



Why VMware Horizon Is Better Than Citrix XenDesktop

Six Reasons and More to Choose
Horizon 6 with View to Meet Your
Virtual and Hosted Desktop Needs

WHITE PAPER

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Introduction

Virtual desktop infrastructure (VDI) technologies have become increasingly important for organizations to address the demand for greater security and compliance, workforce mobility, business agility, mobile and Bring Your Own Device (BYOD) initiatives, and operational savings. TCO advantages are driving VDI adoption as companies are looking for ways to better manage costs associated with software licenses and IT deployments as well as ongoing usage, maintenance, and technical support.

Independent research and commentary from industry analysts, implementation partners, customers, and lab reviews document the advantages of VMware® Horizon™ with View™ over Citrix's XenDesktop solution in the areas of initial and ongoing expenses, TCO, and ease of use.

VMware, the recognized leader in VDI, has now extended its expertise into the realm of Remote Desktop Session Host application publishing with its introduction of Horizon Hosted Applications that can run on the reliable, WAN-optimized PC-over-IP (PCoIP) protocol. By incorporating Hosted Application functionality within Horizon, customers have a more manageable, affordable, and feature-rich choice in meeting organizations' need for an efficient virtual desktop environment.

Horizon 6 and VMware Horizon DaaS® provide the industry's first hybrid desktop-as-a-service (DaaS) solution, giving customers the ability to blend public cloud desktops and on-premises View private cloud desktops.

In addition to this powerful new functionality, the Horizon 6 portfolio contains these important capabilities that operate equally well in all environments, regardless of size.

- AirWatch, a complete mobile device and application management solution, outshines the competition in delivering a high-quality experience to mobile users at an excellent price.
- VMware vCenter™ Operations Manager for Horizon™ facilitates monitoring desktops and hosted Remote Desktop Services (RDS) applications as well as all Horizon 6 components.
- The VMware vCenter Orchestrator™ plug-in with VMware vCloud® Automation Center™ empowers IT to provide self-service to end-user requests for applications and desktops.
- Cloud pod architecture enables organizations to scale Horizon 6 across multiple data centers and sites and supports high availability.
- VMware Mirage™ image management lets IT patch, update, and manage images for physical, full-clone virtual desktops and even BYODs.

VMware Horizon 6 is the clear choice for organizations concerned with end-user satisfaction at a reasonable price. Horizon 6 licensing typically costs half the licensing cost of Citrix XenDesktop, with equal or greater functionality. Simply put, Horizon does a better job of delivering, managing, and protecting Windows desktops, applications, and online services across devices, locations, media, and connections.

This paper discusses six primary reasons why VMware Horizon is a better choice than Citrix XenDesktop.

"The more money we can save on the IT side, the more money goes into educating these kids. That's why we're here. VMware data center and desktop virtualization solutions enable us to slash costs, accommodate district growth, and deliver outstanding customer service to students, faculty, and administrators—all without increasing the size of our IT staff."

– Brooks Moore, DCS Technology Help Desk Manager, Aledo Independent School District

1. Best VDI for Software-Defined Data Center

Horizon 6 includes View, the market-leading VDI solution. Horizon 6 also improves the integration with VMware vSphere® and its software-defined data center (SDDC) to deliver consistency in management, usability, operational savings, and optimized use of physical resources. For corporations standardizing on SDDC, View is the best choice for virtualizing the desktop.

A report issued by Principled Technologies highlighted several key benefits of Horizon with View over XenDesktop, including:

- 27 percent CapEx savings
- 57 percent less CPU utilized during antivirus (AV) scans
- 26 percent fewer IOPS during AV scans

In tests, View reclaimed 27 percent of disk space from its virtual desktop and returned it ready for general use, making more room on the datastore for other desktop images, applications, or user data. XenDesktop 7 could not reclaim any disk space.

View provides AV scans through a virtual appliance on the hypervisor rather than agents on each desktop, making it considerably more efficient than XenDesktop 7. Because the scans, [enabled by VMware vShield Endpoint™](#), are not performed at the virtual machine level, the VMware solution uses less CPU and requires less disk I/O than the agent-based Citrix solution, which performs AV scans at the slower, less efficient virtual machine level.

In addition, the integration with VMware Virtual SAN™ simplifies storage administration through automated and customizable settings, and it saves money by using local storage for Horizon deployments. Virtual SAN combines server disks and flash storage to create resilient, high-performance shared storage designed for virtual machines. Its hypervisor-converged storage software creates a persistent storage tier. Virtual SAN is fully integrated with vSphere, allowing you to manage both from the same pane of glass.

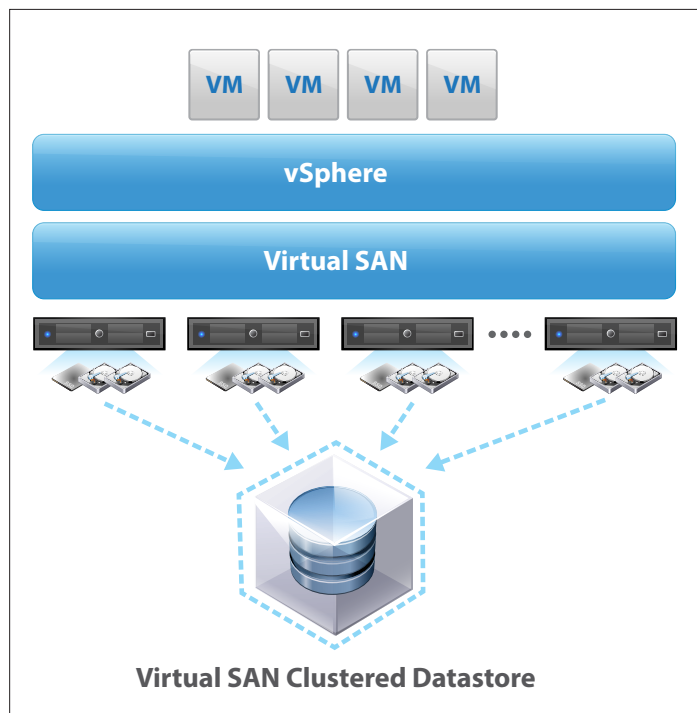


Figure 1. Virtual SAN Clustered Datastore

Third-party validation for the management strength of VMware solutions comes from both customers and analysts. Based on five key factors for measuring the effectiveness of VDI solutions, GigaOm awarded VMware the top rating in its *Sector RoadMap: Virtual desktops in 2014*, scoring highest for management tools, user experience, enterprise integration, security, deployment, and delivery models, compared to Citrix, Microsoft, Dell, and Amazon.

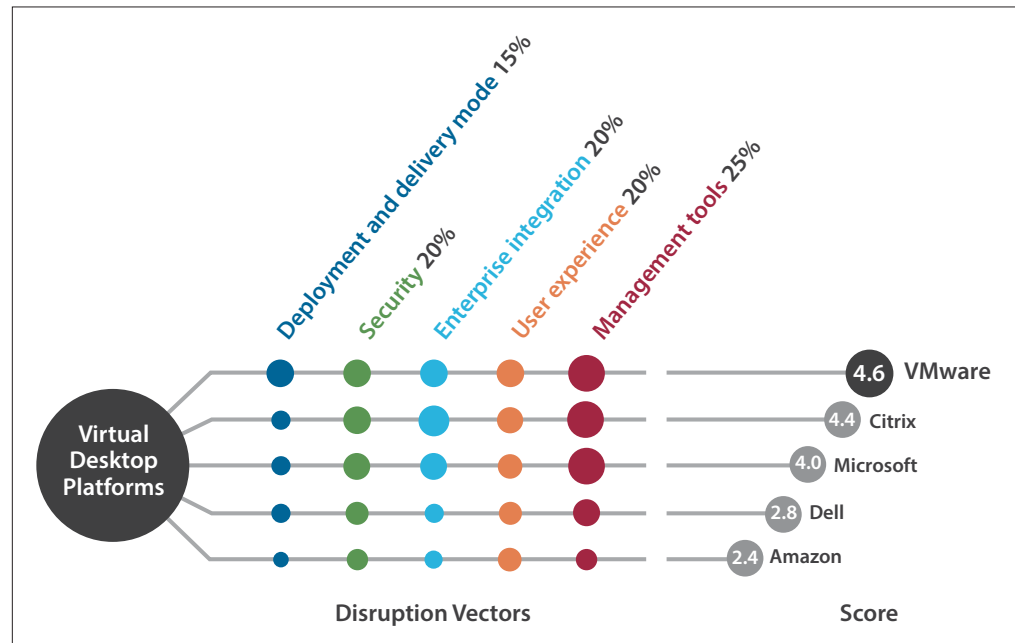


Figure 2. Effectiveness of VMware VDI Solution Compared to Other Companies

“By virtualizing our server and desktop estate with VMware, we’ve cut costs, dramatically simplified our IT infrastructure, and transformed how we support over 1,000 desktops in our service center in Dublin.”

– Paul Bermingham, Staff Vice President, Information Technology Services, Hertz International

“The benefits of using VMware Horizon with View are in hardware cost and time savings. It equals out to be about \$3.2 million savings per year for the organization. That’s money that we can put back into services for the citizens of Mecklenburg County.”

– Cliff DuPuy, Director of Technical Services, Mecklenburg County, North Carolina

“We have been forging industry links with VMware and working closely to develop cloud computing academic programs. It was through these links and the positive experience we had with VMware products previously that we decided to choose View as the desktop deployment solution and VMware vCloud Director®.”

– Irene Griffin, Cloud Computing Officer, Cork Institute of Technology

2. Superior Visibility and Control

VMware vCenter Operations Manager for Horizon is an integrated, analytics-driven management solution that provides cloud orchestration and self-service management, movement across data centers, and end-to-end visibility into the health and performance of the Horizon environment. vCenter Operations Manager provides metrics that are useful for monitoring, traceability, and step-by-step troubleshooting, and its automated predictive engine anticipates where the next issue will occur—all without third-party tools or additional charges. With vCenter Operations Manager help desk support, users can solve issues quickly and prevent them from recurring in the future.

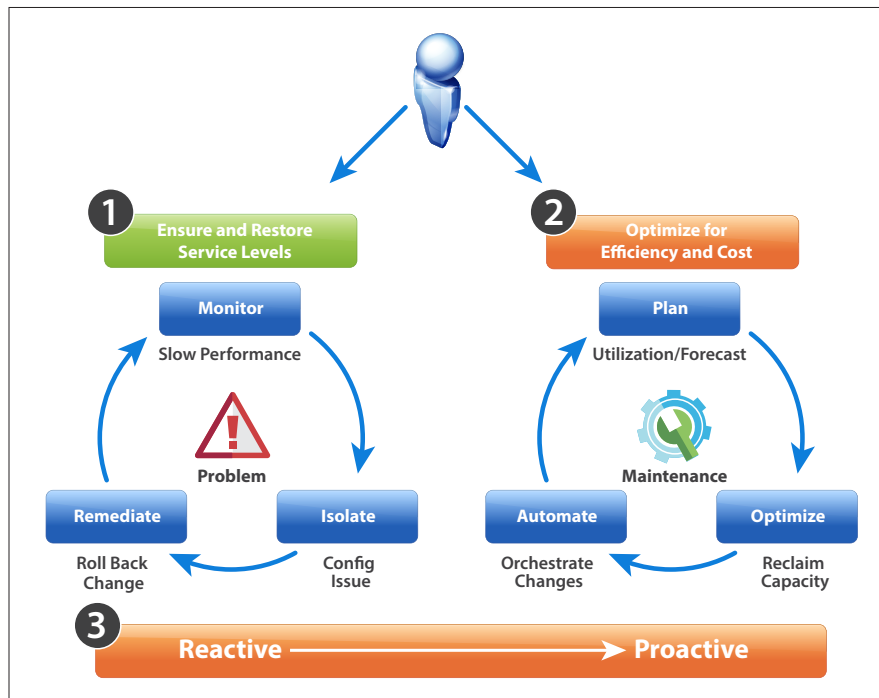


Figure 3. vCenter Operations Manager Promotes Preventive Maintenance and Efficient Problem Solving

Cloud administrators face two major tasks in making sure that the cloud is operating well: reactive problem solving and proactive maintenance.

Reactive problem solving generally begins either with a system alert or an application team facing a performance problem. The cloud administrator needs to:

- Detect the problem in the cloud infrastructure, such as slow performance in the virtual machine.
- Isolate the issue, which could be a configuration problem caused by a patch applied to the OS.
- Remediate the issue by performing actions, such as rolling back the patch.

The goal of proactive maintenance is to prevent the problem from happening. This task involves

- Planning, such as looking at usage and forecasts
- Optimization, which includes reclaiming capacity
- Using orchestration to automate maintenance events

A customer who chooses to run vCenter Operations Manager with the VMware SDDC gets complete visibility and seamless interoperation from the top of the stack to the bottom, and everywhere in between.

This type of visibility from the SDDC is not available with the XenDesktop monitoring tools, such as Citrix Desktop Director or NetScaler with HDX Insight. Root cause analysis capability is not built into either of these Citrix solutions, and XenDesktop does not provide compliance reporting or analytics.

Although Desktop Director may be a useful tool, it is not a reason to pay the premium price Citrix charges for XenDesktop when Horizon 6 with vCenter Operations Manager makes management so easy by comparison.

Citrix does not have anything that compares with the capabilities of vCenter Operations Manager, which provides superior management of VDI deployments. NetScaler with HDX Insight represents the future of Citrix's management and troubleshooting tools but at a charge of tens of thousands of dollars. To achieve the same capabilities provided by Horizon 6, vCenter Operations Manager, and vSphere, a Citrix implementation would need to bolster its native capabilities with third-party tools, such as eG Innovations and Splunk.

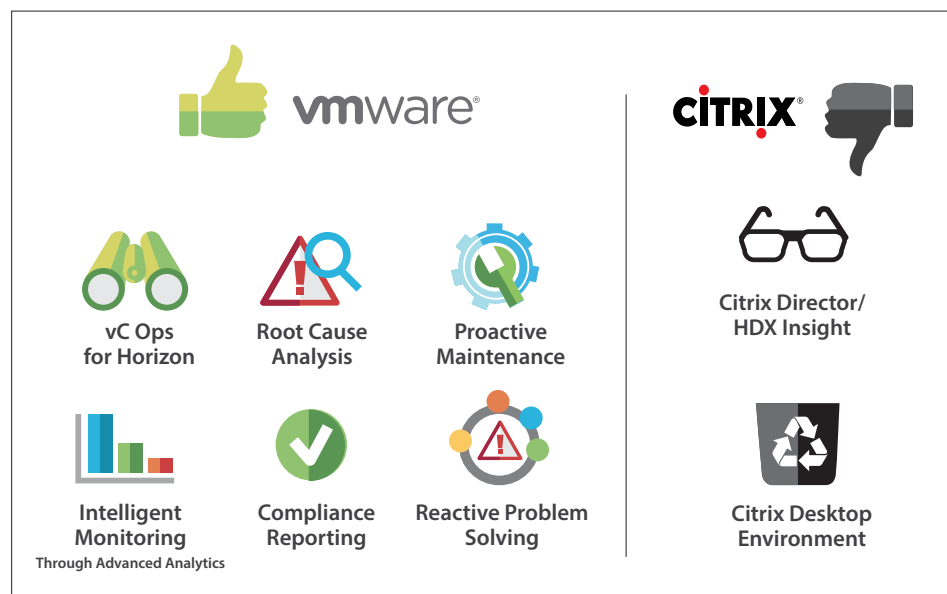


Figure 4. VMware Offers Superior Visibility and Control

"With Horizon with View, we didn't experience any technical issues when we did the [Smarter Balanced] pilot. People were concerned about audio sound quality, videos, mouse movements—things that are critical in high-stakes testing—but we saw no performance issues whatsoever in our environment. The virtual environment performed the way we expected it to, and we're very happy with the results."

– [Ryan Sicard, Director of IT, Somerset School District](#)

"V4H gives me all the data I need in one product. I can get all my specialists in the room at one time, and we get to the bottom of a problem. No more finger-pointing."

– vCenter Operations Manager for Horizon Customer, December 2013

3. Central Image Management for Physical, Virtual, and BYOD

VMware Mirage provides unified image management for physical desktops, virtual desktops, and BYODs that is second to none. Mirage simplifies management of the physical and virtual machines, drives down costs, allows IT to efficiently update operating systems and applications, and improves workplace productivity.

Unify Images with Dynamic Layering

Mirage allows IT to manage images across physical desktops, virtual desktops, and BYODs. Dynamic layering simplifies operating system and application rollouts. With Mirage, devices are separated into logical layers that can be controlled by IT or end users. IT can streamline OS and application layer updates, and end users can maintain their personalized settings. This flexible endpoint management technique enables quick software and hardware upgrades, supports efficiency, and reduces downtime.

Accelerate Windows 7 and Windows 8.1 Migrations

Mirage accelerates Windows 7 and 8.1 migrations, whether the approach is upgrading a Windows XP device to Windows 7, upgrading a Windows 7 device to Windows 8.1, or migrating an end user's profile and files to a new Windows 7 or 8.1 machine. Before beginning the migration, Mirage takes a full snapshot of the Windows system, so if something goes wrong, IT can quickly restore the end user to the previous well-known state. These capabilities allow organizations to save time and money when migrating to a new operating system. For example, the savings for a 5,000-person organization could add up to roughly USD \$600 thousand in IT time and more than USD \$1 million in user productivity gains.

Automate PC Backup and Full System Recovery

Whether you need to reimage a desktop, repair a broken hard drive, replace a lost or damaged PC, or roll back a malfunctioning PC to a previously working snapshot, restoring the desktop can be difficult. Mirage takes snapshots of the entire PC— including the operating system, applications, files, and personalization—and restores an exact image of the end user's old system to any replacement device. Self-service file recovery and “follow-me” access to files across devices additionally enhances end-user productivity.

Manage Remote and Branch Office PCs Without Added Infrastructure

Mirage excels over the WAN by leveraging deduplication capabilities, both in storage and during network transfers. This functionality gives IT a powerful tool for managing laptops and desktops used by remote offices, home workers, and traveling employees. Mirage centralizes exact copies of these endpoint PCs over the WAN and into the data center.

Extend PC Lifecycle Management Tools

Mirage augments any PC Lifecycle Management (PCLM) tool and gives IT a streamlined way to extend investments. PCLM tools can be complemented by the dynamic layering benefits and backup, recovery, and rollback options of Mirage. By extending PCLM, Mirage lowers help desk support costs, improves backup and recovery, and simplifies mass OS deployments.

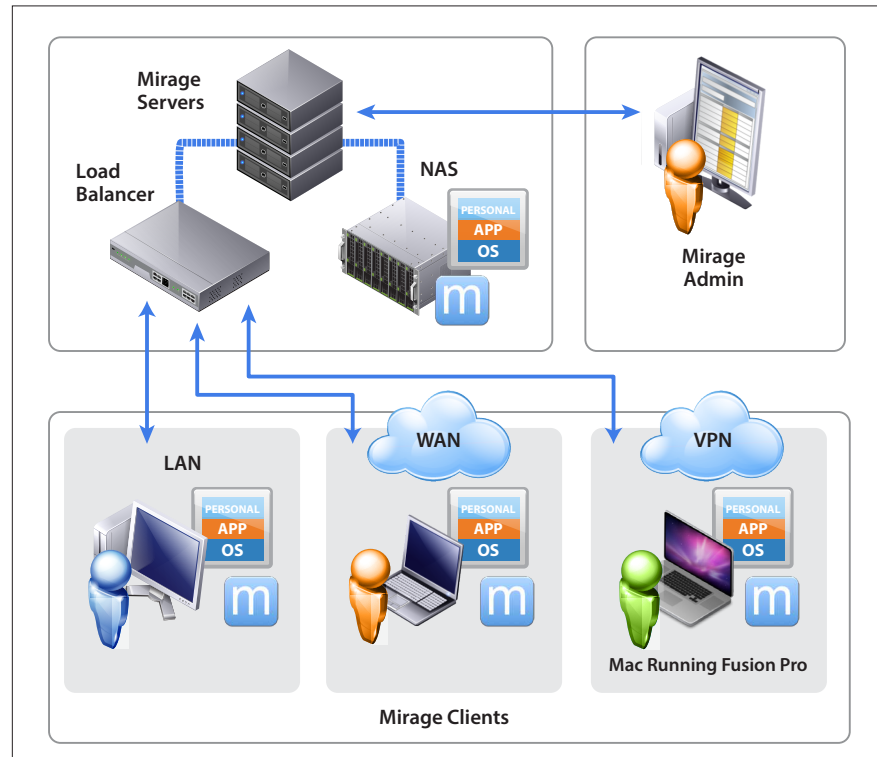


Figure 5. VMware Mirage Centralizes Image Management

Citrix has no real answer for the capabilities Mirage offers. To manage physical PCs in a Citrix environment, IT staff can piece together provisioning services, Citrix Synchronizer, and XenClient to create a solution. Even when combined, these products lack the complete image management solution for physical and virtual desktops and BYODs that Horizon Mirage offers. In addition, running XenClient has limitations in terms of hardware and driver support because it does not have an extensive hardware compatibility list. XenClient is a Type 1 hypervisor that requires a bare-metal disruptive installation, replacing the existing OS on a device.

“VMware really shines today with the Mirage offering. Mirage is leaps and bounds above anything that Citrix can offer for physical PCs.”

– Brian Suhr, [Virtualize Tips](#) blog

“Mirage is a strong offering for organizations that need to accelerate the migration to Windows 7 or improve the general manageability of highly mobile or fully remote laptop users.”

– Gartner analysts Terrence Cosgrove and Federica Troni in [Containerizing the Enterprise Desktop With Client-Hosted Virtual Desktops](#)

“Using VMware Mirage technology has revolutionized the way our IT department operates. We’re able to have a team of just three manage the laptops of over 1,000 employees, so it’s amazingly cost effective. We get fantastic feedback from everyone— from end users to our efficient IT staff.”

– [Alexander Smirnov, Senior Director of Global Strategy Planning, Mellanox Technologies](#)

“With Mirage, we were able to migrate over everything that made that desktop personal to our users. ... IT was able to separate the IT images on the desktop PCs from the user space—applications, files, and personalization.”

– [Stefan Brandstetter, IT Manager, ADAC e.V.](#)

4. Choice of On-Premises or Cloud Deployment

Horizon 6 and Horizon DaaS comprise the industry's first true hybrid DaaS solution. Horizon DaaS gives customers the ability to blend VMware public cloud desktops on vCloud Hybrid Service, cloud-hosted desktops from VMware Horizon DaaS Powered Service Providers, and View private cloud desktops for a seamless end-user experience. Following a few simple steps, IT can provision, deploy, and manage high-quality, full Windows desktops to end users that can be accessed from laptops, desktops, zero or thin clients, Google Chromebooks, tablets (Apple iOS, Google Android), and mobile devices.

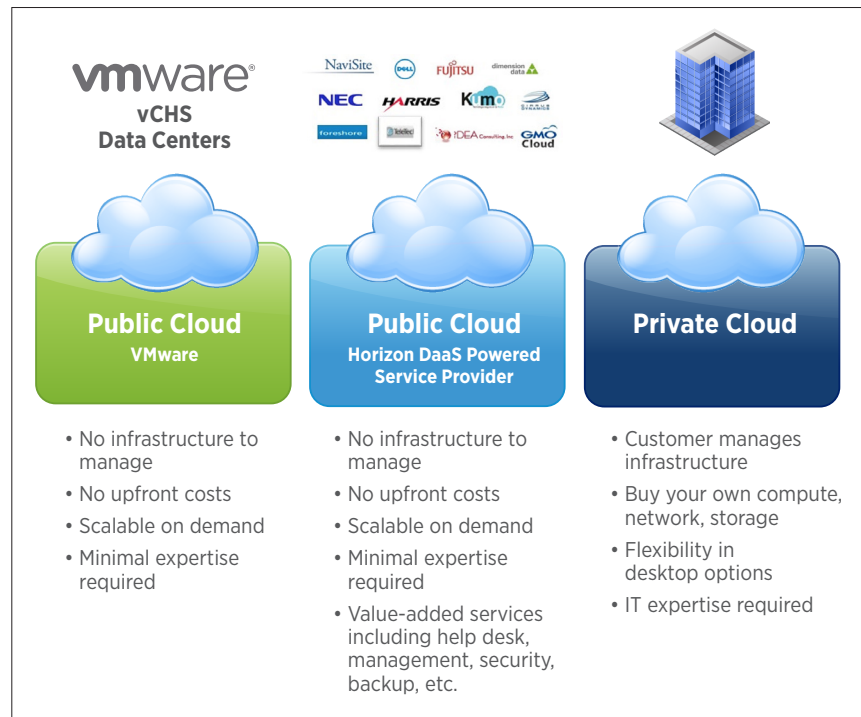


Figure 6. Horizon DaaS Allows Customers to Blend Desktop Environments

Unlike other DaaS solutions, which offer either Windows Server or RDS environments, Horizon DaaS supports both types of desktops in addition to full Windows client desktops, all at an affordable price.

The Citrix infrastructure-as-a-service (IaaS) solution does not compare to Horizon DaaS. The Citrix platform allows service providers to stand up a DaaS service, but the customer cannot buy a cloud-hosted desktop from Citrix—which is available today with Horizon DaaS.

“Modernizing the desktop infrastructure gives our technology teams greater mobility and access to solutions that serve students and student-facing advisors.”

– Claudiu Budurlean, Director of IT, Client-Computing Architecture, Apollo Education Group, Inc.

“With vCloud Hybrid Service – Disaster Recovery, we do not have to spend capital to build a virtual infrastructure somewhere else. We’ll be able to offer our customers significantly better RPO and RTO without any additional costs.”

– Jerry Sanchez, Vice President of Hosting Operations, Planview

5. Workspace Aggregator: More Choice for End Users

Horizon is the only end-to-end solution for delivering and managing desktops, applications, and online services to end users across virtual data centers, virtual machines, and physical devices.

Customers can take advantage of VMware Workspace™, which provides users a convenient portal from any device to access applications and virtual and hosted desktops. Workspace offers:

- Consistent cross-device user experience
- A responsive HTML5 portal that supports PC and Mac desktops and iOS or Android devices
- Easy customization to match a customer's branded look and feel

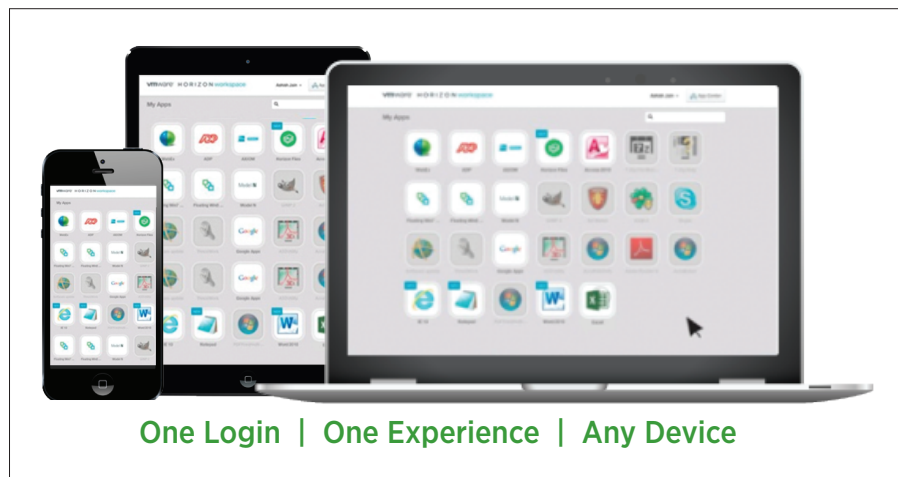


Figure 7. VMware Workspace Provides End Users Access to What They Need with One Login

Workspace is vendor-agnostic. Users have self-service access to:

- Remote apps, Web apps, and SaaS apps
- VMware ThinApp® applications
- Windows apps and packages
- VDI desktops
- Hosted server desktops

With the introduction of Blast Experience with Unity Touch, VMware broke away from the pack by providing what some say is a “better than native” user experience, making it easier to run Windows applications on iOS and Android devices. Accessing Workspace on a mobile device with VMware Horizon Client™, Unity Touch bridges the gap between touch screen and Windows applications. Unity Touch enables browse and search functionality, and it makes it easy to open Windows applications and files, choose favorites among them, and switch between running applications without using the Start menu or taskbar.

Citrix continues to introduce different user experience metaphors with Receiver and Worx Home. These separate products for desktops and apps and mobility increase complexity rather than simplify, because they require separate infrastructures, logins, and user experiences.



6. Highest Customer Satisfaction and Best Value

Customers as well as independent surveys and third-party reports consistently rate VMware as the best value for virtualization, with the highest level of satisfaction.

In a [report published by the Temkin Group](#) on Net Promoter Scores (NPS), VMware placed first out of 54 vendors. The report considers the NPS an indicator of both customer loyalty and overall customer satisfaction. By contrast, Citrix scored in the lower half of the group, indicating that Citrix customers are less likely to recommend Citrix products and services to others.

Here are just some of the time- and money-saving results reported by VMware End-User Computing (EUC) customers.

- **Higher operational efficiencies** – Bank of Tokyo-Mitsubishi has eliminated 32,500 man-hours a month of security updates.
- **Greater productivity** – Mecklenburg County, North Carolina saves \$1.2 million per year as a result of increased productivity.
- **Great user experience** – North Carolina State University supports one of the top-20 game-design programs in the country.
- **Excellent service levels** – The United States Central Command reports 100 percent uptime.
- **Lower costs** – Colt, a European IT and network services provider, cut CapEx by 22 percent per year.

“The success of the desktop virtualization project was made possible by the cooperation of VMware as a company, involving its people both here in Japan and at its U.S. headquarters. We have built a strong relationship of trust with them, and see them not just as a supplier but as a reliable long-term partner.”

– [Jun Nishii, Bank of Tokyo-Mitsubishi UFJ](#)

“These findings show that View 5.2 delivered comparable density [to Citrix XenDesktop] at a 41.1 percent lower cost per user, making it an excellent choice for a company that wants to deliver a high-quality experience to users at an excellent price.”

– Principled Technologies Report, May 2013

Additional Advantages

Beyond these six clear reasons to choose Horizon over Citrix XenDesktop, consider these additional advantages.

Superior Network Integration

VMware and F5 Networks have developed a joint solution and partnership to provide best-of-breed VDI and network integration. F5 is the leader in the application delivery controller market—far ahead of Citrix NetScaler. The integration of Horizon and F5's BIG-IP Access Policy Manager (APM) brings a new level of security capabilities to a virtual desktop deployment.

The F5 BIG-IP family optimizes applications running on vSphere to provide load balancing of virtual machines, acceleration for WAN connections, access security for end users, and traffic redirection between sites and clouds.

BIG-IP solutions reduce virtual application infrastructure costs while increasing performance, scalability, availability, and security.

VMware Mobile Device Management Leadership

With the acquisition of AirWatch, VMware now offers the market-leading mobile device management (MDM) solution, with the largest installed base, highest product quality, and most scalable architecture in the industry. This solution features immediate support of new device operating systems and a fully integrated, unified, single-pane-of-glass management system. Citrix's MDM, by contrast, is a complex deployment with loose integration and confusing licensing.

Summary

VMware Horizon with View is the most trusted, functional, and highly performing VDI solution available, providing superior hypervisor integration, greater ease of use, lower cost with comparable functionality, and a better user experience. Industry analysts and independent reviewers agree that Horizon is the best choice.

- Horizon 6 delivers greater value and greater efficiency than Citrix through its integration with the VMware SDDC.
- Horizon 6 provides visibility and control that is superior to anything Citrix offers, with closed-loop management via vCenter Operations Manager for Horizon.
- The Mirage central image management for physical and virtual desktops and BYODs exceeds the capabilities of Citrix's disjointed image management solutions.
- Only VMware supports a true hybrid DaaS solution for cloud, partner, and on-premises DaaS. Citrix does not offer DaaS with any of its solutions.
- VMware Workspace is a superior, vendor-agnostic portal, with self-service access to thousands of apps and extensive support.
- View, now part of Horizon, has demonstrated superiority to Citrix in customer satisfaction and value by placing first for four years in a row in [Virtualization Review's Readers Choice Awards](#) and placing first out of 54 vendors in [Temkin Group's Net Promoter Scores](#).

VMware Horizon delivers the most advanced functionality, highest end-user satisfaction, and better value than competing solutions.

