Three areas where Citrix XenApp and XenDesktop outperform VMware Horizon

Better for users. Better for IT. Better for your business.

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Citrix has been delivering virtualized apps for more than 25 years, while VMware is just getting started. In fact, in their haste to deliver a product, VMware has left out some of the "no-brainer" features that XenApp and XenDesktop users and admins have been using for years. Take a closer look at the products and you'll understand the difference.

App virtualization has become central to IT strategy across every vertical, enabling the mobility, flexibility and efficiency needed to succeed in today's competitive markets. In fact, 96 percent of the Fortune 500 trusts Citrix to deliver apps wherever people choose to work, on whatever device they use. The rapidly growing mobility market has understandably drawn new interest from vendors—a welcome development for customers, as competition drives faster innovation, better pricing and more options. However, these latecomers tend to struggle to bring their solutions up to speed, even for such basic requirements as microphone, camera and USB devices beyond mass storage. The inadequacies of VMware Horizon offer more than one reason that Citrix XenApp and XenDesktop continue to set the standard for application virtualization.

There are many questions to consider when selecting an application virtualization and VDI solution, but at the end of the day three matter more than the rest:

1. Can it deliver the rich, high-quality experience users depend on to be fully productive?

2. Will it help your organization protect corporate data, comply with security regulations and reduce risk wherever people work?

3. Does it make management simple, flexible and efficient so IT can focus on strategic initiatives?

With XenApp and XenDesktop, the answer to all three questions is a resounding yes.

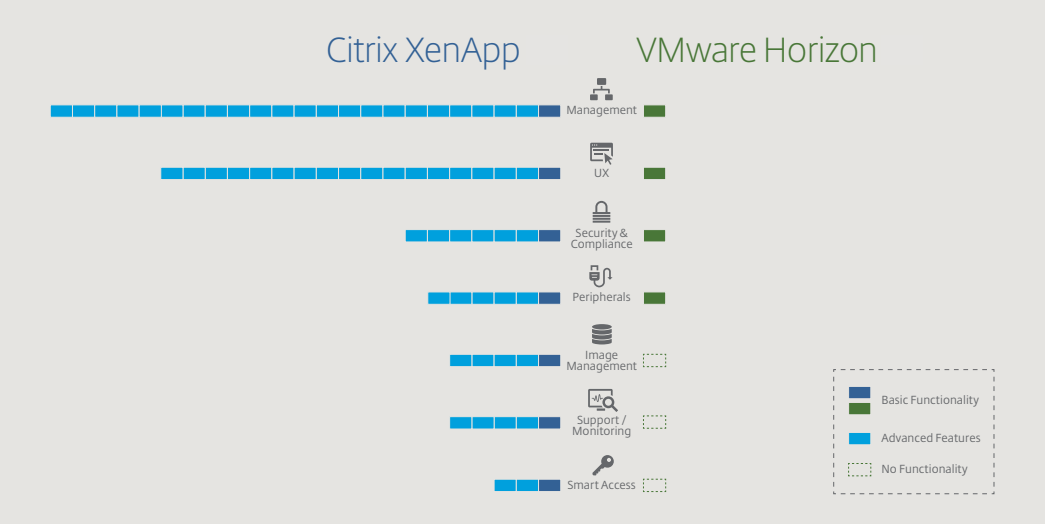
The difference in application virtualization

Used by more than 100 million people worldwide, Citrix XenApp enables any Windows® application to be virtualized, centralized and managed in the datacenter, and instantly delivered as a service to users anywhere on any device. Citrix XenDesktop incorporates the full functionality of XenApp as well as supporting a variety of desktop virtualization models including VDI, hosted shared desktops (HSD), streamed virtual hard drive and more. There are many reasons Citrix XenApp and Citrix XenDesktop meet the needs of mobile businesses and users better than the competition, but this paper will focus on the areas that matter most to your business: user experience, security and management.

1. Can it deliver a rich, high-quality user experience?

Go mobile with unified communications

Because communication is central to collaboration and productivity, Citrix has built full support for unified communications into XenApp. People connecting from Windows, Mac and Linux endpoints, including thin clients, can use Microsoft Skype for Business, Lync and Lync Online as a seamlessly integrated part of their session. This is true no matter which delivery model is being used—VDI or virtual app—allowing IT complete flexibility without constraining features like call forwarding, on-screen dialing, call park and pickup, and announced or unannounced transfer.



The new HDX RealTime Optimization Pack, jointly developed and supported by Citrix and Microsoft, provides a user interface and experience equal to a natively installed Skype for Business client on the endpoint—one reason Brad Anderson, corporate vice president at Microsoft, recommends Citrix for Skype for Business in a VDI environment.

By comparison, VMware supports unified communication only for VDI desktops on Windows, leaving people who choose other types of endpoints unable to use their company's Skype phone system—a significant limitation in this era of employee freedom of choice. IT organizations seeking to extend VoIP to mobile users are forced into a VDI-only box, losing the flexibility to choose the best delivery model for each user profile and use case. Instead, VMware leaves you stuck with the most expensive model. The VMware VDI plug-in also fails to support all Skype/Lync features and provides a proprietary UI, resulting in an inconsistent user experience across platforms.

Work intuitively

Nothing disrupts productivity like having to stop and think about all the things you need to do differently while mobile—or that you can't do at all. XenApp provides a seamlessly integrated experience that lets people work the way they usually do, no matter where they work or how their apps are delivered. To begin working with a file, they can simply click on it. If the associated app isn't installed on their local computer, XenApp will recognize the file type and launch it

within the virtual environment. Citrix-based Windows, SaaS and web apps are all integrated into the Windows Start menu for easy access. As Windows Aero Glass returns in Windows 10, XenApp supports Aero app switching across apps of all types as well. Simple, high-performance access to local files stored on Windows, Mac and Linux devices, or accessed using an HTML5 browser via Citrix Receiver, helps people maintain a fluid work experience.

People using non-traditional endpoints or working outside the network often sacrifice the ability to use peripheral devices. With XenApp, the peripherals connected to the user's end-point are mapped into the session—even for Linux-based devices—enabling full support for USB, LPT and COM-based devices for a truly complete experience. Chrome OS users can make full use of their USB-based devices. When it's time to collaborate, people can use their web-cams and microphones to participate in high-definition online meetings just as they would with a traditional PC.

By comparison, VMware didn't make it very far down the list of basic user necessities. People still have to launch their own apps one-by-one—especially if they want to open a file; with no file type association, clicking on the file itself won't do any good. While Horizon does allow access to local files, users are required to perform manual configuration first. Even then, file access is up to four times slower than XenApp in WAN scenarios.

Horizon also limits USB redirection to storage devices on Windows and Mac endpoints, not barcode scanners, cameras or other high-value devices for mobile users. When it's time for an online meeting, Horizon's lack of webcam and microphone supports leave its users to seek alternate ways to communicate.

Enjoy the best experience on any device

Shifts in user experience can be distracting and disruptive as people change devices. With XenApp, people can choose to have their touchscreen devices act more like Windows laptops by using the two-button Citrix X1 Mouse—the only Mouse available for the iPad—to interact with their Windows apps. The X1 Mouse also enhances session portability by letting people use iOS devices as desktop replacements: a mobile user can begin a session on an iPad while in the field, and then connect it to a keyboard, mouse and monitor on returning to the office for a native desktop experience. For users who prefer a mouse-free approach, XenApp also provides touchscreen optimizations that provide a convenient, full-function experience for Windows apps on mobile devices.

With Citrix Receiver, people get the same look and feel on any device, with all the same apps listed in the same order. This includes IT customizations such as corporate branding and messaging, as well as legal acceptance popups, application request and approval workflows, and other functional extensions. Customizations can be created centrally and applied to all Citrix Receiver clients everywhere automatically.

VMware provides three different ways to access Horizon resources, each with a different look and feel. One can be fully customized and provides workflows, but doesn't integrate with the native Horizon client—so users need to open a browser to access it. It also requires third-party network components for external access. The other two methods do integrate with native clients and provide built-in remote access, but they allow little or no customization. User app subscriptions aren't replicated across methods, forcing annoying duplication—or triplication—of effort. As a result, users can feel like they're constantly changing worlds depending on their current device or location—hardly the seamless and transparent work experience they deserve. The lack of a mouse for the iPad greatly limits the utility of the popular Apple tablet so that it becomes more of a toy than a true business tool.

Use any network without compromises

Anywhere, any-device productivity shouldn't be a hit-or-miss proposition. Citrix solutions are designed to ensure a near native or better experience for whatever apps people need to use, wherever they need to work. Building on the superior image quality and ultra-low bandwidth usage of the Citrix ICA protocol, XenApp ensures near-native app performance even over high-latency, high-packet loss networks, as well as over very low-bandwidth connections of 128kBit/second or lower, eliminating the frustration of working in challenging scenarios. For demanding CAD and engineering apps, the Citrix solution provides 3D acceleration through virtual GPUs for smooth visual performance. For users, that means never having to think twice before launching an app—it always just works.

For Horizon users, on the other hand, performance limitations are an inescapable reality of remote access. They can usually hope for good-enough performance in a good network scenario, but anything more challenging—like fixing a design file on a tablet in a crowded café, or viewing a presentation in a conference ballroom—is bound to end in frustration.

Print faster than you thought possible

People shouldn't be punished with poor performance every time they need to print something out. XenApp makes printing to local and network connected printers painless through a highly efficient universal printing engine. By making intelligent decisions about what needs to be sent down the wire and eliminating duplication of logos and other repeated elements, the solution reduces the size of print jobs by up to twenty times for much faster printing times.

Lacking such optimizations, Horizon leaves users to suffer through endless print queues and the unresponsiveness that can be triggered by even medium-sized jobs.

2. Will it help your organization protect corporate data, comply with security regulations and reduce risk?

Enforce granular security controls

Business mobility involves two equally crucial requirements: empowering people to do more things in more places—while also making sure they don't put the business at risk. With the

SmartAccess feature of XenApp, you can define granular, scenario-based controls and filter apps based on user context to ensure compliance with even strict security regulations without unnecessarily limiting people's experience. For example, you could configure an HR app to be accessible only from a certain part of your building to keep employees' personal information from leaking; prevent access to financial data over public networks to protect data from snooping eyes; designate certain data to be downloadable only to devices with an encrypted hard drive; and filter the content and direction of clipboard mapping.

iOS jailbreak detection provides an additional layer of protection for mobile devices even without the use of an enterprise mobility management (EMM) solution. When Citrix Receiver for iOS detects that a device has been jailbroken, admins can choose to block access to published apps and desktops, or else allow the user to dismiss and continue.

VMware has tried to match SmartAccess with its Smart Policy feature, but it falls far short. Only a small number of basic settings are available, and policies can be applied only across all of a user's session, not on an app-by-app basis. A user's apps and data are either accessible, or they aren't—and in most cases, that means blocking apps in scenarios that wouldn't have put them at risk in the first place. VMware does offer jailbreak detection with its AirWatch product, but that's one more tool to buy and integrate—while Citrix offers this essential measure as a built-in feature.

Achieve full auditability for compliance and protection

IT often needs to be able to track and recreate specific user sessions for compliance as well as for troubleshooting. Only XenApp provides user session recording capabilities for both VDI and hosted shared desktops to support compliance in highly regulated industries like healthcare and finance where employees routinely handle sensitive information—a complement to the solution's status as a natively FIPS-compliant and Common Criteria Certified app virtualization solution.

IT can monitor activity for a specific user, application or server while capturing screen updates, mouse activity and keystrokes to generate an in-depth record of user activities. IT can set triggers to be inserted automatically to mark specific events—a transaction over a certain amount, the initiation of a particular workflow, and so on—to make it easy to zero in on the events to be audited without having to play back the entire session. Simply notifying employees that sessions are being recorded can help deter potential misdoings before they occur. Intelligent recording and playback also accelerates troubleshooting and problem resolution by capturing one-off, difficult-to-reproduce errors with a time-stamped visual record.

VMware doesn't offer much help with compliance and protection. Their solution lacks session recording, and can't match Citrix features such as SmartAccess, content-aware clipboard mapping or AppLimits, which lets IT specify the number of instances of each application allowed to run in a server farm or to be provided to each user. While Horizon has finally achieved FIPS compliance, Common Criteria certification remains a work in progress.

3. Does it make management simple, flexible and efficient?

Use any platform and any cloud

IT strategy today is all about openness and flexibility. XenDesktop supports every leading hypervisor, including Citrix XenServer, Microsoft Hyper-V, VMware vSphere and Nutanix Acropolis. IT can also run XenApp in any leading cloud, including Microsoft Azure, Amazon AWS and Google Cloud, as well as on physical systems such as HP Moonshot and desktop PCs. As a result, IT maintains complete flexibility and freedom of choice to deploy XenApp on-premises or in the cloud without fear of vendor lock-in.

Some organizations use the Citrix Remote PC Access feature in XenDesktop to support business continuity by enabling users to remotely access the desktops of their physical PCs even if they haven't migrated to a virtual desktop. In fact, users can even power on their PC remotely, enabling instant productivity even during sudden or unanticipated disruptions.

For Horizon customers, there's only one hypervisor and one cloud: VMware's own vSphere and vCloud. That means that one vendor maintains tight control over a majority of the environment's costs, with customers locked in whether they like it or not. That's an especially unfortunate position to be in considering vCloud's lack of scale compared with AWS or Azure, which means that it comes at a higher price than other options might have.

Support users simply and efficiently

IT admins hate to give poor service as much as users hate to get it. XenApp makes it simple for admins to respond and resolve issues with a single interface for all support tasks, even in geographically distributed environments. When someone calls support—for example, if it's taking longer than usual to log on to a virtual desktop—the admin can quickly find the relevant session with complete information on the device and network connection to guide troubleshooting. The admin can stop processes, reboot user desktops and even shadow the user's session to determine what the problem is. Real-time monitoring of XenApp and XenDesktop infrastructure components, historical trending information and automated correlation of configuration changes help IT stay one step ahead of emerging problems. Less downtime translates into higher productivity and more satisfied, empowered users.

Integration with Microsoft System Center Operations Manager (SCOM) enables streamlined, holistic monitoring for Citrix environments by showing relevant system alerts right within the Citrix Director dashboard. The Citrix SCOM Management Bundle included in XenApp and XenDesktop Platinum Edition enables end-to-end infrastructure monitoring of XenApp, XenDesktop, StoreFront, Web Interface, Provisioning Services, License Server, XenServer, Citrix NetScaler and Citrix CloudBridge so admins can monitor and troubleshoot their infrastructure and workloads from a single pane of glass.

With VMware, support personal need to aggregate information from multiple sources to fix problems. Admins can't perform troubleshooting through the View console; instead, they have

to log on directly to the RDS server—assuming they have the right permissions—and start troubleshooting there. They'll also have to reach out to other teams such as networking to get a complete picture of the situation. As time passes, the user's impatience grows, and so does the admin's frustration. IT does have another option, but it's not a simple one: paying the license fee for vCenter Operations Manager, included only in the product's Enterprise Edition, and completing its complex installation process. Even then, IT won't be able to access detailed endpoint data to help diagnose issues, the network data provided lacks granularity, and the data provided comes only after a five-minute delay, leading to a highly annoying troubleshooting experience for both the user and the admin.

Manage apps and systems painlessly

App virtualization is supposed to simplify management—but it depends on the actual solution you're using. Integrated with Citrix Provisioning Services for industry-leading image management and versioning, XenApp and XenDesktop make patches and updates painless. The admin just patches the master image, assigns the updated image to the appropriate targets, and the update is rolled out automatically on the next scheduled rollout, or manually if you prefer, to update even a large number of targets in a matter of minutes. With over 90 percent less IOPS, rollout times are significantly faster, while storage infrastructure spending can shrink accordingly. In the event that something goes wrong, rollback is virtually instantaneous.

Composer, Horizon's image management tool, is frustratingly slow, requires multiple reboots per system for each update and has a significant performance impact on storage systems. Their new Instant Cloning technology is faster, but limited to vSphere 6-based, non-3D, non-persistent VDI systems. Nothing else can be managed.

Optimize storage

Storage costs can be a limiting factor for virtualization initiatives—but not with XenApp, which uses unique caching algorithms to reduce the I/O requirements of apps and desktops by over 90 percent. With no need for high-end shared storage devices, IT can also use cheaper, more easily manageable storage to host XenApp servers without compromising performance. Fast response times with no storage contention issues ensure a fast, responsive user experience. VMware Horizon offers View Storage Accelerator, a read cache for VDI desktops only. Unlike PVS, which reduces IOPs for reads and writes for both VDI and RDS systems, CBRC leaves you with a significantly higher I/O footprint, forcing you to rely on better, faster, more costly and more management-intensive storage.

Simplify app migrations and operations

With the release of Windows 10, app management and migration is top-of-mind for IT organizations. XenApp offers AppDNA for integrated application compatibility and interoperability testing, dependency discovery and image validation. IT can streamline and accelerate OS migrations, and can facilitate virtualization initiatives by gaining a clear

understanding of which applications will work seamlessly in a virtualized environment, which will need more attention and which are not good candidates for virtualization.

AppDNA also automates day-to-day app management processes such as testing, remediation, and application packaging process for greater speed and efficiency. Better able to understand the cost, timeline and user impact of projects from app upgrades to major migrations, IT can make fully informed decisions about how to allocate its resources. Hotfix impact analysis lets IT test the impact of Microsoft hotfixes on applications within the organization automatically, instead of the typical manual approach. Automated App-V sequencing automatically creates an App-V sequence for a given application; an admin can simply import the app into AppDNA, validate its compatibility and then let AppDNA create the sequence, which can then be used to deploy the app to users. If a compatibility problem is found, AppDNA both alerts the admin—and provides specific guidance to fix the conflict, saving valuable time and effort.

Without AppDNA, which is only available with XenApp and XenDesktop, admins have to validate apps manually for each migration and update, an extremely time-intensive task. With that kind of pressure on operating expenses, there are many tests that you may have to forgo entirely, such as manually testing each updated app for cross-application interoperability with each of the other apps in your environment—a task that could easily take days. With AppDNA, it's a matter of a few clicks and a cup of coffee.

Streamline application delivery

Citrix AppDisk technology enables admins to decouple applications from the base image and manage apps within their own layer, which then can be merged with the base image as required. This simplifies app and server management by allowing IT to use a single base image in tandem with layers of department-specific apps. A finance desktop, for example, can be created easily by combining the generic base image with the appropriate app layers. App updates can be applied to the app itself without the need to break open the base desktop image.

While VMware offers a similar feature, AppDisk also includes the ability to automatically validate the compatibility of the apps in a layer with the base image with integrated AppDNA, check for missing dependencies and determine if any of the layers might contain conflicting apps. With VMware, the admin needs to validate compatibility manually, a time-consuming process.

Publish hosted, shared Linux-based desktops

App virtualization has long been perceived as a technology for Windows apps only, but Citrix—and only Citrix—offers app virtualization for shared desktops similar to Remote Desktops Services (RDS). XenApp and XenDesktop give admins the flexibility to publish Linux-based desktops using either VDI or hosted shared desktops (HSD), allowing them to make the choice based on their own priorities for performance and cost. In most cases, HSD is the

preferred option, providing the lowest-cost way to deliver Linux-based productivity and line-of-business apps to users.

VMware only supports VDI for Linux desktops, forcing customers into the higher-cost model.

Conclusion

The Citrix solution wasn't built overnight. It incorporates real-world experience, best practices and customer input gathered over 25 years of remote access leadership. That's why XenApp and XenDesktop, which incorporates the full power of XenApp, include all the capabilities people need for full mobile productivity with a great user experience, security and compliance capabilities to help protect the organization, and rich features to make life easier for IT. In fact, the solution is so intuitive that it's easy to take for granted—everything just works—until you start trying to work with a less-mature alternative. VMware was right to see app virtualization as an important market, but without even basic features like peripheral support, not to mention a seamless user experience and high-definition performance, Horizon simply can't meet the needs of a mobile workforce. For IT admins, fragmented support workflows, manual app and system management, and all-or-nothing security makes Horizon Apps a master class in frustration. The right answer in app virtualization is the same today as it has been for the last quarter-century: Citrix.

To learn more about the differences between Citrix and VMware, please visit www.citrix.com/xendesktop/DareToCompare

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Coral Gables, FL, USA

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