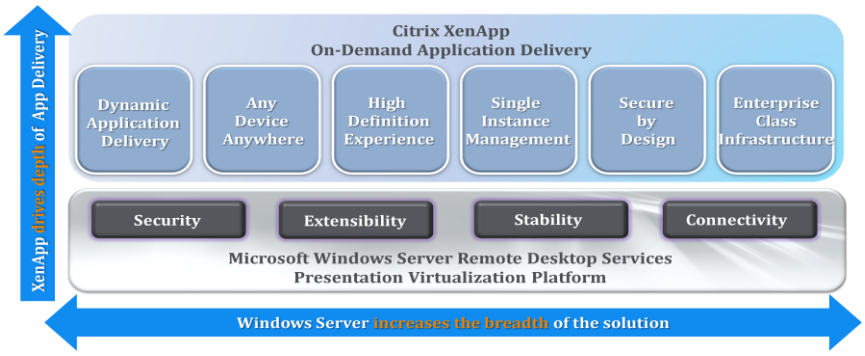
CITRIX XENAPP ON MICROSOFT REMOTE DESKTOP SERVICES: FEATURE ANALYSIS

This document illustrates how Citrix® XenApp™ extends the Microsoft® Windows Server® Remote Desktop Services platform in order to provide greater scalability, an enhanced user experience, and simplified management of complex application delivery challenges.



Dynamic Application Delivery

System intelligence coupled with configurable access controls automatically determine the most optimal and secure method for virtualizing and delivering applications to users based on device capabilities, user permissions, network performance, connection location, and security profile.

CATEGORY/ FEATURE	DESCRIPTION	MICROSOFT WINDOWS SERVER 2003	MICROSOFT WINDOWS SERVER 2008	MICROSOFT WINDOWS SERVER 2008 R2	CITRIX XENAPP 5 FEATURE PACK 2
Proactive Application Performance Monitoring	Allow IT to identify poorly performing applications, manage system resources to remove bottlenecks, and report on application utilization. EdgeSightTM for XenApp provides administrators with visibility into the end user's perception of application performance allowing them to be proactive instead of reactive. XenApp 5.0 adds the ability to simulate client loads, providing administrators the ability to ensure metrics are within agreed service levels.				✓ Platinum Edition only
Unified Application Delivery	Applications can be delivered from multiple server platforms (Windows Server, HP-UX, IBM AIX, or Solaris) in a single view to the end user.				✓
VM Hosted Applications	Provides an integrated solution that delivers individual applications from a physical or virtual desktop OS, such as Windows 7 to the user as a published application over a remote presentation protocol.				✓ Enterprise and Platinum Editions
Application Scheduling	Provides the ability to control delivery of applications to users based on time of day and number of sessions or application instances.				✓
Proactive Performance Monitoring	Enables real-time probes of end-user experience, and network performance characteristics, providing information necessary to fore-see problems and avoid SLA bottlenecks.				✓ Enterprise and Platinum Editions

Any Device, Anywhere

With Citrix XenApp, users can simply and securely access virtualized applications instantly with a consistent high quality experience, regardless of location or device.

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Small Form-Factor Device Support	Citrix Panning (scrolling) and Scaling (magnification) technology provides an improved user experience when viewing full-screen Windows applications on small form-factor devices since many applications in today's market are not designed to support the screen resolution available on mobile devices. Using scrolling and magnification techniques on the device enables the user to use these applications in their native form without the need for customized applications that support the small form-factor.				✓
Web Interface, Broad Client Platform Support	The client view of Web Interface uses standard HTML and is supported on most modern web browsers including IE 6+, Mozilla 1+, Firefox 2+, and Safari 2+ as well as some mobile platforms.				✓
Broad client support	Integrated support for client platforms: **Windows x86 Platforms** Windows 7, Vista, Windows XP, Windows 2003, Windows 2000 **Windows x64 Platforms** Windows 7, Vista, Windows XP, Windows 2003 **Macintosh Platforms** OS X, PowerPC, 68030/40 **Apple iPhone Client** **Windows Mobile Platforms** Windows Mobile 6, Windows Mobile 5, Windows Mobile 2003, PocketPC Handheld PC, Windows CE **Java Platform** J2SE 1.4.x, J2SE 1.5.x **EPOC / Symbian OS** Series 60 3rd Edition, Series 80, FOMA M1000 **Unix Platforms** Solaris/Sparc, Solaris x86, IBM AIX, HP-UX, Linux, SGI **Other Platforms** DOS version 4+, Windows 16-bit platforms, IBM OS/2 Warp	Microsoft Windows® Macintosh OS X (Limited to Remote Desktop only)	Microsoft Windows® Macintosh OS X (Limited to Remote Desktop only)		✓

High Definition Experience

Virtualized applications deliver a high performance, high definition user experience from any device, on any network – even for graphic-rich and multimedia content. Users are assured a seamless experience with zero downtime and higher overall productivity.

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Client Experience Configuration	The client experience configuration page centralizes the client experience configuration into Server Manager; it is available when installing the RD Session Host role service by using Server Manager. The client experience configuration page allows you to configure the following functionality: audio and video playback redirection, audio recording redirection, desktop composition.			✓	
Client Printer Auto-Creation	Automatically create a mapping of client-attached printers into the user's session when connected to a server-side virtualized application.	✓	✓	✓	✓
Client Printer Session Isolation	Ensure that client-attached printers are isolated to the user's session and not available to other users on the same server.		✓	✓	✓
Inheritance of Printer Properties	Rather than just displaying the default printer settings for auto-created client printers, this provides the ability to inherit the existing printer settings. This provides the user with a seamless experience when printing to their local printer.		✓	✓	✓
User Self-Provisioning	Allows the user to define additional printers available to the Remote Desktop session and have them be available in the session without requiring the user to logoff and logon to use the printer.				✓
Retention of Printer Properties	Users can configure settings for client-attached printers and have those settings stored on the client device or in their user profile.				✓
Controlled Security Rights for Client Printers	Provide users with access to the printer device settings for their client-attached printers. The default ACL on redirected printers in Remote Desktop Services does not allow the user to adjust device settings because it would also allow the user access to additional settings like driver, port, etc. With custom security filtering the user can be provided access to manage the printer properties without exposing the full rights.				✓
XPS-based Universal Printing	Provide client-side printing support where the Microsoft XML Paper Specification (XPS) protocol is available without requiring a printer driver to be installed on the server.		✓ XP SP2 or Vista SP1 only	✓	✓
EMF-based Universal Printing	Provide client-side printing support through the Enhanced MetaFile (EMF) print format without requiring a printer driver to be installed on the server.				✓
PCL/Postscript Universal Printing	Provide client-side printing support on non-Windows clients (e.g. Macintosh, Linux, etc.)				✓
Default Printer Provisioning	Restricts the available client-side printers to only the default printer.		✓	✓	✓
Client Printer Provisioning	Provides administrators with the ability to control client-side printer auto-creation based on policy.				✓
Network Printer Provisioning	Enables users within a specified IP address range to automatically access the network printing devices that exist within that same range. This increases user productivity and lessens the IT support burden.				✓
Generic Universal Print Driver	Reduces printer creation overhead by allowing a single generic printer to be created in the session that can target any client-side printer.				✓

High Definition Experience continued…					
Automatic Driver Installation	Automatically install in-box printer drivers when they are needed.	✓	✓	✓	✓
Printer Driver Mapping	Allows an administrator to define a mapping of server printer drivers to use for given client printers.	✓	✓	✓	✓
Fallback Printer Driver	Provides 'printer driver of last resort' ensuring printer availability with basic printing functions when a matching driver does not exist on the server and a 'universal' print driver is not available.	✓ SP1 and above	✓ TS Easy Print	✓ RD Easy Print	✓
Driver Replication	Allows administrators to automatically or manually replicate installed print drivers across servers.				✓
Driver Compatibility Control	Allows administrators to manage a list of print drivers that can be used on the server for client-side printers. By supporting both inclusion and exclusion lists administrators have the ability to only allow known 'safe' drivers or to block known 'unsafe' drivers.				✓
Printer Bandwidth Limit	Allows administrators to choose between the traditional network printing path and the ICA printing path when using client printer auto-creation for provisioning of printers. In cases where the client can connect to a network print server for their local printer this can offer significant reduction in bandwidth and overall time required to print. Policies provide administrators the control necessary to ensure this is only applied in situations where it makes sense.				✓
Support for High Color	Enables applications running on Remote Desktop Services to display in 24 or 32-bit color depth.	✓ 24-bit	✓ 32-bit	✓ 32-bit	✓ 24-bit
Seamless Applications	Enables applications running on Remote Desktop Services to look and feel as if they are running locally.		✓	✓	✓
Connection Resiliency	Automatically reconnects user sessions when the network connection is temporarily lost.	✓	✓	✓	✓
Session Reconnect	Allows users to reconnect to their Remote Desktop Services sessions without going through the time-consuming logon process again.	✓	✓	✓	✓
Support for Multiple Monitors	Allows applications running on Remote Desktop Services to be displayed across multiple local monitors connected to the client workstation forming a single virtual display.	✓	✓	✓	✓
Support for Multiple Monitor aware applications	Provide features that mimic the behavior of applications running locally in a multi-monitor environment.			✓	✓
Multiple Monitor Dynamic Display Configuration	Multiple monitor array settings are reconfigured dynamically any time the client display environment changes.			✓	✓
Multiple Monitor Boundary Awareness	Ensures applications respect multiple monitor boundaries (applications maximize to a single monitor, dialogs center properly, menus and tooltips are positioned so they do not span monitor boundaries, etc…			✓	✓
Audio Playback	Supports audio playback on the client device for audio streams from the server session.	✓	✓	✓	✓
Bi-Directional Audio Support	Supports audio recording and playback on a client desktop. Bidirectional audio is a common requirement in medical and legal firms, and provides a foundation to support VoIP soft phones in the future.			✓	✓
Language Bar Redirection	Users can use the language bar on the client computer to control the language settings within their remote programs.			✓	

High Definition Experience continued…					
Pass-Through Authentication	For Windows clients connected to the company directory, the credentials used for local device logon are passed automatically to sessions running on Remote Desktop Services. This simplifies and speeds up the user's connection process.		Domain-joined clients only	Domain-joined clients only	✓
Basic Roaming User Support	Allows a user to roam between devices and networks while maintaining the state of their server-based applications. User will be automatically connected to their applications with the display automatically re-configured when the user re-connects.	✓	✓	✓	✓
Roaming User Profile Cache Management	In Remote Desktop Services environments with many users, the profile cache can grow very large and may potentially overrun the available disk space on the server. This feature limits the size of the overall profile cache. If the size of the profile cache exceeds the configured size, the least recently used profiles are deleted until the overall cache goes below the quota.			✓	
Profile Management	Includes built-in profile management to make it easy for IT to provide a personalized, consistent experience for users every time they log on, regardless of endpoint devices or locations.				✓ Enterprise and Platinum Editions
Advanced Roaming User Support	SmoothRoaming™ in XenApp 5.0 ensure that applications and data move with your users as they change locations, networks, or devices, so they can pick up exactly where they left off, without interruption.				✓
Desktop Icon Integration	Allows applications to appear in the start menu or on the local desktop providing a familiar application access experience for users.		Requires distribution of .msi packages	Requires Windows7 clients or MSI distribution	✓
Folder Management	Allows applications to be grouped within folders for easier organization for multiple user groups.				✓
Client-to-server Redirection of File Types	Redirects requests for a specific document or file type to a Remote Desktop session. For example, clicking on a Visio® document on the client device will launch the document in a Visio application on the Remote Desktop Sever, instead of a local application. This is a useful feature in environments where a particular application may not be installed locally.		✓ (MSI Only)	✓ (MSI Only)	✓
Server-to-client URL redirection	When clicking on URL's (such as HTTP or HTTPS links) within an application running on Remote Desktop Services, the link is opened with the local client browser instead of launching the browser on the Remote Desktop Session Host. This feature enhances support for mixed desktop/Remote Desktop Services environments, and ensures that the local browser and Internet connection is used for web browsing. This can reduce the data center bandwidth requirements, free processing resources on Remote Desktop Services, and improve performance for users. In addition, for environments that track internet usage by IP address, this features preserves the ability to do so using third-party monitoring products.				✓
USB Printer Support	Enables users to remotely print to USB printers connected to their client device		✓	✓	✓
USB Storage Device Support	Enables remote access to most USB storage devices connected to their client device		✓	✓	✓
POS for .NET Device Support	Enables support for Microsoft Point of Service for .NET devices.		✓	✓	✓ Enterprise and Platinum Editions
Microsoft ActiveSync® Support	Supports the synchronization of client devices via ActiveSync where the software is running in Remote Desktop Services.				✓
Scanner Support	Enables applications running on the server to access TWAIN-compliant scanners connected to the client device.				✓

High Definition Experience continued…					
Click-To-Call	Enables users to initiate a phone call by clicking on a phone number in any application (whether delivered from the server, delivered to the client, or installed locally).				✓
Display Data Prioritization	Offers enhanced application responsiveness with built-in quality of service for graphics applications by controlling how much bandwidth is used for display data as opposed to any other data (e.g. printing, file transfers, etc.)		✓	✓	✓
High Resolution Graphics Enhancements	Citrix HDX 3D for Progressive Display is a key technology in providing a rich user experience regardless of the underlying connection. It improves the delivery of remote applications that contain photographic bitmaps and highly detailed synthetic images. If a bitmap looks as if it is probably photographic or highly detailed, an extra level of lossy JPEG compression is added to reduce the bandwidth required to transmit the image to the client.				✓
Enhanced bitmap acceleration for rich media	Enhanced support for bitmap acceleration allows the redirection of any 2D/3D content rendered on the server including Flash, Silverlight and other rich media content.			✓	✓
Multimedia Playback Redirection	The request for a media file is intercepted on the server, which streams the media to the client where it can be rendered using local resources. It provides synchronized audio-video delivery for applications like Windows Media Player (common with computer-based training applications.)			windows media player + WMP hosted controls	✓
Desktop Composition	Desktop composition provides users with the user interface elements of the Windows® Aero® desktop experience within their RD Session Host session.		Vista clients only	Windows 7 clients only	
High latency network support	Citrix HDX Broadcast technology optimizes performance of remote applications presented over high-latency network links (i.e. satellite). The user benefits from a more usable experience than with Remote Desktop Services alone.				✓
Web Browser Performance Optimizations	Citrix HDX 3D - Browser Acceleration provides a combination of features that can automatically disable GIF animations, intercept images and pass them on before being uncompressed, dynamically re-compress JPEG images, deliver images in the background, and cache images on the client.				✓
Adobe® Flash® Performance Optimizations	Provide improved performance of web pages containing Flash-based content by improving the compression of the Flash content. Citrix HDX MediaStream for Flash is specifically designed to optimize Flash content in web pages to improve the overall experience for users accessing web sites and applications remotely.				✓
WAN Performance Optimizations	Users can experience significantly improved WAN performance through the automatic application of the right mix of acceleration techniques based on network conditions, data flows, and application mix. These gains can be achieved without requiring any reconfiguration or modification of firewalls, monitoring tools, or applications.				✓
Session Reliability	When a network connection issue occurs, the application window remains visible on the client device and the client continues to accept keystrokes and mouse movement from the user while session re-connection is attempted in the background. For transient network issues, such as where users roam between wireless "hot spots", the user may not even know connectivity was lost.				✓

High Definition Experience continued…					
Graphics Display Optimizations	Dramatically improves the performance and usability of graphics-intensive applications. Enables IT to centrally manage graphics-intensive applications such as PACS (used in Healthcare) and GIS mapping applications, while providing the speed and anywhere-access flexibility that users need.				✓
Multilingual User Interface	Dynamically changes the locale of the web application portal depending on the user or administrator's preferences.		✓	✓	✓
Persistent Bookmarks	Provide users the ability to create persistent browser bookmarks directly to their favorite applications. When using pass-through authentication the user can access their application without the need for additional authentication.				✓
Per-user Application Filtering	A list of applications can be filtered that are available to a specific group or user account when logged on to a web portal.			✓	✓
Folder Management	When applications are configured within folders the web interface maintains this grouping enabling easier organization for multiple user groups.				✓
Automatic Reconnection	Automatically re-connects to all disconnected sessions at logon. This provides an automated means of reconnecting to all disconnected applications without user interaction. This functionality works regardless of how many server sessions the user has established. Administrators and users can turn this feature off and also use manual reconnection which still provides a single-click interface for this functionality.				✓
Disconnect or Close All Applications	A single button on the web interface provides a means for the user to suspend or exit all running applications without having to perform this action in each individual application. This functionality works regardless of how many server sessions the user has established. This is especially useful for situations where the user wants to switch devices such as when leaving the office to go home.				✓
User Controlled Network Optimizations	Users can specify their network connection speed and type for application access, thereby providing application performance optimizations based on the user's connection type.			✓	✓
Priority Packet Tagging	Enables the prioritization of virtual channel traffic by third-party Quality-of-Service (QoS) network infrastructure providers.				✓

Single Instance Management

With Citrix XenApp, application and server images are stored, maintained and updated once in the datacenter and delivered on-demand. This virtualization system simplifies management, avoids application conflicts and makes it easy to provide real-time updates.

CATEGORY/ FEATURE	DESCRIPTION	MICROSOFT WINDOWS SERVER 2003	MICROSOFT WINDOWS SERVER 2008	MICROSOFT WINDOWS SERVER 2008 R2	CITRIX XENAPP 5 FEATURE PACK 2
Single Image Server Provisioning	Simplifies and streamlines server management by ensuring server consistency within silos by provisioning servers simultaneously from a single standard workload image. Increases IT responsiveness and agility by enabling capacity on-demand through the ability to repurpose any server to do any job.				✓ Platinum Edition
Centralized Publishing	Allows administrators to deliver server resources – such as applications, content, and server desktops – to thousands of users from a single wizard-driven console.		Single Server	Few Server Only	✓

Single Instance Management continued…					
Server-hosted Application Virtualization	Streams applications into an isolated environment running on the server to ensure compatibility between applications. This minimizes or eliminates regression testing for applications and eliminates the need to create server silos to address application compatibility issues. It is especially useful for applications that require a network connection or for applications that provide access to critical or proprietary business information (e.g. CRM or ERP apps). Server-side application virtualization prevents business data from ever leaving the data center.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓
Application Virtualization	Streams applications into an isolated environment running on the user's machine to eliminate potential conflicts between applications. This offloads the resources required to run applications from the server to the user's machine. It is especially useful in Windows environments for applications that can be or must be used while disconnected from the network (e.g. synchronized e-mail, Microsoft Office Suite, etc.)	Available in Microsoft Application Virtualization	Available in Microsoft Application Virtualization	Available in Microsoft Application Virtualization	✓
Communication Between Application Virtualization Environments	Enables virtualized application isolation environments to communicate with each other, providing customers with simplified maintenance of streamed applications as well as decreasing the time it takes to update/patch these applications.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓
HTTP(S) Based Application Streaming	Enables application streams applications to be streamed using the HTTP protocol. HTTP(s) is WAN friendly and can leverage a company's existing HTTP infrastructure. This feature also supports secure connections for streaming applications over HTTPS.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓
64-bit Platform Support	Allows administrators to deploy application virtualization technology to the latest 64-bit OS platforms for both client-side and server-side virtualization scenarios.				✓
Support for Complex Application Virtualization Needs	Some applications require access to system components that make them more difficult to stream. Support for the isolation of services, COM+, DCOM access, and printer drivers allow more complex applications (or portions of applications) to be streamed without the need for complex sequencing or profiling customizations.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓ Enabled through XenApp support for Microsoft App-V
Isolation of Services	Some applications require access to system components that make them more difficult to stream. Support for the isolation of services allows more complex applications (or portions of applications) to be streamed without the need for complex sequencing or profiling customizations.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓ Enabled through XenApp support for Microsoft App-V
Isolation of COM+	Some applications require access to system components that make them more difficult to stream. Support for the isolation of COM+ allow more complex applications (or portions of applications) to be streamed without the need for complex sequencing or profiling customizations.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓ Enabled through XenApp support for Microsoft App-V
Support for DCOM access	Some applications require access to system components that make them more difficult to stream. Support for the isolation of DCOM access allow more complex applications (or portions of applications) to be streamed without the need for complex sequencing or profiling customizations.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓ Enabled through XenApp support for Microsoft App-V
Isolation of Printer Drivers	Some applications require access to system components that make them more difficult to stream. Support for the isolation of services, COM+, DCOM access, and printer drivers allow more complex applications (or portions of applications) to be streamed without the need for complex sequencing or profiling customizations.	(Requires Windows Server 2008 RDS CAL)	✓	✓	✓ Enabled through XenApp support for Microsoft App-V
Automated Client Installation	A web-based process walks the user through the process of automatically detecting the needed client software and then automatically installs the appropriate client software for the platform used.				✓

Single Instance Management continued...					
Single, Auto-updating client	Orchestrates installation, updates and interaction of Citrix and 3rd party plug-ins				✓

Secure by Design

Centralized application management is the most secure architecture for delivering applications. Data remains in the datacenter while only screen updates, mouse clicks and keystrokes transit the network. Centralized password control, multi-factor authentication, encrypted delivery and a hardened SSL VPN appliance eliminate the chance for loss or theft of data.

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Centralized Access Policies	Administrators can configure settings for user sessions as policies that can be applied to sessions based on username, group, server name, server management container, client IP address or subnet, zone, or client name (or partial name). Priorities can be applied to these policies depending on specific user session situations.				✓
Session Recording and Playback	Provide administrators the ability to monitor user sessions for auditing, regulatory compliance, or troubleshooting needs. SmartAuditor™ technology provides a built-in record / playback facility for XenApp 5.0 sessions which is unique to the industry.				✓ Platinum Edition
Self-Service Password Change	Provides users notification when their password is about to expire and allows users to change their domain password directly from their browser. This feature is important for remote access scenarios and other situations where user devices do not authenticate to the directory.				✓
Self-Service Password Reset	Allows users to securely and safely reset their domain password or unlock their Windows account from their PC or web browser, thus reducing help desk costs for password resets.				✓ Platinum Edition
Enterprise Single Sign-On	Requires users to logon only once with their network credentials and automates subsequent logons to applications accessed through a Web browser, Windows client, or host terminal emulator. Specifies strong password characteristics such as length, character repetition and alphanumeric requirements on a per-application basis – applies to manual and automated password changes.				✓ Platinum Edition
Forms Based Single Sign On	Passes web entered credentials to RD Session Hosts, desktops and application sessions.			✓	✓
Secure Sockets Layer Access to Server Applications	Provides SSL/TLS encryption and multifactor authentication to provide authorized application access to appropriate users.		✓	✓	✓
Support for Network Access Quarantine Control	Examines and validates the configuration of a remote access computer through an administrator-provided script.				✓
Support for Network Access Protection (NAP)	Allows network administrators to define network access based on who a client is, the groups to which it belongs and the degree of compliance with corporate policy.		✓	✓	

Secure by Design continued...					
Support for Network Access Protection (NAP) Remediation	Client computers that are not in compliance with the health policy for Network Access Protection (NAP) can be automatically updated.			✓	
Background Session Authentication and Authorization	When a session timeout has been reached, the remote session can be disconnected or the session can be silently re-authenticated and reauthorized. Background authentication and authorization requests are done automatically and require no user interaction.			✓	
Device Redirection Enforcement	Device redirection enforcement helps prevent malicious code on remote clients from overriding security polices set by an administrator.			✓	✓
Adaptive User Access	Dynamically determine the access policy through evaluation of multiple factors such as the user role, location, client device information, and client integrity allowing administrators to provide varying degrees of access instead of simply denying access. Citrix SmartAccess technology provides administrators with granular access control of the specific actions that users can take with applications, files, web content, e-mail attachments, and printing. With SmartAccess, access becomes like a dimmer switch, where access is restricted based on the access scenario.				✓ Platinum Edition
Active Directory Federation Services Support	Supports authentication using credentials from a federated Active Directory forest, thereby increasing the security of applications used by business partners.				✓
Pluggable Authentication and Authorization	Pluggable authentication and authorization allows you to use non-Windows-based methods for authentication and authorization. IT admins can use this to develop their own custom plug-ins to better fit their network admission requirements.			✓	✓
Anonymous Access	Provides the ability to grant access to Remote Desktop Services applications without requiring explicit authentication from the user. This can be implemented simply by IT administration and enables support for additional authentication schemes like third party LDAP directories.				✓
Double-hop DMZ Traversal	Provide access to corporate resources from anywhere over SSL. Double-Hop allows the use of SSL end-to-end from the client, through the DMZ, and into the internal corporate network.		✓	✓	✓
Secure Sockets Layer Access to All Applications / Protocols	Citrix Access Gateway is a universal SSL VPN appliance that provides a secure, always-on, single point-of-access to all applications, network resources, and protocols.				✓ Platinum Edition

Enterprise-class Infrastructure

XenApp is proven to support more than 50,000 users, scale beyond 1,000 servers in a single implementation and ensure 99.999 percent application availability. The enterprise-class foundation coupled with centralized management, application virtualization, and monitoring and automation tools enable rapid response to business and user needs.

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Automated Workflow and Orchestration	Enables programatic automation of tasks within a dynamic datacenter, providing autonomic management of large scale computing environments.	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts
Simplified Graphic Workflow development Environment	Enables administrators to create workflows without having to write scripts as well as to; activate, schedule, and monitor workflow processes from a unified central dashboard				✓
Centralized Client Plug-in Management	Provides a single administrative interface to control Citrix client and 3rd party plug-ins				✓
Delegated Administration	Allows administration tasks and permissions to be assigned across multiple groups within an IT department. This allows organizations to break up and control management tasks among groups like the help desk, level 2 support, and the Remote Desktop Services administration team.				✓
Administrative Logging	Keeps a running log of changes made to system configurations - for audit trail and root cause analysis purposes.				✓
System and logon messages	Messaging can be used to keep remote desktop clients more informed. System messages can be used to inform users of upcoming server downtimes. Logon messages can be used to display legal information that the remote user must acknowledge before starting a session.	✓	✓	✓	✓
Basic Server Health Monitoring	Monitor the health of server components and report any failures when they happen.		✓	✓	✓
Advanced Server Health Monitoring	Automatically monitor the health of multiple RD Session Hosts and components and report any failures when they happen. If an issue is detected, initiate automatic server recovery actions, such as restarting the server, or preventing it from accepting user sessions until the problem is resolved.				✓ Enterprise and Platinum Editions
Integration with Desired Configuration Management	A Configuration Pack is available for Microsoft System Center Configuration Manager 2007 that evaluates configurations against predefined security and best practice guidelines specific to Remote Desktop Services environments. This provides administrators with a tool for automated configuration management.				✓
Integration with Operations Manager	A Management Pack is available for Microsoft System Center Operations Manager 2007 that provides integrated monitoring and alerting capabilities specific to Remote Desktop Services environments.	✓	✓	✓	✓ Enterprise and Platinum Editions
Integration with Multiple 3rd Party Management Systems	Integration with 3rd party management consoles like Microsoft System Center Operations Manager, IBM Tivoli® NetView, Hewlett-Packard® OpenView®, and Computer Associates® UniCenter® TNG allows administrators to leverage existing infrastructure to manage their application delivery infrastructure.				✓ Enterprise and Platinum Editions

Enterprise-class Infrastructure continued...					
Centralized Resource Monitoring	Enables monitoring and evaluation of server performance. Custom threshold-based alerts and reports can be generated to enhance management and allow administrators to optimize the Remote Desktop Session Host farm.				✓ Enterprise and Platinum Editions
Best Practices Analyzer (BPA)	Best Practices Analyzer (BPA) is server management tools that can help administrators reduce best practice violations by scanning one or more roles that are installed on the server, and reporting best practice violations to the administrator. Administrators can filter or exclude results from BPA reports that they don't need to see. Administrators can also perform BPA tasks by using either Server Manager or Windows PowerShell.			✓	
Windows Installer Compatibility	Per user application installations are queued by the RD Session Host server and then handled by the Windows Installer. Windows Installer Compatibility queues the installation requests and processes them one at a time.			✓	
Comprehensive Server Farm Support	Multiple servers can be grouped together as a logical unit even when they are not running the same application delivery or OS platform. Applications can be configured to be delivered from all servers in the farm or any subset easily from the application publishing properties allowing for simple configuration of load balancing across the available platforms.			✓	✓
Virtual IP Address Support	Applications that require a unique IP address for each application instance may not work properly in a Remote Desktop Services environment. Virtual IP address support allows an administrator to define a range of IP addresses so that each user session can have a unique IP address. This is especially useful for customer service applications that integrate into VoIP telephony systems. It is also useful when using third-party tools to monitor internet traffic from RD Session Host users.			✓	✓
Web Interface Custom Branding Support	Provides the ability to easily customize the look and feel of the web application portal through GUI-based wizards in the management tools.				✓
Web Interface Broad Server Platform Support	Support for IIS, Apache, IBM WebSphere®, BEA WebLogic®, and Sun Java System Application Server provides administrators with the option of hosting the server component on the infrastructure that they already have and are familiar with.				✓
Basic SharePoint Integration	Provides a web part to integrate Remote Desktop Services application functionality directly within a SharePoint portal.		✓	✓	✓
SharePoint Document Library Integration	Extends Microsoft SharePoint document libraries to include integrated support for accessing the documents in those libraries via an application hosted on Remote Desktop Services. This allows users to view and edit documents in a SharePoint document library even when they do not have the necessary applications installed locally.				✓
IBM WebSphere® Integration	Provides the ability to integrate Remote Desktop Services application functionality natively in an IBM WebSphere portal.				✓

Enterprise-class Infrastructure continued…					
Integration with Multiple Enterprise Information Portals	A reference implementation of a JSR168 portlet provides access to Remote Desktop Services application functionality natively in a BEA WebLogic® Portal. This reference implementation could be used on any system supporting the JSR168 portlet standard.				✓
Web Availability	Integrated support for publishing applications to a web portal allows applications to be accessed from any web browser.		✓	✓	✓
Connection Broker	Connection broker manages connections between clients and remote resources on the server. It supports load balancing and reconnection to existing sessions on virtual desktops, Remote Desktop sessions, and session-based applications.			✓	✓
Session Sharing	When a user requests a second application on the Remote Desktop Session Host, the application is launched in the existing user session. This allows the application to start up almost instantly (as opposed to creating a new session) and reduces memory and CPU consumption on the server.		✓	✓	✓
Support for Windows Directory Services	Allows role-based access to be provided using either Windows NT domains or Active Directory®.	✓	✓	✓	✓
Support for Novell® eDirectory TM	Allows role-based access to be provided using Novell eDirectory (formerly known as Novell Directory Services®.)				✓
Configurable Idle and Session Timeouts	An idle timeout provides the ability to reclaim resources used by inactive user sessions without affecting the user's session or data. This helps free up resources on the server. A session timeout provides the capability to periodically enforce new policies on active user connections.			✓	✓
Policy-Based Control of Client Devices	Administrators can enhance security and intellectual property containment by controlling users' ability to connect client devices like printers and local drives.		Domain-joined clients	Domain-joined clients	✓
Policy-Based Control of Bandwidth Usage	Administrators can configure overall session bandwidth limits and also specific limits for audio usage, printing, client storage devices, TWAIN devices, clipboard usage, COM/LPT ports, and OEM virtual channels.				✓
Policy-Based Control of TWAIN Device Support	Administrators can configure policy to control TWAIN device redirection including compression levels.				✓
Policy-Based Control of Application Delivery	Administrators can configure policy to control how applications are delivered – controlling whether the application is virtualized client-side, virtualized server-side, or installed on the server.				✓
Application Launch Limits	Allows administrators to control user access to applications by setting time and instance limits.				✓
Automated Workflow and Orchestration	Enables programatic automation of tasks within a dynamic datacenter, providing autonomic management of large scale computing environments.	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts	Enabled through PowerShell Scripts
Simplified Graphic Workflow development Environment	Enables administrators to create workflows without having to write scripts as well as to; activate, schedule, and monitor workflow processes from a unified central dashboard				✓

Enterprise-class Infrastructure continued…					
Comprehensive Server Configuration	The ability to perform actions on a group of servers from a single management point provides administrators the ability to centrally configure application access to a subset of their servers.				✓
Zone Preference and Failover	Establishes user sessions based on their proximity to and availability of a particular server. This feature enables higher performance in farms that span multiple data centers and eases disaster recovery and business continuity.				✓
Broad Database Engine Support	Integrates with existing corporate standards for IT infrastructure by supporting multiple options for the system database (i.e. Microsoft SQL Server, IBM® DB2®, and Oracle®.)				✓
Power and Capacity Management	Enables the dynamic provisioning of servers in order to ensure optimal numbers of servers are online in order to provide the best user experience, as well as optimize power consumption and server density for hosted sessions.				✓ Enterprise and Platinum Editions
Enterprise Class Scalability	Supports large server farms that can span wide area networks while maintaining performance and reliability. Proven large deployment support with over 1000 servers.				✓
Basic Load Balancing	Provides load balancing across a group of servers based on session count.	✓	✓	✓	✓
Comprehensive Load Management	Establishes user sessions across a group of load-managed servers based on configurable parameters like session count, application usage, CPU utilization, memory consumption, concurrent logons, IP ranges, time intervals, and more.				✓
Preferential Load Distribution	Provides administrators the flexibility to assign higher or lower levels of service to users and applications based on their job functions, position within the company or any other such meaningful criteria.				✓
CPU Utilization Management	In a shared, multi-user Remote Desktop Services environment, one user's activities can adversely affect performance for other users. CPU management ensures that CPU-intensive processes initiated by one user do not degrade performance of other sessions. As a result, additional RD Session Hosts do not need to be maintained to assure good user performance.	✓ Requires Enterprise Edition	✓ With WSRM	✓ With WSRM	✓ Enterprise and Platinum Editions
Fair Share CPU Scheduling	Fair Share CPU Scheduling dynamically distributes processor time across sessions based on the number of active sessions and load on those sessions by using the kernel-level scheduling mechanism included with Windows Server 2008 R2.			✓ Kernel Based	✓ Enterprise and Platinum Editions
Virtual Memory Optimizations	Performs DLL rebasing for applications in order to reduce the amount of memory conflicts when loading DLLs, resulting in a reduction in overall memory requirements for some applications. This enables a single server to support more concurrent users. This results in a reduction of overall server count within a Remote Desktop Services environment.				✓ Enterprise and Platinum Editions

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Citrix Systems, Inc. (NASDAQ: CTXS) is the global leader and the most trusted name in Application Delivery. More than 230,000 organizations worldwide rely on Citrix to deliver any application to users anywhere with the best performance, highest security and lowest cost. Citrix customers include 100 percent of the Fortune 100 companies and 99 percent of the Fortune Global 500, as well as hundreds of thousands of small businesses and prosumers. Citrix has approximately 8,000 partners in more than 100 countries. Annual revenue in 2007 was $1.4 billion.

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