

Parallels® VDI Solution

White Paper

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Table of Contents

Enterprise Desktop Computing Challenges	3
What is Virtual Desktop Infrastructure (VDI)	3
Benefits of Virtual Desktop Infrastructure	4
Parallels VDI Solution	5
-Parallels Patented Technology – How does it work?	5
-Components of Parallels VDI Solution	7
Success Stories	8
Conclusion	9

Enterprise Desktop Computing Challenges

Desktop computing has become a core technology for enterprise infrastructures providing end users with a customizable and flexible environment but it has also brought a series of challenges that have resulted in high operational costs as enterprises have installed 100's or even 1000's of these devices into their IT environments. These operational costs include helpdesk personnel, IT support, maintenance, and software licenses in addition to the cost of hardware resulting in a high cost of ownership. Desktop computing has remained the technology of choice for flexibility and mobility of full-time and contract employees gaining access to their corporate environments, even when working remotely, leaving organizations with the dilemma of providing IT assets needed for productivity while looking for ways to reduce their overall IT costs.

This white paper discuss a new approach that is currently helping organizations overcome many of the limitations in today's environments while providing a flexible platform that offers the ability for broad user adoption. This approach, called the Virtual Desktop Infrastructure (VDI), provides significant cost efficiencies for managing corporate IT environments while maintaining the familiar and flexible end user experience of traditional desktop computing.

What is Virtual Desktop Infrastructure (VDI)?

The mass adoption of virtualization is one of the biggest data center transformations to hit the IT world in years. It is sweeping its way across companies as initial benefits are being realized and IT organizations are anxious to continue virtualization initiatives throughout the entire IT landscape. Server virtualization has made significant improvements helping companies consolidate resources, improve resource utilization, and enable disaster recovery solutions for server and application infrastructures. Server virtualization has already proven to reduce capital costs, lower IT operational costs, and introduce broad improvements in overall IT efficiency of production applications.

Next for virtualization is the desktop operating environment in an effort to help organizations reduce costs. As successful as server virtualization has been, the opportunity for desktop virtualization is even greater. Hundreds, even thousands, of desktops connect to a smaller number of servers and many of the same benefits of server virtualization can be applied to the desktop operating environments spread throughout organizations.

Virtual Desktop Infrastructure (VDI) is an intelligent desktop virtualization solution that delivers enterprise-class control and manageability with a familiar end user experience. With VDI the end user gets a complete, unmodified virtual desktop that behaves just like a normal PC while the organization receives the benefits of standard environments and centralized management without significant new capital expenditures. Analysis of VDI implementations has found high consolidation ratios, increased efficiencies of helpdesk and IT personnel along with the ability to deploy new clients or applications in seconds.

VDI FAST FACTS

Server virtualization has significantly improved consolidation and utilization of resources.

Virtual Desktop Infrastructure (VDI) provides benefits of centralized management while providing end-user with familiar desktop experience.

Benefits of VDI

VDI solution delivers desktops as a service to users no matter what their location is and it reduces the total cost of ownership by 70% over standalone desktop implementations while maintaining the familiar end user experience. Key benefits of VDI include:

- Centralized administration of desktops from any location reducing complexity of upgrades, patches and desktop maintenance Helpdesk and IT technicians can perform tasks in the data center and eliminate “desktop visits”
- Scalable management by storing and managing thousands of virtual desktop images on smaller number of centralized physical servers from a single management console
- Consolidated backups for virtual desktops on servers rather than distributed standalone desktops help to eliminate backup traffic from the network to improve performance
- Desktop isolation provides each user with an isolated virtual desktop and help to eliminate the availability and performance problems associated with shared application technologies
- Secure access for mobile employees and non-employees in remote locations
- Streamlined provisioning of new desktops from central server images in less than two minutes
- Optimization of IT and helpdesk personnel by reducing time spent on mundane and time consuming tasks allowing personnel to focus on mission critical activities

VDI FAST FACTS

Centralized administration eliminates desktop visits and increases efficiencies

Secure and safe environment with desktop isolation for each user familiar desktop experience.

Provisioning of new desktops in less than two minutes

Parallels VDI Solution

Parallels VDI Solution is an integrated desktop solution providing enterprise-class control and manageability to the organization while maintaining the existing end-user experience. Parallels VDI Solution is a blending of patented virtualization technology from Parallels and connection/thin client brokers to provide the following benefits:

Unmatched TCO with Significant Cost Efficiencies

- 140 desktops per server – 3x higher compression ratio than other leading virtualization solutions
- Single software copy eliminates memory bottlenecks (on 64-bit servers) while providing a small footprint of only 50-60 Mbytes per desktop
- Use of resident drivers and software provide near native server performance resulting in low operational overhead and higher consolidation ratios

Greenest Technology

- Most energy efficient solution of any VDI solution available today
- Highest density of desktop images per single server hardware
- Ability to reuse older hardware to host desktop images and save on capital expenditures

Best Manageability

- Parallels patented technology enables administrators to increase their span of control by managing larger numbers of desktops – up to 1,000 desktops per server
- Small footprint allows creation of repeatable new desktop images via standard or custom templates with limited overhead
- Scheduling of automated routine maintenance procedures, such as backup, without external software or performance overhead

Familiar & Improved End-User Experience

- Parallels patented technology provides performance benefits seen in Terminal Service implementations as well as the security achieved in traditional hypervisor deployments
- Ability to provide custom desktops through multiple levels of user access for resources and applications
- Ability to create management and provisioning templates by group
- Provision applications to specific user requirements
- Ability to change system resources including hard drive, CPU, and memory real-time to meet changing processing requirements.

Parallels Patented Technology – How does it work?

The virtualization technology powering these impressive capabilities of the Parallels VDI Solution is Parallels Virtuozzo Containers[®] (PVC), the world's leading operating system virtualization technology for Windows and Linux ecosystems. Within the typical software stack, PVC virtualizes servers at the operating system, or kernel layer, to create an isolated instance of the operating system on the physical server, as shown in Figure 1 below, eliminating the need for multiple, redundant copies of the OS for each virtualized server.

Essentially, Parallels presents a single operating system across multiple virtualized Windows and Linux servers resulting in a lean architecture that performs at levels consistent with native server hardware. Providing a single OS instance produces a lean architecture that performs at near native server performance. In today's datacenter over 85% of all servers utilize the Windows OS, the Parallels virtualization technology that powers the Parallels VDI Solution, provides Fortune 1000 companies with:

- Virtual engines that can seamlessly scale up to the resources of a physical server
- Highest density ratios available from any other virtualization solution
- Blazingly fast cache and links from a single OS enabling provisioning in seconds

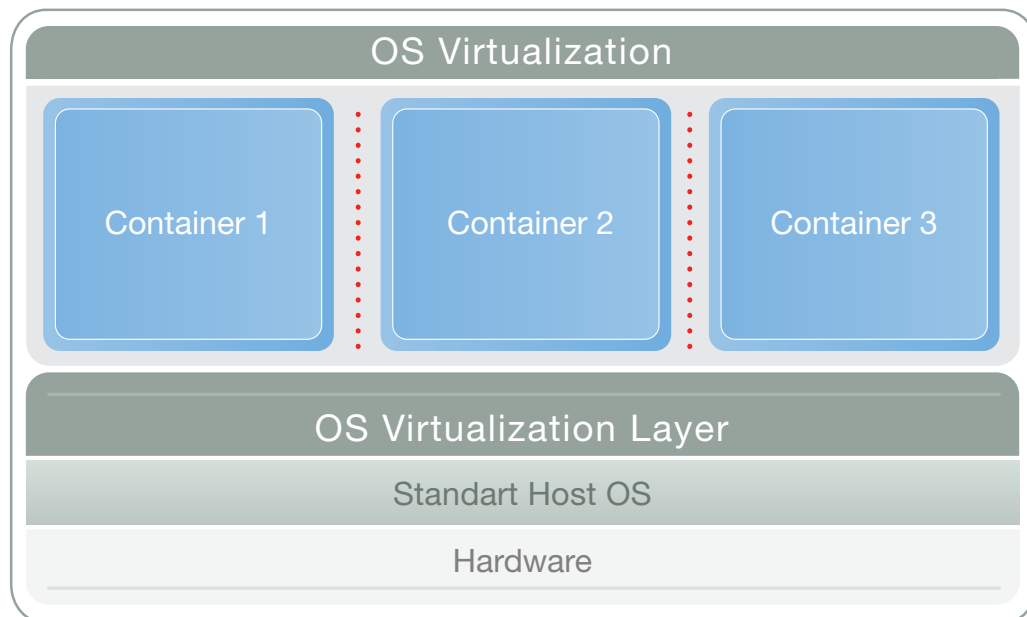


Figure 1: The Parallels OS Virtualization technology architecture that powers the Parallels VDI Solution

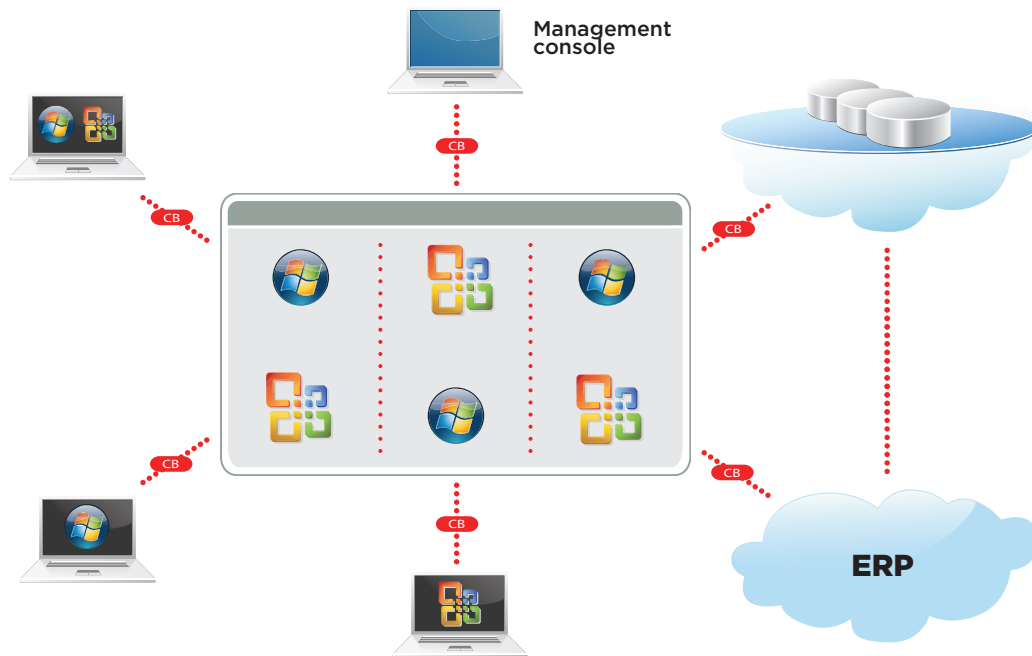
The Parallels virtualization architecture utilizes native hardware and software drivers making our architecture a hands-down choice for high I/O applications such as databases, email servers and virtualized desktop infrastructures.

Components of Parallels VDI Solution

The primary components of the Parallels VDI Solution include end user access, the virtualization engine, management tools and connection brokering between the desktop and server. Parallels partners with connection brokers and thin client solution providers that offer highly scalable services for client connectivity arbitration to VDI servers. Connection brokers for Parallels VDI Solution include: Ericom, Leostream and Quest Software. Thin client brokers include HP and Wyse.

Parallels VDI Solution provides:

- Higher workload densities – up to 140 desktops per server. 3x more than any other VDI solution
- Automated provisioning
- Active Directory integration
- Automatic cloning of Windows XP for installation on multiple computers
- Power management
- Support for application streaming
- Advanced brokering and arbitration
- Comprehensive scheduling infrastructure for automated task execution
- Enterprise-grade VDI solution with multi-platform integration
- Comprehensive lifecycle management capabilities
- Best end user experience for LAN/WAN environments



*Parallels VDI Solution Infrastructure
CB = Connection or Thin Client brokers optional*

Parallels VDI Solution Success Stories

The following customer success stories highlight the breadth of the Parallels VDI Solution and the benefits that it can quickly deliver to enterprises. For more detailed information on these other other success stories, please visit: www.parallels.com/products/virtuozzo/spotlights/

Kalido

Kalido is a data warehousing company that specializes in data for the Oil and Gas industry. With a world-wide and highly diversified development staff Kalido had some very unique challenges. With a development staff in India, the US and the UK, Kalido needed to provide a way for their highly diversified development staff to get into a centralized development server. The supporting applications and environments were extremely large and resource intense from a desktop perspective, and the traffic was huge, topping a GB in traffic daily. Kalido considered other virtualization options, but found that once the infrastructure and the supporting applications were loaded, there was no room left for actual processing. Kalido deployed a very sophisticated remote development desktop for its engineers quite successfully. The keys to this deployment were the performance and overhead gained by moving to a Parallels VDIR infrastructure.

KV Pharmaceutical

KV Pharmaceuticals was in a situation similar to most growing organizations; desktops have become unruly for the IT team to manage. The limitations of a decentralized desktop architecture were becoming insurmountable leaving KV faced with the challenge of providing high secure, easily managed user desktops. Using existing PCs and Wyse thin clients for the end user, KV designed a 1:1 user to virtualized desktop due to heavy usage and the ability to keep the configuration static resulting from the high density ratios offered by Parallels VDI Solution. Components virtualized include Office 2003 and IBM AS400 client plug-ins and a Citrix agent. Virtualizing in this manner provides the ability to run the applications externally from the desktop server and configurations and resources are easily managed requiring little adjustments during user peaks and valleys. Every single environment and application in the configuration is extremely easy to manage and maintain freeing up the administrators to work on more interesting tasks than the day-to-day desktop issues.

Conclusion

Virtual Desktop Infrastructure (VDI) is an intelligent desktop solution that delivers enterprise-class control and manageability while maintaining a familiar end user experience. VDI not only reduces costs by 70% over standalone PC implementations but additionally improves overall data and endpoint security through centralized deployment of policies, software and updates. VDI improves the work experience for IT and Helpdesk personnel by relieving frequent desktop visits and support calls resulting in time to focus on more critical business needs. Organizations implementing VDI today have reported experiencing these benefits without spending large amounts of capital for implementation and paybacks in less than 2 years.

Parallels VDI Solution contains patented technology that provides a single instance of the operating system across multiple virtualized environments providing near native system performance--ideal for I/O intensive applications such as desktop virtualization, databases and email servers. This lean architecture provides the highest compression ratios of desktops to servers (140:1) as well as supporting 100's of virtual engines on a standard physical server.

By the end of 2009, Gartner estimates that 1% of the total worldwide PC market will be managed by VDI. By 2013, Gartner estimates over 40% of total worldwide PCs will be managed by a VDI solution. This significant growth indicates the pent up demand by organizations seeking to achieve their goals of reducing cost while maintaining productivity of their personnel.

With today's spotlight on greater efficiencies, it makes sense to implement Parallels VDI Solution for your desktop infrastructure to achieve significant cost efficiencies, more efficient use of system resources, and an architecture designed for optimum performance of your desktop environment all with a payback of less than 2 years.