



Integrating VMware ThinApp with Citrix XenApp

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Introduction

Would you like to enhance your current Citrix XenApp implementation with virtualized applications? This paper discusses combining VMware ThinApp® with your current installation of XenApp. These products together provide you with the following functionality:

- **Citrix XenApp** for remote application presentation
- **VMware ThinApp** for virtualized applications

“...ThinApp and XenApp are very complimentary [sic] products. ThinApp can simplify your application deployment and the management of those applications. Whether that be to traditional desktops, virtual desktops or application delivery platforms...Lots of reasons why a ThinApp deployment delivered via Citrix XenApp is a desirable solution.”

– Jason Webster, [VMware ThinApp and Citrix XenApp. Complimentary \[sic\], Not Always Competing. Blog On!](#),
18 February 2011

This Discussion Is for You

Did you know that you can resolve application conflicts, update applications more easily, and recover from server failure more quickly than you do now? If you use Citrix XenApp and are thinking about ThinApp application virtualization, this discussion is for you. You probably already use VMware vSphere® to virtualize your servers, including your XenApp servers. The next step would be to virtualize applications with ThinApp.

If you like the concept and performance of XenApp application presentation, you can expand that functionality by adding ThinApp to the mix. This solution preserves the investment you have made in time and money in the XenApp implementation. Your staff expertise in successfully running XenApp will continue to be useful in this combined implementation.

Two Parts of the Same Solution

Citrix XenApp has a number of functions. This paper focuses on the application remoting function of XenApp which displays shared Windows applications over a LAN, WAN, or the Internet to users on a variety of devices. XenApp is installed on a Microsoft RDSH server and uses the Citrix ICA/HDX remoting protocol to present applications. The advantage of remotely displaying applications on endpoints is that you do not need to maintain the application on each endpoint; you instead install the application on centralized servers in the data center, and multiple users share the same application.

Citrix XenApp is an application presentation tool. Users share centrally located applications and the operating systems they run on, and use the remotely displayed applications on endpoint devices. However, XenApp does not easily provide application isolation and virtualization solutions for conflicting applications.

VMware ThinApp is an application virtualization tool. ThinApp packages are isolated from other applications and run without installation, an agent, or other infrastructure. ThinApp packages allow conflicting applications, such as two different versions of the same application, to run on the same XenApp application server (an RDSH server), with its one Windows operating system, at the same time.

Combining ThinApp with XenApp solves many of the problems of typical XenApp implementations by optimizing the handling of *all* of your Windows applications. This paper discusses presenting ThinApp virtualized applications through XenApp servers.



Does VMware have a tool for Windows application presentation, like Citrix XenApp shared applications? Yes! With VMware Horizon® 6, VMware introduced Windows application presentation with applications hosted on RDSH servers. This capability is added to the View virtual desktop solution in the Horizon Advanced and Enterprise editions. For more information on Horizon 6 hosted applications, watch this [VMware Horizon 6 Hosted Applications Demo](#).

This paper focuses on integrating ThinApp with your Citrix solution to capitalize on your investment in XenApp.

What Is VMware ThinApp?

VMware ThinApp is a tool to virtualize Windows applications. ThinApp virtualized applications are executable packages that run on physical machines, virtual machines (such as VMware Fusion®, VMware Workstation™, and VMware vSphere virtual machines), View virtual desktops in VMware Horizon 6, Microsoft RDSH servers, and Citrix XenApp servers. They can be run from local storage as well as from USB devices, and even streamed from network file shares.

ThinApp provides a highly functional application virtualization solution.

Choice of Deployment Scenarios

ThinApp packages can run locally on a physical or virtual desktop, or from a network file share, or from removable media. To run a ThinApp package locally, you place the virtualized application on a Windows desktop or USB device and run it from the local operating system. To run a ThinApp package from a file share, you place a shortcut on the desktop that points to the remote virtualized application package on a file share. If using a shortcut to a file share, the file share must be highly available and read-only.

See the [VMware ThinApp Reviewer's Guide](#) for more information about the two deployment modes.

ThinApp Local Deployment



ThinApp Streaming Deployment

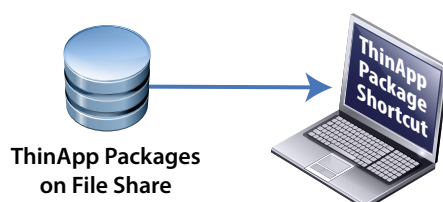


Figure 1: ThinApp Deployment Modes

No Infrastructure or Agent

ThinApp packages are deployed without a server or client-side agent—simply place the package on a desktop, or a shortcut on a desktop, and launch the application. No separate management console or dedicated infrastructure is required. Within each ThinApp package a small-footprint ThinApp runtime is encapsulated, and this runs when the packaged application runs.

To distribute ThinApp packages, you can also employ the tools and processes that are currently in use in your environment today, such as an existing electronic software distribution (ESD) system.

Application Portability

ThinApp packages are portable across Windows operating systems, as long as the application is supported on both the version of Windows that the application was packaged on, and the version of Windows the application will be deployed to. You package the application on the earliest version of the Windows operating system that your users will run it on.

User Access

User access to ThinApp packaged applications can be determined by Active Directory security groups or by any other validation logic defined in your environment. When using Active Directory security groups, you can embed the specific group permissions to execute the application within each ThinApp package or simply use Windows file permissions to govern access to ThinApp packages hosted on file shares.



Key Point

ThinApp packages are deployed without a server or client-side agent—place the package, or a shortcut to the package, on a desktop and launch the application.

Packaging, Virtualization, and Isolation

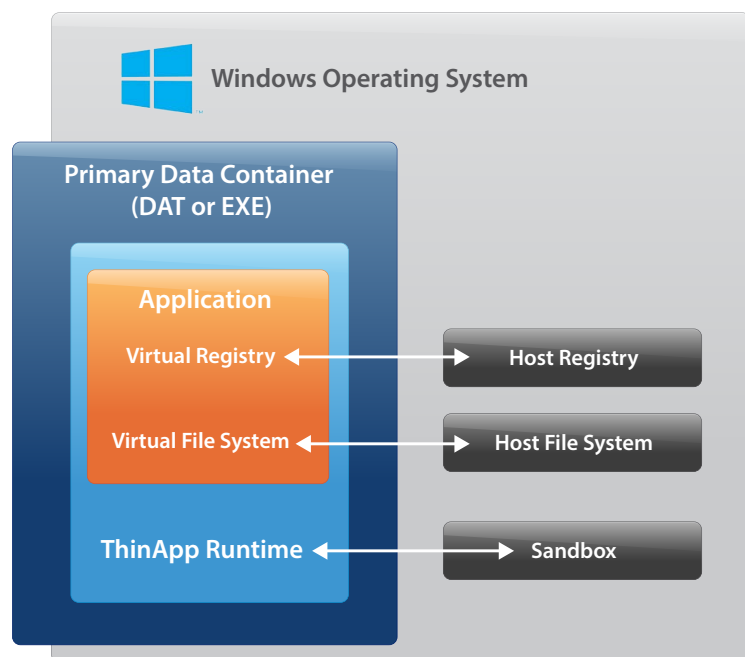
A ThinApp package is an executable and runs on a Windows desktop without installation. During packaging, the necessary file system and registry components are captured and saved to the ThinApp project. The ThinApp project is then compiled into the ThinApp packaged application.

When the package runs on a native operating system, the ThinApp runtime in the package creates a sandbox to separate all user changes from the operating system and from other native and virtualized applications. This sandbox is per user and per application. Application changes to the file system and registry are stored in the user's application-specific sandbox, separate from other applications and from the Windows operating system. This allows ThinApp to isolate conflicting applications from each other and from the Windows operating system, allowing you to run different versions of the same application side by side on the same system. User actions thus do not conflict with other installed or running applications.



Key Point

ThinApp application isolation enables running multiple versions of the same application on the same desktop or server in parallel.



A ThinApp package encapsulates required file system and registry components along with the ThinApp runtime. You can customize the amount of isolation in package settings.

Application isolation enables running multiple versions of the same application on the same desktop or server in parallel.

Figure 2: ThinApp Architecture

Linked Applications

ThinApp has a feature called AppLink. AppLink lets you link together independent packaged applications. This allows you to virtualize dependencies and components separately. Such dependencies and components might include a specific Microsoft .NET Framework, a specific Java Runtime Environment, a browser plug-in, or a legacy browser such as Internet Explorer 6. AppLink allows a single packaged application or component to be used in multiple configurations and deployment scenarios without the need to recapture and repackage it for each scenario. This simplifies component updates. You can update a component for all linked packaged applications, or you can update an application without affecting the other applications that are linked to the primary application or to specific subcomponents of that application.

Virtualization of Internet Explorer

ThinApp allows you to virtualize Internet Explorer (IE) to support legacy Web applications that rely on earlier versions of IE. You can support these legacy applications on Windows versions that come with later versions of IE. Virtual IE can run alongside these more modern versions of IE and be configured to launch automatically when a user needs to access a legacy Web site or application.

“Once an application has been virtualized with VMware ThinApp, it’s very, very predictable. We know we can be confident that we will not have to go back later and fix things.”

– Dewand Neely, Tier 3 Support Manager, Indiana Office of Technology, [VMware Case Study, Indiana Office of Technology](#)

Redirection to Different Browsers

ThinApp lets you control which Web sites are shown in each browser with a feature called *ThinDirect*. ThinDirect allows some sites to be displayed in the native browser, while others are shown in a virtual browser. It is also possible to have multiple virtual browsers, each displaying its own sites. This ensures that browser-specific sites, and browser-specific Web applications, will always function as required.

Fast, Automatic Updates to Applications

ThinApp provides two automatic means of updating virtualized applications: AppSync and side-by-side updating.

AppSync updates locally running ThinApp packages. Updates occur over a LAN or the Internet. While the user runs the application locally, ThinApp checks for a new version of the application posted on a Web server or file share. In the background, AppSync downloads the update, and the next time the user launches the application, the updated version automatically is in effect.

Side-by-side updating is the other automatic updating mechanism available for ThinApp packages. It is used more commonly with local ThinApp packages than with those run from a file share, although it can be used with both deployment methods. With side-by-side updating, a new version of the application is put in the same directory where the original package resides, but it is given an integer suffix. ThinApp always launches the application package with the highest integer suffix. When the user relaunches the application, the latest version is used.

Example:

VirtApp.exe is the original packaged application.

VirtApp.1 is the next iteration of the packaged application.

VirtApp.2 is the latest iteration of the packaged application.

In the above scenario, when the user launches **VirtApp.exe**, the latest update (**VirtApp.2**) is used. The original EXE of the application must remain in the same directory as the updated version..

Group Policy Objects

ThinDirect, AppLink, and AppSync can all be managed with Group Policy Objects (GPOs). ThinApp GPOs enable the modification of package parameters without the need to rebuild or redeploy the application.



Key Point

ThinApp utilizes the ThinDirect feature to determine which browser opens for each Web site. With ThinDirect, browser-specific sites and browser-specific Web applications open in the administrator-configured compatible browser.

ThinApp Application Execution on the Endpoint

ThinApp application execution is carried out on the device where the operating system is launched. Many users can access a single virtualized application on a file share, but execution is independent for each user.

After you package a Windows application with ThinApp, the virtualized application can be run several ways:

- Directly on a physical or virtual desktop
- Streamed from a file share to a physical or virtual desktop
- Directly on a XenApp application server, then presented by XenApp to an endpoint
- Streamed from a file share to a XenApp application server, then presented by XenApp to an endpoint

“We started by virtualizing the 1,000 desktops in our European Shared Services center in Dublin and are now in the process of running pilot programs in a number of locations across the UK, Italy, France, and Germany, including busy airport rental services at Heathrow and Frankfurt airports. The next phase will be to virtualize 4,000 desktops across our car rental locations in Europe,” explains Paul Bermingham, Staff Vice President, Information Technology Services, Hertz International. One of the key reasons for Hertz to move to a virtual desktop infrastructure was to improve PCI compliance and security of the system. As opposed to visiting each physical desktop, the IT team is now able to patch the servers in Dublin instead, thus realizing substantial savings. “PCI considerations were a key driver for us and VDI makes it easier to run antivirus patches and keep security up to date. Upgrading and rolling out software packages have also become far simpler as we do not have to visit each and every laptop individually. So far we have also virtualized over 300 desktop applications through VMware ThinApp, which has helped us standardize the application build and improved application speeds.”

– VMware Case Study, Hertz International

To evaluate ThinApp, you can [download a trial version](#) and use the [ThinApp Reviewer’s Guide](#). For more information on ThinApp, explore the VMware [ThinApp product Web site](#). And for additional information about ThinApp application-delivery options, see the white paper [Application-Delivery Options in VMware Horizon 6.0](#).

ThinApp and XenApp Combined

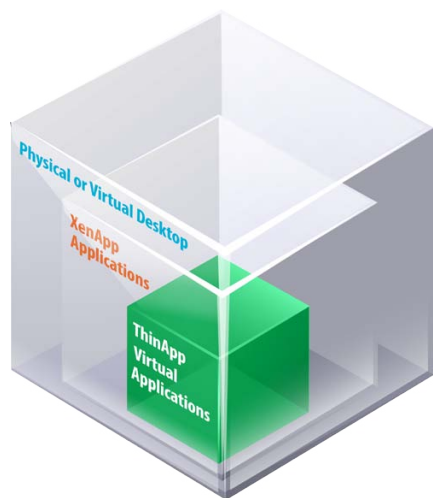


Figure 3: The Combined Solution of ThinApp Within a XenApp Implementation

ThinApp virtualizes Windows applications. XenApp application presentation provides users access to shared applications. Each solution has its financial and operational efficiencies. By combining these two products, you can optimize the handling of all of your Windows applications.

If you are currently running a XenApp implementation, it meets some of your Windows application needs. However, placing one copy of a ThinApp virtualized application on a file share is much simpler than installing XenApp applications on multiple servers in multiple server farms. ThinApp also allows for application isolation, which prevents conflicts and lets you run multiple versions of the same application concurrently on the same XenApp server.

Even if a ThinApp package is not streamed, removing the requirement to install applications on each XenApp server is a significant time-saver. Locally deployed packages are easily copied to each XenApp server, and not installed.

If you stream ThinApp packages from a file share to the XenApp server, and then present the applications to end users, you can take advantage of a combined ThinApp-XenApp solution.

How Does ThinApp Enhance XenApp?

ThinApp packages make the XenApp deployment more efficient and solve many of the problems of the XenApp solution. XenApp becomes better with ThinApp through the following capabilities:

- Application conflict is eliminated.
- Recovery from server failure is simpler.
- Updates are easier and faster.
- ThinApp can virtualize legacy versions of IE and ease the move to newer versions of Windows on XenApp servers.

Application Conflict Is Eliminated

Without ThinApp, isolating XenApp hosted applications from each other requires running potentially conflicting applications on separate RDSH servers. To do this you must silo the applications. For example, without integrating ThinApp, separate XenApp farms and servers have to be created to support both Office 2010 and Office 2013. This strategy requires additional hardware for proper load balancing and redundancy, and results in a more complex XenApp server farm configuration for IT to manage, ultimately raising costs. In contrast, with ThinApp you can run both Office 2010 and 2013 on the same servers, reducing the amount of XenApp infrastructure required.

ThinApp isolates applications with software, not hardware. Applications that would conflict with each other and need to be on different XenApp servers can instead be placed on the same XenApp application server if virtualized with ThinApp. For example, you can have different versions of Microsoft Office packaged with ThinApp running on the same XenApp server.

A ThinApp virtualized application runs on the operating system of the system you have placed it on, and you can determine the degree of isolation from other applications and from the host operating system. Changes that the application makes to the file system and registry are contained within a user-owned sandbox.

Recovery Is Simpler

If a XenApp server fails, you have to reinstall the XenApp server. However, if you have virtualized and stored your applications separately from the XenApp server on a file share, you do not have to reinstall the applications. In the event of a XenApp server failure, you have only the baseline server configuration to reinstall; application reinstallation and reconfiguration are eliminated. You have much less work.



Key Point

ThinApp isolates applications with software, not hardware. This allows applications that would normally conflict with each other to run simultaneously on the same XenApp application server.

Application Updates Are Easier and Faster with ThinApp

Normally, to update an application in a standard XenApp environment you must update each natively installed application on each XenApp server. Sometimes this necessitates taking each server offline. With ThinApp, updating packages is as easy as copying a new package over the old package, or using AppSync or side-by-side updating. ThinApp never requires that you take a server offline in order to update an application. You update the package once and place it where you want it to be, as opposed to running an installer on multiple XenApp servers.

There are additional benefits of using the ThinApp updating mechanisms. For example, if you find out that the update is not working correctly, you can simply revert to the previous version by replacing the updated ThinApp package with the old one.

Server Updates Are Simplified with ThinApp

An added benefit of using ThinApp in combination with XenApp is that there is no application downtime due to XenApp server updates and maintenance. With ThinApp you can easily and quickly move a ThinApp packaged application from one XenApp server to another in order to take a particular server down for maintenance or repairs.

ThinApp Allows XenApp Upgrades While Preserving Legacy Web Applications

ThinApp makes it easier to move applications to newer versions of XenApp. Newer versions of XenApp have their own operating system version requirements, and the version of Windows Server required might come with a version of Internet Explorer that is incompatible with a legacy Web application.

ThinApp allows you to virtualize older versions of IE and run them on newer versions of Windows, next to the newer native IE. With ThinDirect you can direct legacy Web applications to these virtualized versions of IE and run these legacy applications on the newer Windows version that is required by a new version of XenApp.



Key Points

ThinApp makes it easier to move applications to newer versions of XenApp running on newer versions of Windows Server.

ThinApp allows you to run legacy Web applications on newer versions of Windows and IE that are required when you upgrade XenApp. With IE virtualization, you can still use legacy applications on a newer operating system.

Is There a Benefit of Running ThinApp Packages in a XenApp Environment?

When you run ThinApp packages in a XenApp environment you can more easily entitle individual users the right to run those packages.

Without XenApp, you are able to entitle groups of users to ThinApp packages through Active Directory permissions.

XenApp also uses Active Directory for entitlement, and it allows assignment not only to groups of users, but also to individual users. With ThinApp alone, you can entitle individual users to ThinApp packages by creating a group for each targeted user, but XenApp makes such entitlement easier.



How Do You Use XenApp in a vSphere Environment?

You may already be using vSphere to virtualize your XenApp application servers to improve efficiency and cost. For more information on virtualizing XenApp with vSphere, see the [Citrix XenApp on VMware Best Practices Guide](#).

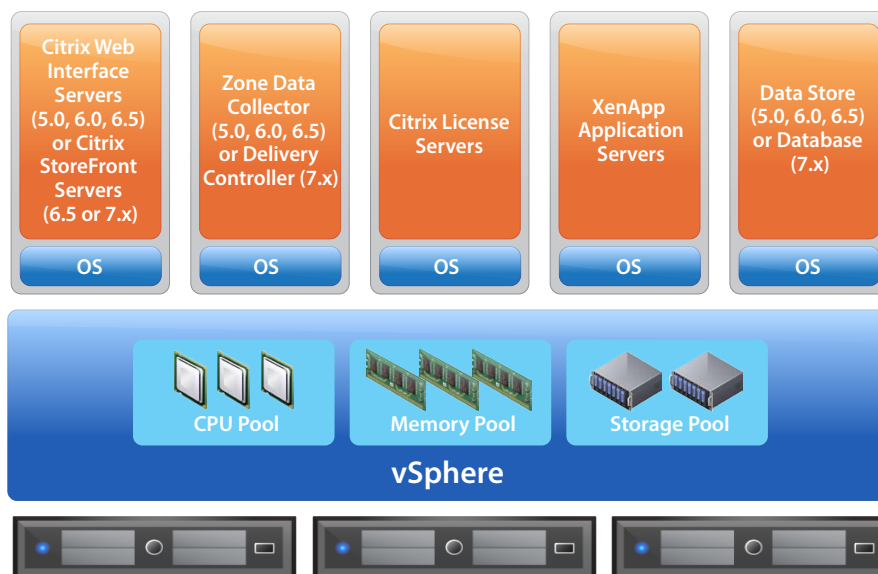


Figure 4: XenApp Components Deployed on vSphere

How Do You Integrate ThinApp with XenApp?

ThinApp works well with XenApp. XenApp can remotely display both applications and desktop sessions, but this paper focuses only on the remote display of applications. These are the required elements for the XenApp-ThinApp integration:

- ThinApp virtualized applications residing on a ThinApp file share, and application shortcuts placed on the XenApp application server
- or
- ThinApp virtualized applications placed directly on the XenApp application server

For both of these options you need

- ThinApp virtualized applications configured and presented to users as published applications

With the option of ThinApp virtualized applications on a file share and shortcuts to those applications on the XenApp application server, the ThinApp packages stream over the LAN to the XenApp server. Users with Citrix Receiver on their endpoints access the XenApp server and get full access to LAN, WAN, or Internet displayed applications, including the ThinApp packages.

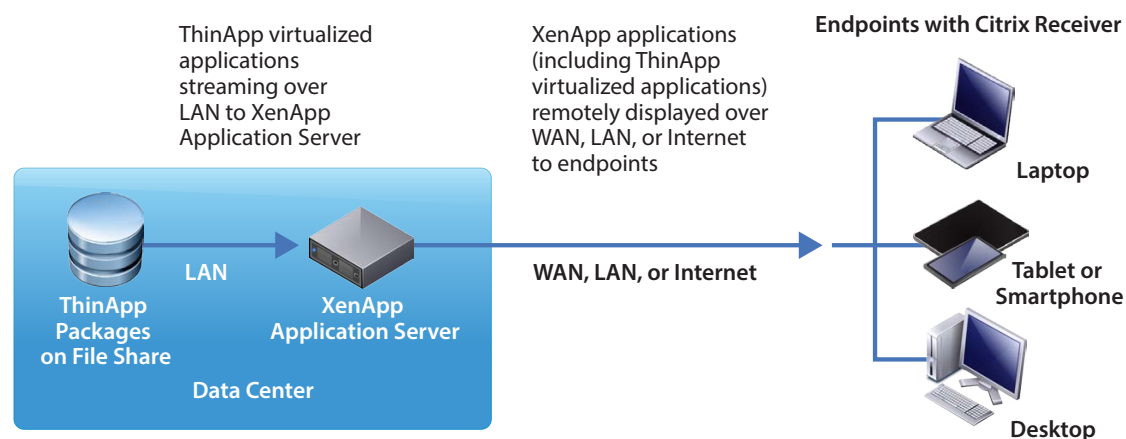


Figure 5: ThinApp Virtualized Applications Executed from a File Share to a XenApp Application Server, Then Remotely Displayed to Endpoints

To include ThinApp in your implementation, there is no need for a server or client-side agent. You simply place the ThinApp package on each XenApp server, or the shortcut to a ThinApp package on each XenApp server. Anything that the virtualized application needs to run is located inside the ThinApp package. When accessed by users, the application runs without any additional infrastructure.

Here is an example of XenApp published applications, including ThinApp packages, published through XenApp, to a Windows client.



Figure 6: XenApp Applications Published to a Desktop, Including a ThinApp Package

To learn more, [download a free trial of ThinApp](#).

Is There a VMware Alternative to Hosted Applications?

Beyond integrating ThinApp with XenApp, the [VMware Horizon 6](#) suite of products is designed for users to access desktops, applications, and data from any device, at any time. [Safe Passage](#) is a program designed to help you make a cost-neutral switch from your existing Citrix solutions to Horizon 6. To find out more, read the blog post [New VMware Safe Passage Program Offers Customers Great Products, Incentives and Migration Tools for Move from Existing Solutions](#).

You can also learn more about the [Horizon Migration Tool](#), a VMware tool for migrating from XenApp to Horizon 6 in the blog post [Calling All Citrix XenApp Customers! Make the Move to VMware Horizon 6](#).



Key Point

Safe Passage is a program designed to help you make a cost-neutral switch from your existing Citrix solutions to VMware Horizon 6. You can learn more in the [New VMware Safe Passage Program Offers Customers Great Products, Incentives and Migration Tools for Move from Existing Solutions](#) blog post.

Summary

By combining ThinApp with your XenApp implementation you increase the return on your existing XenApp investment. With ThinApp and XenApp working together, application conflict is eliminated. ThinApp can virtualize legacy versions of IE and ease the move to XenApp running on a newer version of Windows. Updating ThinApp virtualized applications is quicker than the traditional XenApp updating method. And recovery from server failure is eased.

This paper describes the strengths and flexibility of ThinApp virtualized applications, and how they can be used to enhance XenApp application presentation. If you already have a XenApp implementation, you can greatly enhance it by adding ThinApp to your environment. The two solutions combined resolve many of the problems inherent in a XenApp-only environment.

Additional Resources

Application Virtualization and Delivery

- [VMware ThinApp Technical Resources](#)
- [Application virtualization Smackdown, December 2013](#)
- [Application-Delivery Options in VMware Horizon 6.0](#)

XenApp on VMware vSphere

- [Citrix XenApp on VMware Best Practices Guide](#)

VMware Horizon 6 Alternatives

- [Calling All Citrix XenApp Customers! Make the Move to VMware Horizon 6](#)
- [Horizon Migration Tool](#)
- [How to Migrate Citrix XenApp to VMware Horizon 6](#)

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