gateway securely connects applications and data to users outside the firewall. It provides simple and secure delivery of critical applications and data to mobile employees without a VPN.
* TS Web Access simplifies application deployment by making applications available from a Web page or a SharePoint portal without installing them on the local PC. This quickly connects users to the applications they need.
* Terminal Services Session Broker delivers session-based load-balancing to a TS Farm. TS Session Broker helps bring better uptime and performance to your Terminal Services environment.
* Terminal Services Easy Print leverages the client-side print driver (no server-side driver is needed) to enable fast and reliable printing to a local or network-attached printer. End users can work more productively from remote locations.

## Licensing Terminal Services

Terminal Services functionality is integrated into the following Windows Server 2008 products: Windows Server 2008, Standard Edition; Windows Server 2008, Enterprise Edition; Windows Server 2008, Datacenter Edition. Terminal Services Client Access Licenses (CALs) are required for users to connect and use the Terminal Services functionality. Remote Desktop for Administration is available on all of these products plus Windows Server 2008, Web Edition.

Terminal Services is licensed on a per-device or per-user basis and is not available on a per-server or concurrent basis. Each device or user, whether it connects directly to the terminal server, or indirectly via another server, requires appropriate licenses to be assigned.

# Summary

To help companies address the challenge of balancing IT maintenance with new, more strategic projects, Microsoft has introduced the Infrastructure Optimization Model. The IO Model enables organizations to create IT environments that are well-managed, more secure, and efficient.

As part of the IO Model, Microsoft has delivered a set of virtualization technologies. Virtualization technologies isolate or unbind one computing resource from others and can be applied from the data center to the desktop. Specifically, presentation virtualization allows separating an application's user interface from the physical machine on which the application runs.

Terminal Services is how Microsoft delivers presentation virtualization.

Regardless of the size of your organization, deploying Terminal Services provides the flexibility and functionality needed deliver real value to the business.

From an IT management perspective, Terminal Services provides a centralized system that allows quick and secure access to applications from any network-connected location, and most devices, 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 or employee perspective, Terminal Services provides an environment where individuals, regardless of their location, have effective and efficient access to the business applications and information they need to get their jobs done.

## Related Links

**Terminal Services**

<http://www.microsoft.com/windowsserver2008/terminal-services/default.mspx>

**Core Infrastructure Optimization**

<http://www.microsoft.com/business/peopleready/coreinfra/default.mspx>

**Microsoft Virtualization Strategy**

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

**Terminal Services Licensing FAQ**

<http://www.microsoft.com/technet/community/en-us/terminal/terminal_faq.mspx#EUF>

**TS Licensing Windows Server Terminal Services – Step by Step Guide**

<http://technet2.microsoft.com/windowsserver2008/en/library/4b4dd54a-46df-4b18-813f-2424cbc865031033.mspx?mfr=true>

**Terminal Services Partners**

<http://www.microsoft.com/windowsserver2003/partners/termsrvs.mspx>

**Windows Server 2008**

http://www.microsoft.com/windowsserver2008/default.mspx