

# What's in a Name?

Desktop virtualization or virtual desktop infrastructure: There's a big difference.

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**D**esktop virtualization is transforming how organizations manage, support and protect desktop computing environments with the promise of a more modern, user-centric application and data delivery model. The architecture seeks to free users and IT from more than two decades of complex, device-centric computing and deliver a more user-friendly experience.

“Twenty-five years ago, the personal computer turned the world upside down, radically improving individual productivity and communications. That world is about to change again,” said Mark Templeton, president and CEO, Citrix Systems. “People today need to work in entirely new ways, powered by the connectivity of the Internet, an explosion of new devices, and the limitless promise of the Web. And they need to do it without being confined to ordinary desktops that are locked to an office, a device or a network. Desktop virtualization has the power to make all this possible.”

Yet for all its transformative possibilities, desktop virtualization remains remarkably misunderstood. Part of the problem is that marketing hype has blurred the distinc-

tion between the overall concept of desktop virtualization and the various available models for implementing this concept.

There is particular confusion when it comes to Virtual Desktop Infrastructure (VDI). In the marketplace, the terms desktop virtualization and VDI often are used interchangeably. In actuality, VDI is merely one component of a total desktop virtualization solution.

## The Basics

Desktop virtualization is gaining steam because it addresses one of the most time-consuming and expensive operations supported by IT organizations — deploying and managing end-user desktops. According to industry estimates, managing a single desktop can cost more than \$5,000 a year. Unfortunately, even this high level of investment cannot keep pace with the rapid increase in application conflicts and corruptions that degrade user performance, reduce employee productivity, and increase the risk of data loss and security exposure.

Desktop virtualization helps relieve these headaches by consolidating and centralizing complete desktop environments within the data center. Desktop virtualization solutions transform the entire desktop — including operating system, applications



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and data — into an image that is stored and executed on a server. End-users can access their virtual desktops using a traditional PC, thin client or other network-connected device.

This can be achieved through a variety of client-server computing models, including remote (server-hosted) desktop virtualization, local (client-hosted) desktop virtualization, or blade-based computing. VDI is generally — but not always — the approach with the best use case. In the VDI model, a hardware virtualization layer is added to the central server in place of a more traditional OS such as Windows Server. The virtualization layer provides numerous virtual machines (VMs) that can be used to host desktop images for multiple users.

Gartner estimates that, so far, only about 500,000 desktops are running on virtual machines — a fraction of the \$150 billion PC market. However, the research firm predicts that IT will migrate 30 percent of its worldwide installed base of PCs to VMs by 2014, equal to about 66 million connected devices

## A Complete Solution

The journey to desktop virtualization can be difficult for organizations that currently are not well on their way toward centralizing data and user profiles. These data centralization requirements are essential first steps in a successful move to desktop virtualization. After that, the most intricate part of the journey is how organizations manage application delivery. If applications are installed at every endpoint, even with automated tools, this model is much more difficult to manage than a centrally installed or accessed model. Application streaming and hosting technologies provide by far the best ROI and TCO over a VDI model, and simply cannot be ignored as the way to deliver more resources with less overhead to a particular user base.

Some of the key benefits or components of a complete desktop virtualization solution are:

**Virtualized and centralized desktop management.** This is a PC replacement strategy that has many benefits, but also can be an expensive move that will not show immediate ROI because of the back-end hardware and storage required to prepare such an infrastructure. Longer-term ROI is realized through more efficient managing and scaling of application and desktop resources, providing agility and flexibility for mergers, acquisitions and other day-to-day adds, moves and changes.

**Application virtualization.** Application virtualization has been around for 20 years or so, and Citrix might be considered by many as the pioneer and go-to vendor for such technology. Since 1997, Microsoft has owned the hosted application infrastructure market via Terminal Services, or Remote Desktop Services. More recent technologies from Microsoft, Citrix and VMware bring new methods of application virtualization to the market via application streaming and isolation technologies.

These vendors use similar “sandbox” methods to present applications to end-user devices as a single, isolated package that does not typically install within the file systems and registries of the target devices. Isolation minimizes application conflicts and creates a single-instance installation of an application that can be used in a virtual desktop, traditional desktop or from a Remote Desktop service experience.

**Single-instance OS management.** Hosted virtual desktops, or VDI is the foundation for a full desktop virtualization solution, but not a complete solution. The ability to create a single OS image and leverage this image for hundreds or even thousands of virtual desktops is a key to a great VDI solution. Both Citrix and VMware have methods for “provisioning” or “cloning” a single OS image to minimize the amount of storage required to support large numbers of virtual desktops. SAN or NAS storage optimization is a key to a well-crafted solution. For smaller environments where SAN is not an option, companies such as Kaviza shine in their ability to provide provisioning technologies that leverage DAS storage to assist these usage scenarios.

**Profile and personality management.** One of the least considered but most important components of a well-designed desktop virtualization solution is how user personality or profile requirements are managed. Sometimes users need access to applications and data that can only be served up from a particular OS, like Windows XP, due to software compatibilities. They may also use a Windows 7 virtual desktop for their primary computing platform. Top that off with the need to run Windows 2000/2003/2008 Terminal Services applications from partners or internal server farms, and managing the user environment becomes highly complex. Citrix has Profile Management to aid in this area, and soon VMware will release its profile management toolset, but the best-of-breed solution from our experience comes from AppSense in the form of its User Environment Management product.

The typical distributed desktop computing environment in which everyone in a company has his or her own PC or laptop loaded with applications and data is costly to own, complex and time-consuming to manage. Desktop virtualization can reduce some of the costs normally associated with the traditional model and increase IT efficiency. Application virtualization also plays a role in delivering what users need, regardless of end-computing device or OS platform. However, organizations must remember that while VDI is often the most appropriate way to achieve these benefits, it is not the only way.

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