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Citrix XenDesktop 5: Key Advantages for Virtualizing Your Desktop Environment

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Kerry Doyle , MA, MSr, CPL, former editor-PCComputing, reporter
PCWeek Magazine, and Associate Editor-ZDNet.com

Introduction

The current workplace environment for enterprises and small-to-medium-sized businesses (SMBs) continues to be transformed. The rise of mobility, unified communications (UC), and service-oriented IT, to name a few, has helped level the competitive playing field. Along with these innovations, desktop virtualization has continued to attract adherents. It's easy to see why: Improved user experience and IT management, as well as lower costs, have all converged to make desktop virtualization an attractive proposition for companies.

Today's cost- and resources-constrained economy requires IT managers to make tough choices for purchases, implementation, and servicing their datacenters. Recent research has shown that desktop virtualization offers significant management and user advantages. According to *CIO Magazine's 10th Annual State of the CIO* survey for 2011, the top priorities for IT managers in 2011 are: developing IT strategies to accelerate business goals (70%), aligning IT and business goals (66%), and controlling IT costs (50%).

For each of these areas, desktop virtualization offers a level of versatility that promises greater workplace efficiency, lower costs, and increased scalability for users and IT managers. In this white paper, we'll explore the background of desktop virtualization – where it's been and where it's headed. We'll look at some of the early barriers to adoption and learn about the advantages of Citrix XenDesktop 5 that make it easier than ever to virtualize your desktop environment.

Desktop Virtualization: Past and Present

While it seems that centralized control of multiple, thin computing devices may be the wave of the future, the development of desktop virtualization to its current form has had a complicated history. In the past, **server** virtualization was the predominant vehicle for spreading computing power across the datacenter to benefit users. Server virtualization has always meant "hardware virtualization." This has involved creating as many hardware partitions on a single server as possible to create ubiquitous individual computing environments.

Overall, the process for assessing one's data center and producing a server virtualization model to handle the required workload has been straightforward. For administrators, it has been relatively easy to understand the products that were required. Careful management of the virtual environment was enough to ensure that issues, such as virtual machine (VM) sprawl, were kept under control.

In contrast, desktop virtualization – in which the client OS runs on a server and is delivered virtually to a user – can involve a number of divergent architectures and approaches. These other architectures include, for example, Windows Terminal Services, Application Virtualization, OS streaming, client-based VMs, and many others. It's likely that over time the amount of information IT administrators have had to understand and process in regards to desktop virtualization has affected its adoption. Administrators have found that there's a significant difference between virtualizing server workloads and virtualizing desktop workloads.

Today, client virtualization has begun to reach greater implementation. Research from Gartner has indicated that desktop virtualization adoption will accelerate through 2013 to reach 49 million units, with a worldwide market percentage of more than 40 percent. This number is significantly higher than the 500,000 virtualized desktops reported in 2009. In the case of XenDesktop 5, the product has now reached a level of maturity that promises consumers key economic and productivity advantages.

XenDesktop was originally an offshoot of the IMA (Independent Management Architecture) management architecture, first introduced as a component of the Citrix MetaFrame Presentation Server. As the overarching matrix for the management and configuration database and its accompanying Windows services, IMA was never designed to provide a base for the types of functionality that XenDesktop offers. Consequently, in the past, some of the drawbacks of XenDesktop virtualization have been its installation and management complexities due to its IMA structure.

In general, the difficulties of implementing desktop virtualization have led to central IT becoming more of a "no" shop, unable to meet users' changing needs, such as accommodating mobile computing devices and "BYOC" (bring your own computer), as well as social networking applications and tools. Add to this the confusion around all the potential architectures at each different layer of the desktop software stack, and the slow pace of adoption is understandable.

Today, many CIOs have desktop virtualization plans on the whiteboard. The release of Windows 7 upgrades, more efficient desktop virtualization architectures, and the proliferation of new end-user devices (smartphones, tablets, etc.) are fueling increased interest and setting the stage for greater adoption. While the cost/benefit analysis remains important, many CIOs are looking ahead at how best to manage users in a dramatically changing world.

XenDesktop 5: Improvements Speed Adoption

When it comes to XenDesktop 5, Citrix has created a more attractive interface to appeal to end users and to make the GUI more effective. The apparent goal is the elimination of the overly technical UI qualities associated with earlier versions. For users who carry the Citrix client on their tablet or smartphone, the simple, attractive interface makes a difference.

In terms of management, there are new role-based consoles that help administrators handle specific tasks. For example, IT managers can use a specific console to distribute VMs locally by creating nodes at individual agencies. Administrators can also deliver corporate applications as an on-demand service, or users now have the means to safely access cloud-based applications and software as a service (SaaS) resources.

Here are further XenDesktop 5 features that offer key advantages:

- **Desktop Studio:** For IT, this new administrative console enables OS provisioning to be performed securely and quickly. It focuses on creating an area for architects to build, test, deploy, and roll back images. For example, administrators can deploy a single master image of Windows 7 and associated applications to dozens of users, and update them all simultaneously. Further, the VM protection and recovery features allow IT managers to schedule automatic snapshots of their VM disk(s) and memory states and archive the resulting images.
- **Desktop Director:** This Web-based management console is designed for the daily, low-level tasks helpdesk administrators and application specialists perform. It enables real-time status views, session restarts, message sending, and remote assistance, to name a few. The console gives application owners direct access to the virtual machines for which they're responsible and can be accessed from any Web browser for simple daily management tasks.
- **System Center:** This new console supports the Microsoft System Center and makes it easier to manage applications on both physical and virtual desktops using the same set of tools.
- **Installation:** In the past, both the management and installation of desktop virtualization solutions were cumbersome and time-consuming. Now, XenDesktop 5 provides an installation wizard that substantially simplifies the process.

XenDesktop 5 also offers a number of client-based improvements for users, and to represent those changes, Citrix has renamed its desktop client "Citrix Receiver." The Citrix Receiver client allows access to Web-based applications via single sign-on. It can run on Mac and Linux systems as well as on mobile devices. For users, this level of provisioning provides seamless access to Windows 7 and associated applications, for example, without requiring a complete system overhaul.

Running on top of Citrix XenServer, VMware and MS Hyper-V visors, XenDesktop 5 provides the protocols needed to connect to VMs. The client, Citrix Receiver, includes the HDX protocol, which optimizes Flash, audio, and video. Other related features that Receiver offers administrators and users are the following:

- **XenVault:** For BYOC users, mobile workers, and laptop users, XenVault enables administrators to deliver on-demand corporate applications. Automatic encryption and transparent desktop archiving provides a level of security ensuring that data is safe regardless of the device being used. Administrators can also remotely wipe corporate data from any lost, stolen, or temporary receiver device.
- **Enterprise App Store plug-in:** This self-service, application-access technology replaces Dazzle, an earlier stand-alone product for purchasing and downloading apps. Used in conjunction with Citrix Delivery Services, an authentication and an app store service are automatically installed on the user's desktop, and it provides more types of applications than just Citrix offerings.

- **NetScaler Cloud Gateway:** Replacing OpenCloud Access, the Gateway offers delivery of any type of application with a simple Active Directory login. It extends internal authentication and a user identity to outside cloud-based and SaaS apps providing secure, role-based access. NetScaler is a delivery resource that enhances Web application performance. The Cloud Gateway's service-oriented approach to public and private cloud offerings employs a single dashboard-style view for managing and controlling an application's lifecycle.

Virtualizing Your Environment: Advantages of XenDesktop 5

The new architecture of XenDesktop's management structure replaces the original IMA management architecture, as mentioned above. This change has affected its database support. Instead of the original encrypted LDAP-style database, XenDesktop 5 now utilizes a relational database structure that leverages the multi-dimensional features of SQL server. Configuration and management data is stored in SQL, making administration of the desktop environment considerably easier and more intuitive than competing desktop virtualization products. In addition, scripting capabilities and automation have been substantially enhanced.

These structural factors have implications for user accessibility and satisfaction as well as desktop virtualization performance. The XenDesktop 5 user interface now makes the virtual desktop a high-definition, visually appealing environment. For end users, this aspect adds a level of stimulation and ease-of-use that only enhances productivity. Let's be clear, performance is the benchmark by which end users define their computing systems. XenDesktop 5's ability to extend the desktop environment to laptops, provide cloud applications and SaaS access, and give touch-screen capability to tablet and smartphone applications represents the kinds of features that today's end users crave.

The fact that the architecture of XenDesktop 5 has migrated from an IMA-based data store is significant in other ways. In terms of storage, a frequent hidden cost of virtualized desktop environments is the need for high-performance SAN (Storage Area Network) or NAS (Network Attached Storage) resources. Every desktop virtualization deployment eventually hits a wall where the need for additional storage becomes crucial. Unique to XenDesktop 5 is its support for XenServer IntelliCache. This feature intelligently caches virtual desktop storage on local SSD storage in the host. Local caching cuts in half the IOPS (Input/Output Operations per Second) requirements of the IT storage network which, in turn, can lead to significant savings.

Desktop virtualization's ability to increase security across an organization is well known. This is due to the fact that monitoring of the environment extends to every client in the system. For example, any changes made to the master image, such as disabling USB ports or blocking malware files from being downloaded, apply to all members of the group. This is just one example of enhanced security in a company. XenDesktop 5, in tandem with XenServer 5.6, includes virtual machine protection and recovery features. This enables automatic snapshots of the VM disk and memory states, and the ability to archive the resulting images. The fact is that IT administrators and CIOs are looking to desktop virtualization as a means to exert control over technology usage for better security and data protection.

Conclusion:

This white paper outlines some of the ways that desktop virtualization can have a substantial impact on a company's net income through maximizing both user productivity and IT effectiveness. Desktop virtualization has been shown to significantly reduce costs, simplify IT administration tasks, and improve worker productivity. In particular, the latest release of Citrix' XenDesktop 5 will likely create a new standard, making it easier to manage desktops and multiple devices ranging from tablets to smartphones. Moreover, easy installation, a simple interface, and Web-based self service for application downloads are essential features that will likely increase future desktop virtualization adoption.

CIOs remain poised to execute strategic and transformational initiatives, especially in the area of updating user-based and management infrastructures, and desktop virtualization continues to promise significant benefits. XenDesktop 5 offers a comprehensive approach to desktop virtualization and a means for achieving those goals.

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About the Author

Kerry Doyle writes for a diverse group of companies based in technology, business and higher education. As an educator and former editor at PCComputing, reporter for PCWeek Magazine and Associate Editor at ZDNet.com, he has written extensively on high tech issues for over 15 years. He specializes in computing trends vital to SMBs and enterprises alike, from virtualization and cloud computing to disaster recovery and network storage.