Hewlett Packard Enterprise | Parallels

HPE Reference Configuration for Parallels Remote Application Server on HPE ProLiant DL380 and Microsoft Azure

Reducing the cost and complexity of client virtualization

Technical white paper

Contents

Executive summary

Virtual Desktop Infrastructure (VDI) can help many large-scale businesses 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 is no wonder that many cost-conscious customers, particularly small and medium business, have not adopted this traditional approach. However, with Hewlett Packard Enterprise platforms, and affordable comprehensive virtual desktop and application publishing using Remote Desktop Shared Hosts (RDSH) 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.

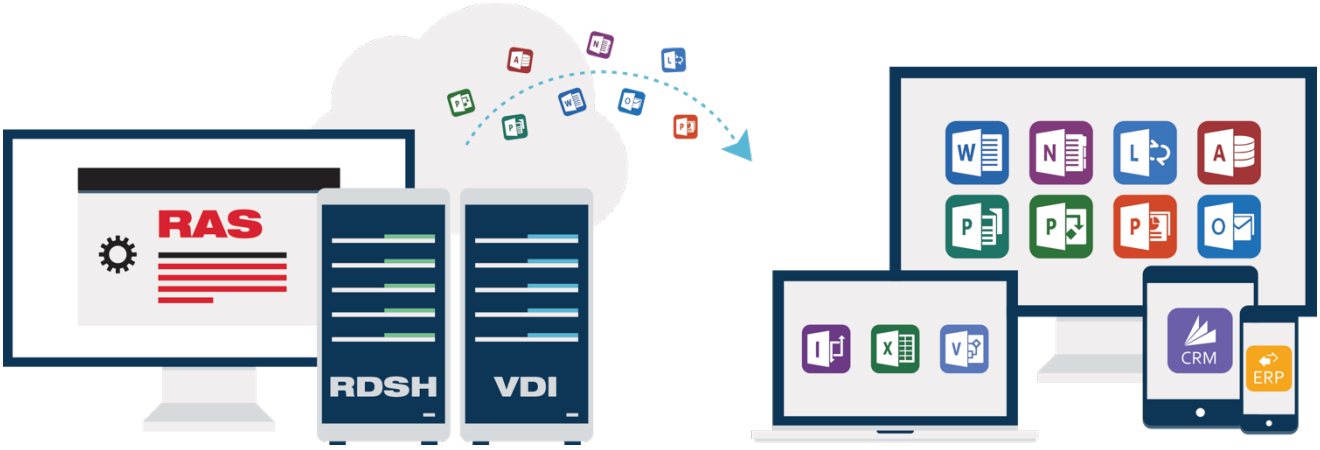

Figure 1. Parallels Remote Application Server: How applications and VDI are delivered to end users

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 Hewlett Packard Enterprise 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 November 2016.

Solution overview

HPE ProLiant DL380 server

As the world's best-selling server[1], the HPE ProLiant DL380 server is designed to adapt to the needs of any environment, from large enterprise to remote office/branch office (ROBO). With Gen9, the HPE ProLiant DL380 offers enhanced reliability, serviceability, and continuous availability, backed by a comprehensive warranty.

With the HPE ProLiant DL380 Gen9 server, you can deploy a single platform to handle a wide variety of enterprise workloads:

- Storage-centric applications - Remove bottlenecks and improve performance
- Data warehousing/analytics - Find the information you need, when you need it, to enable better business decisions

[1] This declaration was made by the CQ1'16 IDC Server Tracker as of the date of publishing of this paper.

- Big Data - Manage exponential growth in your data volumes - structured, unstructured, and semi-structured
- Virtualization - Consolidate your server footprint by running multiple virtual machines on a single HPE ProLiant DL380
- Customer relationship management (CRM) - Gain a 360-degree view of your data to improve customer satisfaction and loyalty
- Enterprise resource planning (ERP) - Trust the HPE ProLiant DL380 Gen9 to help you run your business in near real time
- Virtual desktop infrastructure (VDI) - Deploy remote desktop services to provide your workers with the flexibility they need to work anywhere, at any time, using almost any device
- SAP® - Streamline your business processes through consistency and real-time transparency into your end-to-end corporate data

The HPE ProLiant DL380 Gen9 delivers industry-leading performance and energy efficiency, delivering faster business results and quicker returns on your investment. The HPE ProLiant DL380 Gen9 posts up to 21% performance gain by using the Intel® E5-2600 v4 processors[2] versus the previous version E5-2600 v3 processors, and up to 23% performance gain with 2400MHz DDR4 memory[3]. Power saving features, such as, ENERGY STAR® rated systems and 96 percent efficient Titanium HPE Flexible Slot power supplies help to drive down energy consumption and costs.

Figure 2. HPE ProLiant DL380 Gen9 server

Microsoft Azure Cloud Computing Platform & Services

Microsoft® Azure® is an open and flexible cloud platform that enables you to quickly build, deploy, scale, and manage applications across a global network of Microsoft data centers. You can build applications using multiple languages, tools, and frameworks. Key features of Microsoft Azure include the following:

- Flexible Application Model - Microsoft Azure provides a rich set of application services, including software development kits, caching, messaging, and identity. You can write applications in .NET, PHP, Java, node.js, Python, Ruby, or using open REST protocols. This is all part of Microsoft's promise to let you build using any language, tool, or framework.
- Always On, Always Here - Build resilient applications with automatic operating system and service updating, built-in network load balancing, and geo-redundant storage. Microsoft Azure also proudly delivers a 99.95% monthly service level agreement. You can rely on decades of experience in data center operations and trust that everything Microsoft Azure offers is backed by industry certifications for security and compliance.
- Data Center Without Boundaries - Microsoft Azure makes it easy for you to integrate your on-premises IT environment with the public cloud. Migrate your virtual machines to Microsoft Azure without the need to convert them to a different format. Use the robust messaging and networking capabilities in Microsoft Azure to deliver hybrid solutions, and then manage your hybrid applications from a single console with Microsoft System Center.
- Global Reach - With data centers around the globe, a massive investment in data center innovation, and a worldwide Azure Content Delivery Network, you can build applications that provide the best experience for users, wherever they are.

[2] Intel performance testing, intel.com/content/www/us/en/benchmarks/intel-data-center-performance.html, comparing measurements on platforms with two E5-2600 v3 versus E5-2600 v4. November 2015.
[3] Memory 23% better performance is based on similar capacity DIMMs running on HPE servers compared to a non HPE server with DDR4 memory. HPE internal labs estimate. March 2016.

Parallels Remote Application Server

Parallels Remote Application Server was specifically designed to simplify and enhance Microsoft's Remote Desktop Protocol. 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 Server Designer is an automated tool that shows the solution topology, including Publishing Agents, Gateways, VDI hosts, and other assets.

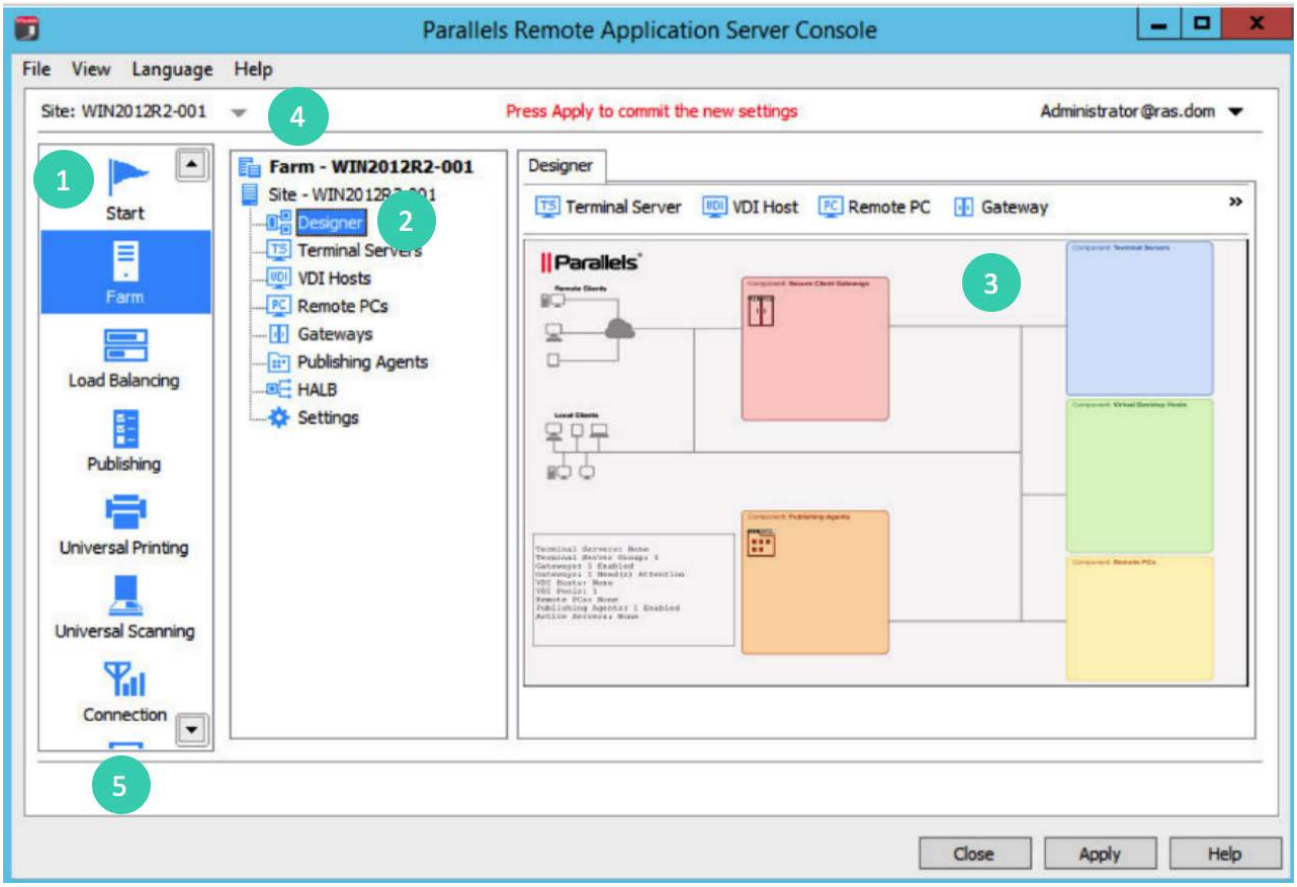

Figure 3. Parallels Remote Application Server Console general overview

Key Elements of the Parallels Remote Application Server Console, as shown in Figure 3, above.

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. Please 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.

As shown in Figure 4, 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.

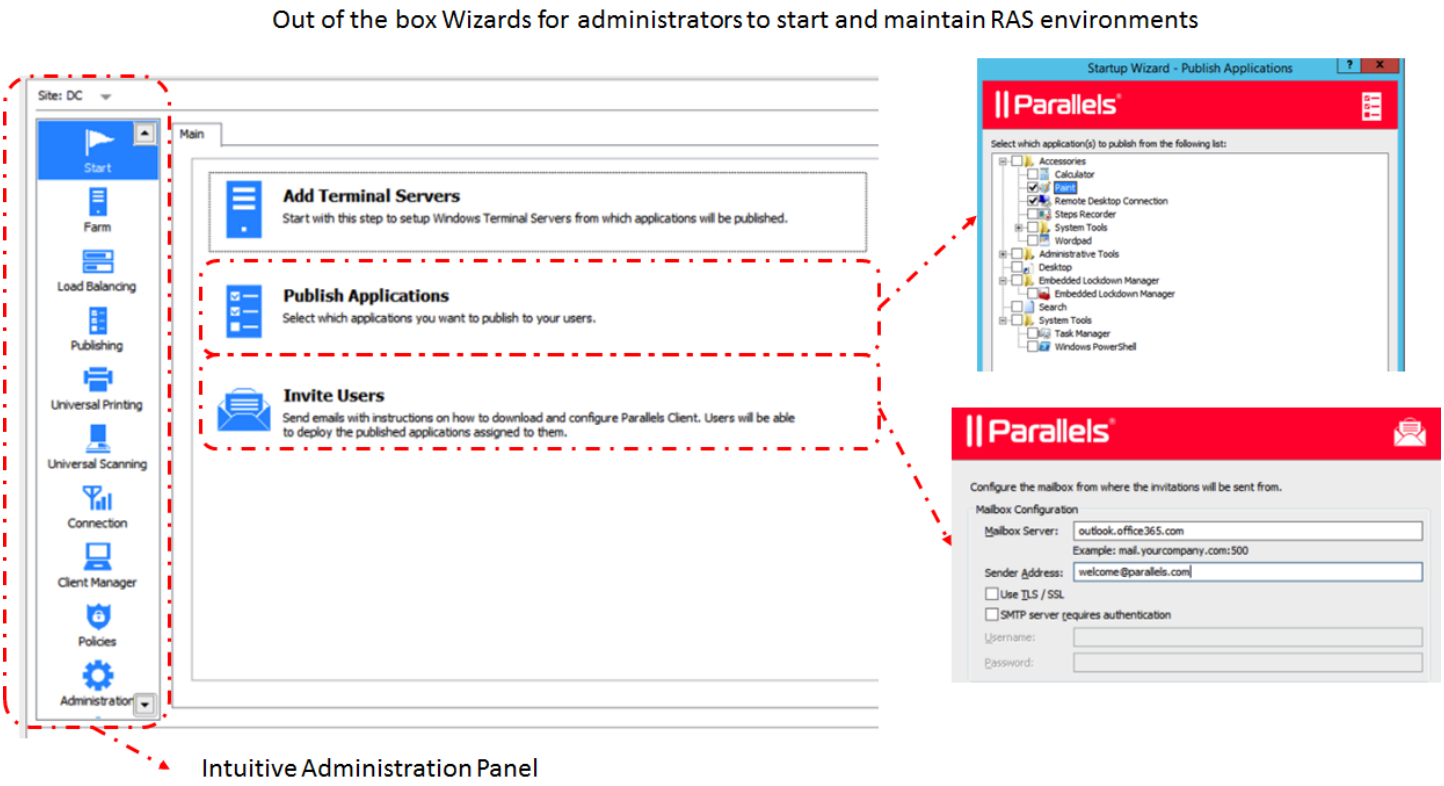

Figure 4. Wizards and simplicity to virtualize and deliver applications using Parallels Remote Application Server

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.

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 5 below, maps out a typical deployment with the HPE ProLiant DL380 Gen9 systems serving all on-premise Parallels RAS modules.

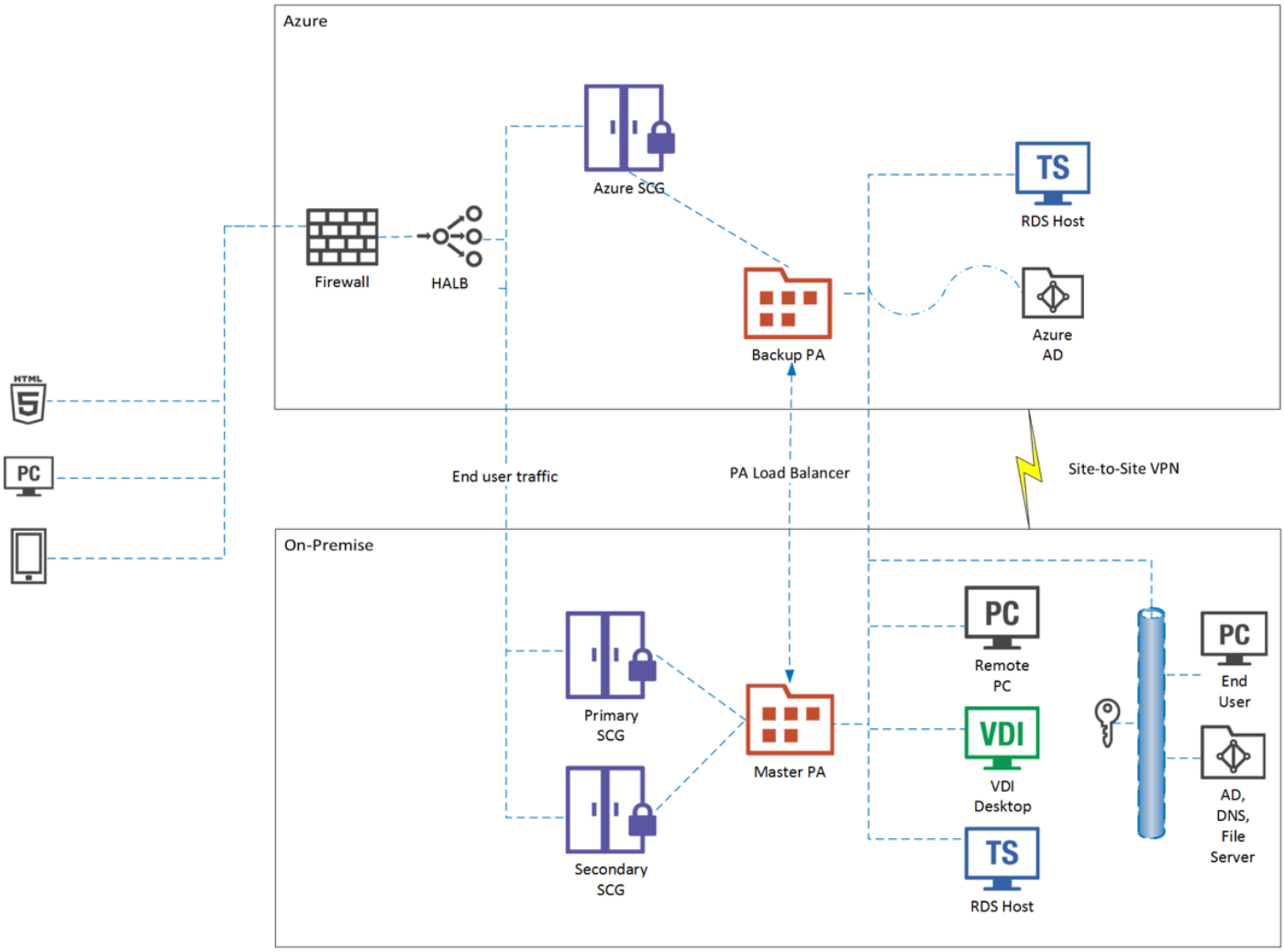

Figure 5. Typical Parallels Remote Application Server high availability deployment combining on premise HPE ProLiant DL380 Gen9 servers and Azure

Solution components

The components used for this HPE ProLiant DL360 Gen9 and Parallels RAS are described in Table 1 below.

Table 1. Solution components

Solution Component	Icon	Component installed	Installation Method
Master & Backup Publishing Agents		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.	Windows Installer (standard installation)
Primary and Secondary Parallels Secure Client Gateway		Parallels Secure Client Gateway, including HTML5 Gateway 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.	Push installation
Microsoft Remote Desktop Services Server		Parallels Terminal Server Agent 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.	Push installation
Hypervisor Host with VDI Desktops		Parallels VDI Agent 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.	Push installation or virtual appliance
High Availability and Load Balancing Virtual Appliance		Ready-to-use virtual appliance	Virtual appliance

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 on HPE ProLiant D380 builds off the strength and versatility of Remote Application Server technology and leverages years of HPE innovation delivering client virtualization solutions. The HPE ProLiant DL380 is ideally suited for the performance and scalability requirements of Parallels Remote Application Server 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 ProLiant DL380 combined with Parallels Remote Application Server 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.

Leveraging Microsoft Azure capabilities, Remote Application Server supports the use case where backend services such as Active Directory® (AD) are either deployed on premise or using Azure. Therefore, Microsoft Office 365, Azure AD, and SQL server mixed with Federation Services are supported. Azure is used either to temporary extend or grow compute capacity co-existing with HPE ProLiant DL380 systems.

Resources and additional links

HPE Solutions, hpe.com/solutions

HPE Servers, hpe.com/servers

HPE Reference Architectures, hpe.com/info/ra

Parallels, parallels.com

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

Microsoft Azure RAS Marketplace, https://azuremarketplace.microsoft.com/en-us/marketplace/apps/parallels.allinone?tab=Overview

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a00006509enw, April 2017