HPE Reference Configuration for Parallels Remote Application Server (RAS) on HPE Hyper Converged 380

Reduces cost and complexity of remote application delivery to any client, anywhere

Technical white paper

Contents

Executive summary

Virtual Desktop Infrastructure (VDI) can help many large-scale business and organizations simplify client image management, improve data security, and enable remote connectivity from any device and, in some cases, provide some cost savings. However, the initial up front cost of implementing the hardware, such as servers, robust storage, and networking, required to support hundreds if not thousands of concurrent users, can be substantial. Additionally, most traditional VDI and application publishing software solutions are very complex, requiring several weeks to implement and full time system administrators to manage.

Considering the initial capital expense and overall complexity involved in implementing a traditional VDI solution, it's no wonder that many cost-conscious customers, particularly small and medium business, have not adopted this traditional approach. However, with the emergence of software defined, hyperconverged platforms, such as the Hewlett Packard Enterprise Hyper Converged platforms, and affordable comprehensive virtual desktop and application publishing solutions, such as Parallels® Remote Application Server (RAS), the cost and complexity of virtual desktop infrastructure has been greatly reduced. Compared to traditional solutions, implementing Parallels Remote Application Server can save most organizations up to 70% in overall infrastructure and annual licensing costs.
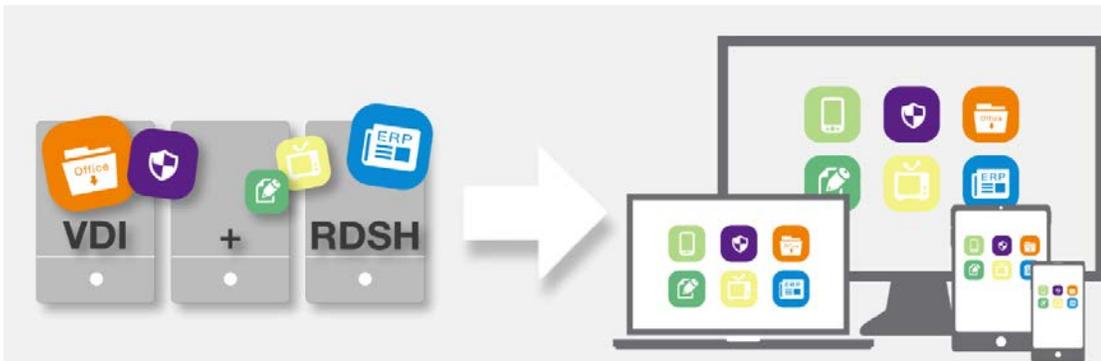
Figure 1. Parallels RAS: How applications and VDI are delivered to end users using Microsoft® Remote Desktop Session Host (RDSH)

Target audience: This document is intended for those IT decision makers as well as architects and implementation personnel who want to understand a Parallels and HPE approach to client virtualization and benefit from a pretested solution. The reader should have a solid understanding of client virtualization, familiarity with both Parallels products and VMware® vSphere products, and an understanding of sizing/characterization concepts and limitations in client virtualization environments.

Document purpose: The purpose of this document is to describe a Reference Configuration highlighting recognizable benefits to technical audiences. This Reference Configuration describes solution testing that was performed in August 2016.

Solution overview

HPE Hyper Converged Systems

Hewlett Packard Enterprise Hyper Converged systems are optimized for deploying virtualized workloads. The system integrates servers, a hypervisor platform, storage, and networking and management software in a preconfigured and optimized package. A quick customization using the HPE OneView InstantOn software enables faster time to value that is unique to the HPE Hyper Converged systems family. The user of the HPE Hyper Converged system needs to make a decision for backup and recovery of any workloads running on the system.

Traditional small to midsized businesses, enterprise remote offices, and enterprise lines of business often have IT environments that face significant challenges, such as keeping pace with changing business needs, limited IT staff, infrastructure that is difficult to deploy and manage, too many complex tools that are hard to maintain, and controlling VM sprawl. Today's idea-driven economy calls for a simpler, faster virtualization solution that can be managed by a few IT generalists, instead of many IT specialists. HPE Hyper Converged systems enable you to deploy resources quickly, simplify IT operations effectively and, in doing so, also reduce your overall costs. HPE Hyper Converged systems are:

- **Intuitive.** HPE Hyper Converged systems make managing and monitoring the system so easy that no manual is required.

- **Smart.** HPE Hyper Converged systems place the right tools and analytics at your fingertips.

- **Affordable.** HPE Hyper Converged systems make everything you need available at the lowest cost to start, scale, and protect.

HPE Hyper Converged 380 System

Figure 2. HPE Hyper Converged 380 System

For customers who are looking for a configurable, scalable, agile and highly available hyperconverged virtualization system, the HPE Hyper Converged 380 delivers a simple solution stack with extended flexibility and manageability. It builds on the powerful, industry standard HPE ProLiant DL 380 Gen9 server platform and is combined with VMware vSphere. Using the HPE OneView User Experience to add full lifecycle management, hardware provisioning and updates in a single pane of glass provides a unified, global experience. The HPE Hyper Converged 380 delivers a turn-key virtualization solution for medium-sized businesses, enterprises, and IaaS providers.

Designed from the ground up for the software-defined data center, the HPE Hyper Converged 380 enables a standardized approach to virtual server deployment, available in three workload configurations: General Virtualization, CloudSystem, and a Virtual Desktop Infrastructure (VDI). VDI is offered as a reference architecture. Unlike many hyperconverged systems, the HPE Hyper Converged 380 can be customized at the time of order and will be ready for virtualized workloads in a few simple clicks.

The HPE Hyper Converged 380 Management User Interface (UI) is designed to allow deployment and management of virtual machines (VMs). The HPE Management UI also features detailed graphical resource monitoring, alert reporting, and task status and history.

The HPE Hyper Converged 380 includes the Hyper Converged 380 Management User Interface (UI) offering the following features:

- **Virtual Machines.** Using the HPE Hyper Converged 380 Management UI you can create VMs in just a few clicks. In addition to creating VMs, you can manage VM resource templates, VM images, and OVA templates for quick deployment of VMs.

- **VM management.** The HPE Hyper Converged 380 Management UI allows you to easily manage VMs. Available functions include accessing the VM console, editing VMs, assigning users, taking VM snapshots, powering on/off, and restarting.

- **VM monitoring.** The HPE Hyper Converged 380 Management UI allows you to monitor HPE Hyper Converged 380 system resources and individual VMs. System monitoring functions include system alerts, system resources, and individual VM CPU, memory, and storage usage.

- **Solution lifecycle management.** The HPE Hyper Converged 380 Management UI provides solution lifecycle management by simplifying the upgrade process. The HPE Hyper Converged 380 Management UI and node Service Pack for ProLiant (SPP) update are all performed using one file.

- **Advanced analytics with Cloud Optimizer.** When connected, Cloud Optimizer provides additional functionality to detect and troubleshoot performance issues, optimize capacity, and predict future capacity requirements.

Details

- Built on the industry standard HPE ProLiant DL 380 Gen9 server platform

- HPE OneView User Experience integrates virtual machine management and vending, live automated server firmware updates, and operations analytics

- Compact form factor – A 2-node hyperconverged computing system in a 4U form-factor with single 2U node expansions up to 16 total HPE Hyper Converged 380 nodes in a single cluster

- Flexible pre-integrated use case choice points

  – HPE Hyper Converged 380 General Virtualization for development environments, Web/App servers and lightweight applications

  – HPE Hyper Converged 380 with HPE CloudSystem

  – HPE Hyper Converged 380 Virtual Desktop Infrastructure Persistent/non-persistent, graphics enabled

- Configurable

  - Processor – Choice of Intel® Xeon® E5 processors

  - Memory – 128GB to 1536GB

  - Storage – 3.4 TB to 40.2 TB usable

  - Graphics – selection by workload

  - Network – 10Gb, 1Gb

  - Power - Redundancy

  - Virtualization Software and Licensing

- Software

  - VMware vSphere

  - Cloud System 9

  - HPE OneView User Experience

- Easy to install, use and upgrade

  - Pre-integrated virtualization platform powered with VMware vSphere 6

  - Data services from HPE StoreVirtual

  - HPE OneView User Experience for full lifecycle management and monitoring

  - VMware vCenter for day to day management

- Hardware Availability features

  - Cluster expansion without downtime

  - Hot-pluggable HDD and SSD (SSD in Hybrid Storage Configurations only)

  - Redundant power supplies

  - Integrated storage controller with battery-backed cache

  - HPE ProLiant Integrated Lights-Out (iLO) 4 Remote Management

- Services

  - HPE Insight Remote Support delivers 24x7 secure remote support

  - Product is customer-installable and partner-serviceable

  - 3-year HPE Hyper Converged 380 solution support included for best support experience

Parallels Remote Application Server

Parallels Remote Application Server was specifically designed with hyperconverged platforms in mind. The solution's overall simplicity enables customers to control critical VDI, application streaming, printing, and reporting features, all from a simple and intuitive user interface. Its management console with an immediate and synoptic view allows any IT administrator to accomplish complex tasks easily. Intuitive wizards facilitate a fast setup, allowing IT staff to quickly and easily deploy applications and servers. Parallels Remote Application Server supports continuous availability, resource-based load balancing, universal printing, and unlimited reporting. By centralizing virtual application and desktop control, Parallels Remote Application Server enables IT staff to provide seamless mobile access while increasing security and reducing IT costs. Parallels Remote Application Server is a comprehensive all-in-one solution that can provide any organization with a simple turnkey solution and implementation methodology.

Parallels Remote Application Server Designer

Parallels Remote Application Designer is an automated tool that shows the solution topology, including Publishing Agents, Gateways, VDI hosts, and other assets.
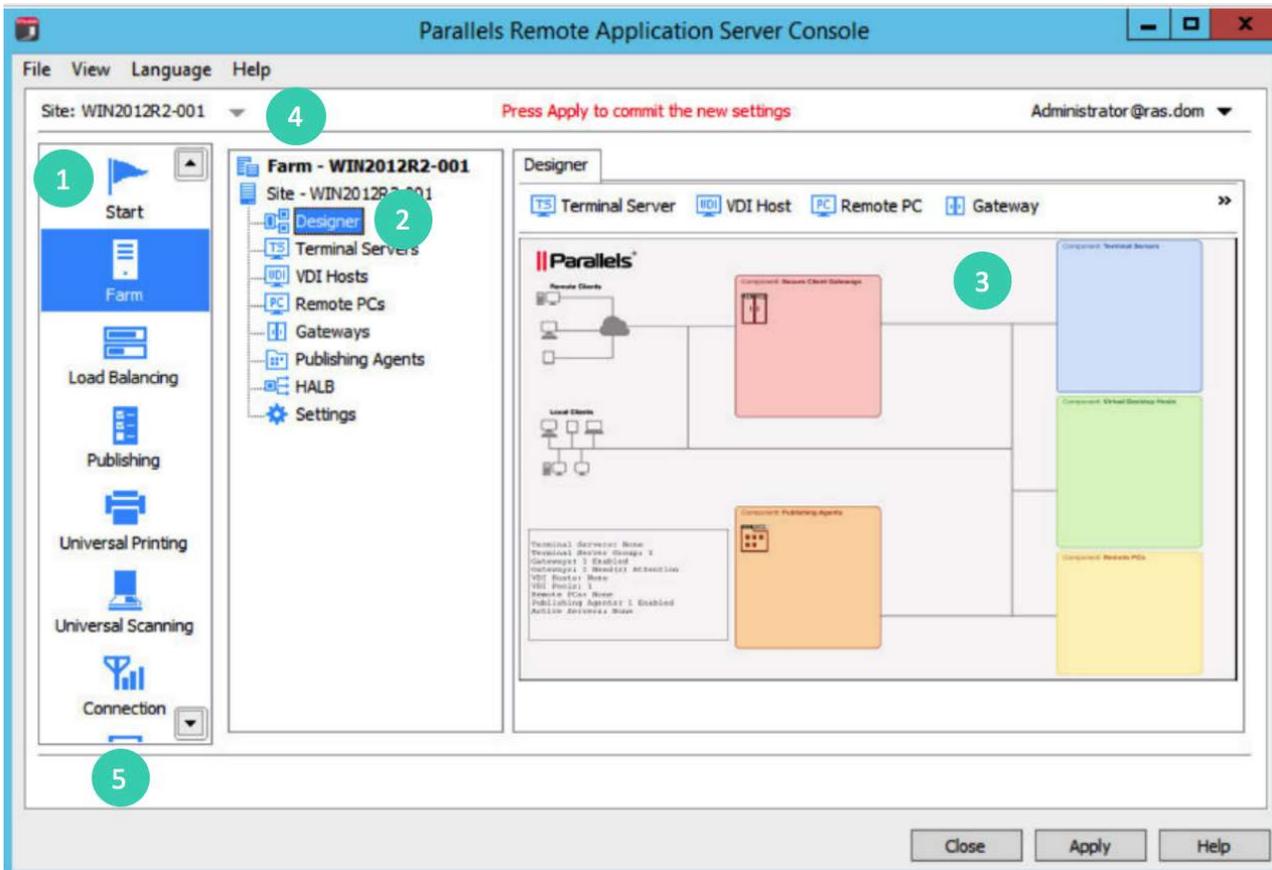
Figure 3. Parallels Remote Application Server Console general overview

Table 1. Key Elements of the Parallels Remote Application Server Console

1	This section lists categories. Selecting a category will populate the right pane with elements relevant to this category.
2	This section becomes available only for the Farm and the Publishing categories. The navigation tree allows you to browse through the objects related to that category.
3	This section displays the selected object or category properties, such as servers in a farm or published application properties.
4	This information bar displays the site you are currently logged into and the user account being used for the connection. Also note the "Press Apply to commit the new settings" message in the middle (in red). The message is displayed when you made changes to one or more objects/items, but did not commit them to Parallels Remote Application Server. Click the Apply button (at the bottom of the screen) to commit the changes. If there are no currently pending changes, the message is not displayed.
5	The information bar at the bottom of the screen is used to display the most recent console notification (if one is available).

Solution simplicity

Parallels has simplified several major administration tasks for Remote Application Server by using automated wizards. The new wizard feature fully automates the process to add new terminal servers (Remote Desktop Servers), publish applications, add gateways, and implement other solution components.

These wizards are available in the "Start" button as well as in each solution component. Therefore, these repeated tasks can be accomplished quickly and accurately.
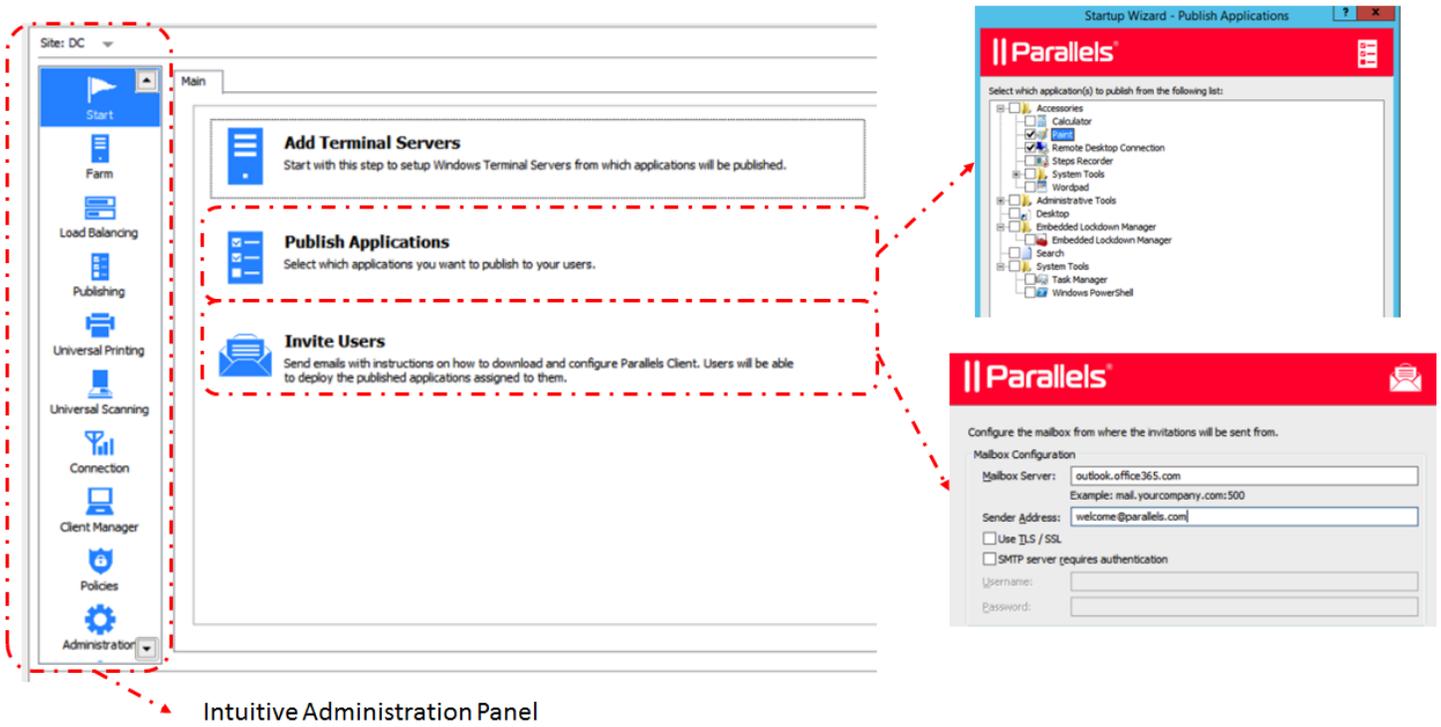
Figure 4. Wizards and simplicity to virtualize and deliver applications using Parallels Remote Application Server

The wizards also automatically install required software when a new terminal server is added. This method assures only what is needed will be installed on each server role.

Implementation

Figure 5. The implementation diagram represents initial Proof-of-Concept installation all the way to production

Solution diagram

This solution is ideal for high availability environments with more than 300 concurrent users securely connected using Secured Socket Layer (SSL) mode. Each client gateway instance should optimally handle up to 500 concurrent users. This can be scaled horizontally accordingly.

Both LAN and WAN users connect to the virtual address of a high availability and load balancing virtual appliance in an internal network.
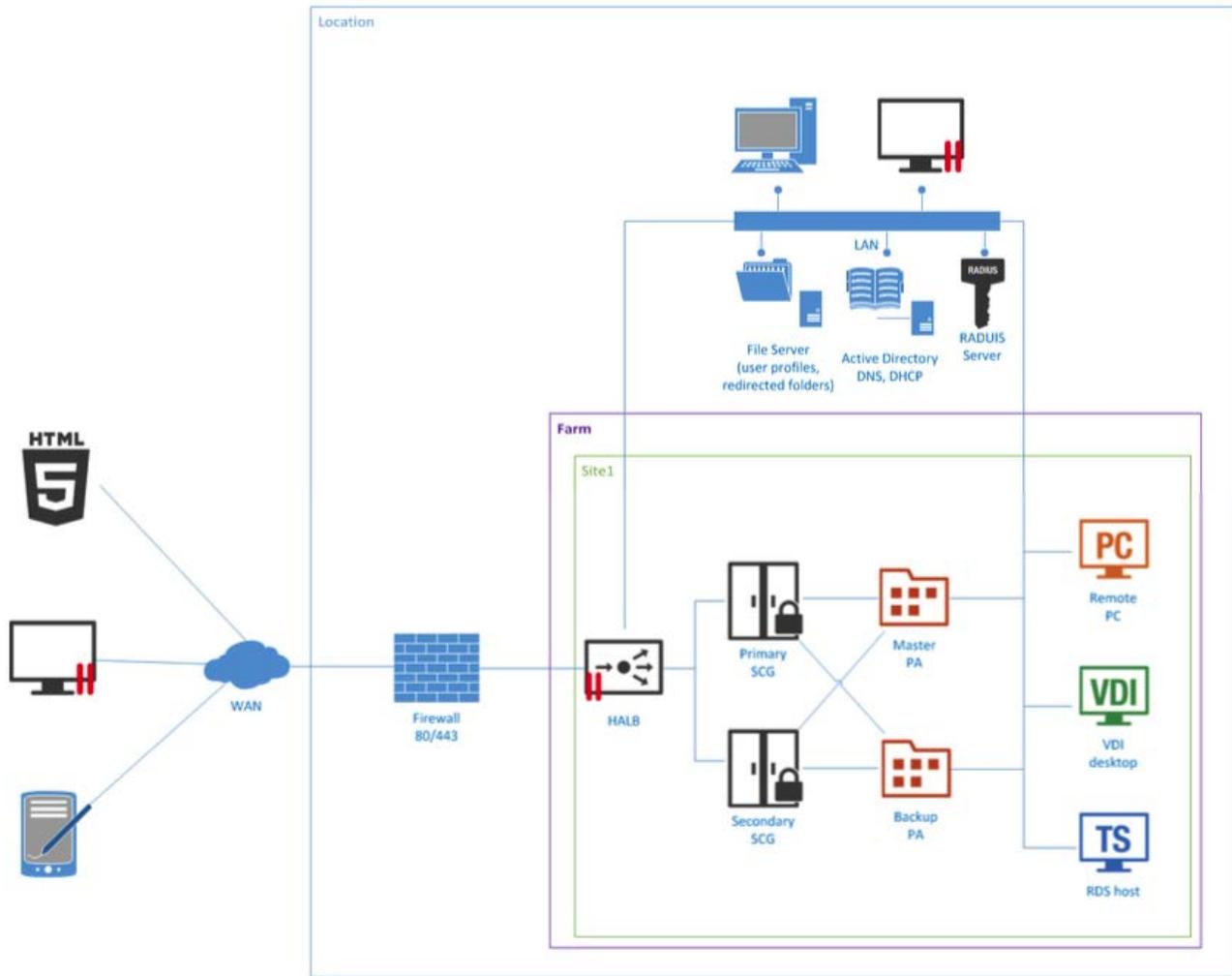

Figure 6. Typical Parallels Remote Application Server high availability deployment

Solution components

User Access is offered in three modes: web portal access, HTML5 access, or direct access using Parallels Remote Application Server Client. All modes run together, and customers can choose the best and easiest method for their end users.

Farm is a collection of Remote Application Server (RAS) components maintained as a logical entity with a unique database and licensing. A Remote Application Server farm can contain multiple sites, which can be administered by different administrators.

Site is a managing entity usually based on a physical location. Each site consists of at least a Publishing Agent, a Secure Client Gateway (or multiple gateways), and agents installed on terminal servers, VDIs, and PCs.

Administrator Console is an application installed on Remote Application Server that provides a centralized graphical user interface and enables configuration and maintenance of Parallels Remote Application Server.

Publishing Agent is a required component in every site of a RAS farm that provides access to published applications and desktop load balancing. It also keeps the farm configuration database and farm licensing if it has a master role in the first site of the farm. High availability is accessible by adding a passive publishing agent in each site.

Parallels Terminal Server Agent is an application installed on a Microsoft Remote Desktop Session Host that enables publishing of the host resources (applications and desktops). The Terminal Server Agent collects information needed by the Publishing Agent from the Microsoft RDSH and transmits to it when required.

Parallels Remote PC Agent is an application installed on a physical host (laptop or PC) or a VM that enables publishing of the host resources. The Remote PC Agent collects information needed by the Publishing Agent from the Remote PC host and transmits to it when required.

Parallels Guest Agent is an application installed in the guest operating system of a VM, which is used as a VDI template on a hypervisor. The guest agent enables resource publishing from the VDI desktops and collects information required by the Publishing Agent.

Parallels Remote Application Server Web Portal is a web page with automatic client detection and a client distribution point. It provides access to published resources via a web browser and allows portal customization for each specific organization and end user.

Parallels VDI Agent is an application (Hyper-V) or a virtual appliance (VMware and Citrix® XenServer). The VDI Agent is responsible for managing the hypervisor through its native API and exchanges information with the Publishing Agent.

Parallels Secure Client Gateway is a required component of Parallels RAS. It tunnels all traffic between itself and the Parallels Client into SSL and forwards Microsoft Remote Desktop Protocol (RDP) traffic to the Publishing Agent and HTML5 Client. Several Secure Client Gateways can work in high availability mode with Parallels high availability load balancing.

Case studies

Education

Parallels Remote Application Server provides staff, students, and faculty in educational institutions with a software solution to access virtual applications, data, and desktops securely and easily, from major hypervisors as well as Microsoft Remote Desktop Services (RDS).

Staff and students can access coursework and learning resources from home, through any device they already own, or even through a browser on a shared workstation. Parallels Remote Application Server helps academic institutions of all sizes reduce their capital and operating expenses while improving the learning process.

"I like the simple, straightforward way Parallels performs the functions it's designed to perform."

David Walker, Director of Technology, Telfair County Schools

Healthcare

Parallels Remote Application Server equips healthcare providers with a software solution that securely delivers medical applications and patient information from local to cloud. It also delivers on-the-go access to applications like EMRs, revenue cycle management solutions, CPOE systems, and imaging viewers on any device, from anywhere—at a clinic, ER, or even from home.

Additionally, it gives healthcare professionals the tools to improve patient care while saving time, enhancing security, and reducing the total cost of ownership.

"Using our Remote Application Server solution allows us to grow up rather than out."

Chris Worth, Intuitive Medical, Abilene Diagnostic

Managed Service Providers

Parallels Remote Application Server provides managed service providers with a software solution for delivery of hosted workspace services from major hypervisors as well as Remote Desktop Services. Deliver the rich hosted workspaces demanded by customers, and ease the transition from on-premises solutions to hosted services. Enhance your service portfolio with application hosting, desktop-as-a-service, and mobility solutions. Encourage customers to forget about on-premises complexities by adopting subscription-based hosted services.

"Cost savings and simplicity were the #1 benefits of the switch to Parallels RAS. Moreover, Parallels RAS offered better management of infrastructure with an intuitive and centralized dashboard."

Chris Lietz, President / CEO, Data-Tech Enterprises

Enterprises

Parallels provides an affordable and easy-to-use software solution for delivery of virtualized applications and desktops from major hypervisors as well as Remote Desktop Services. Using the Parallels solution, small and medium-sized businesses can benefit from significant cost savings and added value through employee mobility and increased productivity.

Parallels Remote Application Server is a simple and flexible solution that allows businesses to achieve a virtualized application and desktop environment without a significant investment.

"With Parallels Remote Application Server, licensing costs have significantly reduced. We are able to easily create a stable network environment that is easy to deploy and manage."

Dale Hobbs, Manager, Network and Security Systems at LUSH Handmade Cosmetics

Summary

The decentralization of resources, including applications and devices, has caused customers to rethink how to deliver an optimal end-user experience. Beyond this, user behaviors have also changed, including where they work and on what device they prefer to work. HPE and Parallels have addressed these challenges. This HPE Reference Configuration for Remote Application Server (RAS) on HPE Hyper Converged 380 builds off the strength and versatility of Remote Application Server (RAS) technology and leverages years of HPE innovation delivering client virtualization solutions. The HPE Hyper Converged 380 is ideally suited for the performance and scalability requirements of Parallels Remote Application Server (RAS) deployments requiring architectural flexibility, extreme performance, and rapid and simple scaling.

For customers looking to achieve superior VDI performance without the high cost and complexity of traditional hardware and software, the HPE Hyper Converged 380 combined with Parallels Remote Application Server (RAS) provides a turnkey approach. This combined solution provides businesses with a cost-effective methodology to scale their environments quickly and easily. Whether you support 50 or several thousand concurrent end users, the solution scales to meet the demands of your organization.

When compared to the cost of traditional virtual desktop and application publishing solutions, Parallels RAS can reduce overall licensing costs by up to 70 percent, further increasing ROI. In a very short timeframe, IT managers can publish applications and desktops using intuitive configuration wizards, and manage RDSH and VDI-hosted sessions, all from a single pane of glass. Built-in high availability load balancing features provide continuous availability, resource-based load balancing, and complete end-to-end reporting. The Parallels RAS Client supports a wide range of Windows®, Apple Mac, Linux®, Android and Google® Chrome client operating systems, enabling end users to access any application or file, from any device, anywhere.

Resources and additional links

HPE Solutions, hpe.com/solutions

HPE Converged Infrastructure Library, hpe.com/info/convergedinfrastructure

Parallels, parallels.com

Parallels Remote Application Server, parallels.com/products/ras/

HPE Hyper Converged Systems, hpe.com/info/hyperconverged

For more information on HPE OneView for VMware vCenter 7.5, visit,
https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do%3FproductNumber%3DHPVPR

For more information on HPE OneView partner integration, visit,
https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=Z7500-63235

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