Parallels®

How Parallels RAS Enhances Microsoft RDS

White Paper | Parallels Remote Application Server

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Introduction

In 2001, Microsoft® introduced the RDP protocol, a proprietary protocol that allowed users to access an operating system's desktop remotely. Since then, Microsoft has come a long way, developing the Microsoft Remote Desktop Services (RDS) to facilitate remote desktop access. Formerly known as Terminal Services, Microsoft RDS consists of several tools and services that allow businesses to build an application and virtual desktop delivery solution for their users.

However, Microsoft RDS leaves a lot to be desired. This white paper highlights the pain points of RDS solutions, and how systems administrators can use Parallels® Remote Application Server (RAS) to enhance their Microsoft RDS infrastructure to provide the functionality users need to be more productive.

Overview of Microsoft Remote Desktop Services

Depending on the environment and the business requirements, Microsoft RDS can be set up either as Session Host, which is commonly used for publishing applications (RemoteApp) or as a Virtualization Host, commonly used for publishing desktops and virtual desktop infrastructure(VDI). Microsoft RDS is based on a suite of different server role services, mainly consisting of the following:

- Remote Desktop Session Host: The server that hosts Windows-based programs or the full Windows® desktop for remote access.
- Remote Desktop Virtualization Host: An RD Virtualization Host that integrates with Microsoft Hyper-V® to provide virtual machines (VMs).
- Remote Desktop Licensing: The server that manages the client access licenses.
- Remote Desktop Connection Broker: This is the central server of the Infrastructure. Principle functions include assigning users to remote desktops and applications or load balancing incoming sessions.
- Remote Desktop Web Access: This server enables users to access the RemoteApp and Desktop
- Connections through the Start menu on a computer or through a web browser.
- Remote Desktop Gateway: This server enables authorized remote users to connect to resources on an internal corporate network, from any Internet-connected compatible device.

Microsoft RDS Pain Points

Limited Load Balancing Functionality: The Remote Desktop Connection Broker manages the distribution of connections between the different servers in the farm. The technology is very limited because it only distributes the connections based on session count and server weight.

Limited Load Balancing of Gateways: Network Load Balancing or DNS Round Robin can be used to load balance the network traffic, though none of them track the health of the gateway service and NLB has to be installed and configured separately. To achieve true load balancing, Azure Load Balancer or any other third-party solution is required.

Limited Client Device Support: Remote Desktop client is only available for Windows, iOS, Mac®, and Android. Microsoft RDS does not have a Linux® client, so the only option for IT administrators looking for wider client support is to use third-party solutions.

Difficult to Install, Set Up, and Update: The process of installing and setting up a virtual desktop and application delivery solution with Microsoft RDS is lengthy and complex. It requires systems administrators to install and configure several different servers and server roles, and to install additional software to support the setup.

Difficult to Manage: A Microsoft RDS solution is made up of several different software components, and there is no central dedicated console. IT administrators have to individually configure every component via different management consoles by logging in to different servers.

Difficult to Scale Up: To scale up a Microsoft RDS infrastructure or configure load balancing and high availability features, administrators have to install and configure additional software components such as Microsoft NLB, Failover Cluster, and Microsoft SQL, most of which are available at an additional cost.

Problematic and Restrictive Version Interoperability: One of the biggest problems of Microsoft RDS is compatibility issues among different role services. For instance, Windows Server 2016 is just backward compatible with a few components. Also, all Session Hosts and Connection Brokers servers need to be running the same OS version, and the License Server must be using the same OS version as the RD Session Host.

Limited Support for Guest Operating Systems: In a VDI deployment, a Windows Server 2016 RD Virtualization Host server only supports Windows 10 Enterprise, Windows 8.1 Enterprise, Windows 8 Enterprise, and Windows 7 SP1 Enterprise as guest machines.

Limited Hypervisor Support: Remote Desktop Virtualization Host role only supports Microsoft Hyper-V to host VDIs.

Upgrade Limitations: Upgrades are limited and may require reinstallation of roles (setup downtime). For upgrades from Windows 2012 to 2012 R2, all Microsoft RDS roles can be upgraded in place. However, upgrades to Windows Server 2016 are supported only from Windows Server 2012 R2 and Windows Server 2016 TP5.

How Parallels RAS Enhances Your Microsoft RDS Infrastructure

Parallels RAS is an application and virtual desktop delivery solution that allows systems administrators to create a private cloud from which they can centrally manage the delivery of all applications, virtual desktops, and business-critical data on the infrastructure. Parallels RAS is well known for its ease of use, low license costs, and features list. This section highlights some of the enhancements Parallels RAS offers when used in conjunction with Microsoft RDS.

Even in the early stages of planning, Parallels RAS has a lot to offer. It allows businesses to set up an application and virtual desktop delivery solution in just a few minutes, thanks to the following features.

Easy to Install and Set Up

Simple Wizard-Based Installation: Very straightforward process for an "all-in-one" solution. The default setup is tailored to help businesses get started very easily with configured SSL certificates, remote access, and fully enabled HTML5 support. Thanks to intuitive software, even junior IT personnel can build a complete setup within a couple minutes without requiring any training. Quickstart wizards guide the administrator through configuring terminal servers, publishing applications, and inviting users to connect.

Straightforward Licenses: Parallels RAS licensing is priced per concurrent user. All the components needed to build a scalable and high-availability application and virtual desktop solution are included in the license.

Centralized Configuration Console: To manage, monitor, and scale up the Parallels RAS farm, systems administrators just use the Parallels RAS Console. Even when installing new components or configuring a multisite environment, systems administrators do not need to log in to other remote servers; everything can be done from the central console.

Auto-Configuration of Remote Desktop Session Hosts: Systems administrators do not have to install and configure any server roles. Parallels RAS automatically installs the needed server roles (such as the Remote Desktop Session Host) on the servers from where applications and desktops are published.

Easy Management of Remote Desktop Session Hosts (RDSH) and Sessions: In Parallels RAS, administrators can schedule reboots or temporarily disable a server or a group of servers, making it much easier to maintain the servers or upgrade applications.

Requires Less Hardware Resources: Parallels RAS is a very low-resource application and virtual desktop delivery solution. A basic setup can be installed on a single server. No additional database servers are required for a high availability solution, which also means no extra license costs.

Central Logging: All of the changes and actions of every Parallels RAS administrator are centrally recorded in the auditing log. This audit trail can be used to ease troubleshooting and can also be used for security purposes.

Application Publishing and Delivery

Parallels RAS uses Microsoft's own Remote Desktop Protocol and Remote Desktop Services role to publish applications. Parallels RAS enhances these features through its own set of application publishing features and management tools, allowing systems administrators to provide a better experience for their users. With Parallels RAS, IT administrators are able to:

- Publish applications that are installed in different paths on different servers, allowing them to publish any type of application, even if it is custom or legacy. Access to published applications can be verified prior to making the applications available to the end user, ensuring resources are available in the specified path.
- Monitor the usage of published applications and limit the number of instances, or specify when a published application can be launched by users.
- Easily implement filtering rules to restrict access to published applications using a variety of criteria: user or group, MAC or IP address, client software, gateway, and more.
- Publish legacy applications from desktop operating systems.
- Publish applications from Turbo.net public repositories. Applications run in an isolated virtual environment called a container, eliminating installation procedures, conflicts, and dependencies.
- Publish using Microsoft App-V. Parallels RAS has implemented Microsoft App-V application containers. App-V applications available on an RDSH host are shown for publishing within the Parallels RAS Console, without any additional configuration required.
- Enforce client policies. Parallels RAS offers a complete client-policies solution that can be easily configured in the console. These policies can be individually filtered by connecting gateway criteria, MAC criteria, and client type (HTML5, Windows, and more).
- Easily create templates or clone RDSH, ensuring there are always enough servers and resources available for users.
- Use RDSH auto-scaling, with an optimized number of Microsoft RDS Hosts based on the users' demand. Servers can be automatically provisioned or de-provisioned when the workload threshold is above or under a specified value. Full and linked clones are supported.

Virtual Desktop Infrastructure and Desktop Delivery

On the VDI side, Parallels RAS supports templates created with the following versions of Windows as a guest OS: Windows 7, Windows 8, Windows 8.1, and Windows 10.

Systems administrators can use the customized Parallels version of Microsoft Sysprep—RASprep—to automatically prepare and configure virtual desktops. Compared to Sysprep, RASprep is faster, thus allowing a quicker deployment of VDI desktops. Parallels RAS also supports linked-clones technology; each deployed virtual machine shares virtual disks with the parent virtual machine in an ongoing manner. This allows multiple VMs to use the same software installation, saving disk space and provisioning time.

Parallels RAS supports hypervisors from Citrix®, VMware®, Microsoft's own Hyper-V, Nutanix Acropolis, and Kernel-based Virtual Machine (KVM). This means that systems administrators can build a VDI solution using a wide range of technologies, because virtual machines can be delivered simultaneously from different platforms.

Load Balancing, High Availability, and Scalability

An out-of-the-box installation of Parallels RAS load balances all the incoming connections based on servers' CPU load and memory usage, as well as the number of concurrent user sessions each server has. It redirects the new incoming connection to the least busy server, ensuring an optimum user experience. Parallels load balancing system is configuration-free; administrators do not have to configure anything.

High Availability Load Balancing (HALB) can distribute load among the gateways based on the resources available, making front-end access highly available and improving the user experience. Load balancing is available out of the box at no additional cost and without complex network configuration or dedicated hardware.

Parallels RAS was designed with scalability in mind. Adding new components to an existing farm is very easy. Most tasks can be done via a wizard from the central configuration console, including the configuration of multisite environments.

Support for a Wider Variety of Operating Systems and Mobile Devices

End-user software deployment is one of the most problematic tasks for systems administrators when setting up an application delivery and virtual desktop solution. Parallels RAS users will appreciate that Parallels client software can be installed on popular operating systems such as Windows, Mac, and Linux. It can also be installed on any type of mobile device, such as popular Android™ and iOS phones, tablet computers, and Raspberry Pi devices, thus having bring-your-own-device (BYOD) support out of the box.

Parallels RAS provides a superior user experience on mobile devices. Administrators can create personalized keystroke shortcuts using the Parallels RAS Quick Keypad. Users can use a virtual Dumbo mouse or physical SwiftPoint mouse to transform an iPad® or iPhone® device into a workstation on the fly.

To enhance security of a Parallels RAS farm and to help end users choose secure passwords, the password policy is enforced directly on the Parallels Client side. It rejects passwords that are too simple and lets the users know whether their password meets the required criteria.

Parallels RAS also has a "clientless" HTML5 Client. Users can access published applications and virtual desktops via the HTML5 Client by using an HTML5-compatible browser, such as Google Chrome™, Firefox®, or Internet Explorer®.

The HTML5 Client includes nearly all "full client" features. With the latest version of the HTML5 Client, users are able to upload files from their local device to the server running the published application by simply dragging and dropping the files.

The Parallels Windows Client and HTML5 Client also support white labelling. Customize with a color scheme and logo so it has the same look and feel of your business solutions.

Client Management and Helpdesk Support

When working with a large and complex infrastructure, it is important to have the right tools to simplify client management and helpdesk support.

Parallels RAS provides a comprehensive client management solution for Windows 7, 8.x, and 10. Parallels RAS allows systems administrators to shadow not only their users' sessions, but also the Windows device: remotely start, shut down, lock, and log off end-user terminals. It is also possible to configure users' policies, such as disabling the use of removable drives or print screen, deploying firewall rules, and setting up a device in kiosk mode (transforming a personal computer into a thin-client look and feel).

Reporting and monitoring are vital tools for businesses. They allow management to keep track of employees' productivity and allow administrators to monitor infrastructure usage, enabling them to plan ahead and ensure they always have enough resources. Once configured, systems administrators can use Parallels RAS reporting to generate a wide variety of reports, including user session activity, devices used, session activity on the server, server health reports, and many more.

Use Parallels RAS to Enhance Your Microsoft RDS Infrastructure

As this white paper highlights, Parallels RAS allows you to enhance your Microsoft Remote Desktop Services infrastructure, enabling you to offer a superior application and virtual desktop delivery solution.

Built around Microsoft's RDP protocol, Parallels RAS allows systems administrators to do more in less time with fewer resources. Since it is easier to implement and use, systems administrators can manage and easily scale up the Parallels RAS farm without requiring any specialized training. Because of its extensive feature list and multisite support, they can build solutions that meet the requirements of any enterprise, regardless of its size and scale.