Virtual Desktops, Real Gains

Client virtualization technology can optimize your infrastructure while cutting costs and complexity.

Desktops, notebooks and other client devices are in use throughout the workplace. Because of their popularity, businesses are struggling to find ways to manage and maintain these devices while simultaneously reducing costs and increasing end-user productivity.

Raj Mallempati, VMware senior director of product marketing and alliances, calls it “the desktop dilemma.” That is, finding a way to balance IT’s mandate to securely manage an organization’s data while delivering the seamless, 24x7 availability demanded by the end users.

For many organizations, desktop virtualization is the ideal method for accomplishing this goal. It’s also a concept that’s frequently misunderstood. Here the entire operating system is usually housed in a centralized data center, allowing for secure computing, backups and ease of upgrades.

Desktop (or client) virtualization is becoming a viable option for computer labs, call centers and remote locations. Many IT managers know they should look into it, but they don’t always know why or how they should go about it.

**Key Components**

When building a Virtual Desktop Infrastructure (VDI) solution, the most important consideration is the end-user experience. Therefore, you need to determine the audience not only in terms of what devices the end users will employ but also the location from which they will connect.

End-user devices include notebooks, desktops, thin clients, tablet PCs, mobile devices, etc. The locations from which to connect include the office, home, on the road, etc. Also consider the peripherals (such as printers) that end users will need to connect to and the applications and data they need to access.

“Desktop virtualization is only part of the story,” says Brian Duckering, Symantec’s senior product marketing manager of endpoint virtualization. “It’s more than just the operating system environment. The hard parts, the stuff that actually costs money, is all the other stuff — the applications, profiles, how people access their data.

“It’s all the stuff an individual user needs to get their job done,” he adds. “A lot of people feel that if they virtualize their desktop, they’re going to save money and everything’s going to be more secure. That’s not necessarily true.

“Think about the things that need to be managed — desktop, applications, profile and data,” he says. None of that changes when you take the desktop environment from a laptop or PC and move it into a data center. All those things still need to be managed.”

It may be helpful to think of desktop virtualization as an umbrella term. It is one that includes optimizing the operating systems, applications, data and profiles. Then the benefits become clearer.

“Desktop virtualization is the only solution that lets you meet the needs of IT and the end user without any compromises,” Mallempati says. In today’s challenging economy, it allows IT to simplify computing by reducing the number of moving parts while meeting the requirements of business and users.

**Virtual Benefits**

Optimizing the data center is typically the focus of an infrastructure optimization plan. But the desktops are a key component of the infrastructure as IT departments spend a significant portion of their budgets on PC refreshes every three or four years.

Desktop virtualization, in which all the key applications and data are centralized in the data center, is an essential aspect of infrastructure optimization. It separates the individual layers — the operating system, applications, data and profiles — that constitute what end users need to perform their jobs.
Desktop virtualization offers several benefits to the organization. Not only does the desktop look the same as it always has to end users, but all applications work.

The IT staff also benefits because desktop virtualization simplifies management, backup, application installation, configuration setting, security, provisioning, and patches and updates. It also saves time by allowing for the maintenance of all desktops from one central location.

“Desktop virtualization cuts down the cost of managing all these distributed desktops by virtualizing and centralizing the management,” says Sumit Dhawan, vice president of marketing for Citrix Systems’ XenDesktop line of products.

“Because everything is managed centrally in the data center, you can update both the applications and the desktop environment much more rapidly,” he says. “You update once and all users everywhere get all the updates.”

As data infrastructures have grown more complex, they’ve also become more costly to manage, Duckering notes. The idea is to develop a simpler IT resource delivery model.

“The varieties of environments people need within a company — whether it’s a call center, salespeople, marketing people — they end up with more varieties of images and desktops, which will multiply the challenge,” he says.

“People are becoming more mobile,” he adds. “They’re switching systems more often. The variety and diversity of systems IT has to deal with is driving costs up.” Desktop virtualization can significantly cut those costs by streamlining the deployment of applications and data to the end users.

“Ordinarily, your organization might have five or six base images, one for each department,” Duckering says. “If you don’t use virtualization technology that separates out the applications, then each of those images is complex and contains a lot of pieces that must also be managed.”

For example, you may have an image for engineers and call center and sales reps. Each of those environments has a certain number of applications and security configurations. Just doing a patch to Microsoft Office is going to be more complex because you’ve got more interactions and dependencies between all those pieces.

With virtualization, an IT manager can create a base OS image for the entire organization that’s separate from the applications. “If I have a patch for Photoshop, all I have to do is patch Photoshop in one spot in the data center and that will automatically propagate out to all the end users as necessary,” Duckering says.

“I’ve just eliminated a huge amount of the effort,” he says. This would have been expended by physically visiting and working on the desktops.

**Cost Efficiencies**

Desktop virtualization also cuts the costs of purchasing and maintaining PCs. A PC refresh isn’t just the acquisition cost. It’s the entire process, including procurement, installation, provisioning for each user and ongoing maintenance.

With desktop virtualization, everything the end user needs resides in the data center. Therefore, IT managers don’t have to upgrade PCs every few years.

“Instead, you can use that money for longer-life, greener and easier-to-maintain thin-client devices,” Dhawan says. “That can give you the ability to use those budget dollars over time on other innovation-related functions. Or help you reduce the budget over time, as well.”

Dhawan notes that desktop virtualization achieves significant cost savings in terms of support and maintenance costs. The biggest help desk issues typically disappear in a virtual desktop environment.

“You’ve got a single password, a single place where data is present that’s easy to recover and one place with all the applications,” Dhawan says. “If you have any of those problems, all you have to do is restart your desktop environment and you’ll get the latest desktop, applications and data."
“Therefore, your virtual desktop environment is up and running without you having to call help desk,” he adds. “That saves time and money.”

Duckering points out that one of the most quantifiable costs savings comes in application licensing. Symantec’s application streaming solution allows businesses to gain better control over managing those licenses.

“If you’ve already delivered 150 licenses of an application, the next request can be denied so that you will never be overdeployed,” he explains. “And you can identify opportunities based on usage to recover licenses when there have been long periods of idle time.

“With the standard method, applications are built into the image or sent out to entire groups at a time,” he adds. “I guarantee you will have more applications deployed than are needed for productive use.”

Because no data ever resides in an endpoint device, a virtual desktop environment also simplifies security. Desktop virtualization also gives organizations better control over enforcing security policies.

“There may be technologies available to secure the endpoints, but they’re hardly used because they’re cumbersome to implement, and really they’re just a band-aid,” Dhawan says. “Once the data is at the endpoint, it’s a band-aid to prevent it from leaking.

“With desktop virtualization, all the data gets centralized in the data center and it never leaves the data center,” he adds. “You’ve got higher security and much easier time managing that data for data recovery and backup.”

“If you have a virtual desktop, you can lock down USB devices so that you can’t copy any files onto your thumb drive,” VMware’s Mallempati says. “IT folks can enforce a policy where you can’t send certain files to a locally connected print device.”

**Virtualization Solutions**

Desktop virtualization doesn’t make sense for every environment. Still, it is particularly useful for organizations that have help desks, call centers, remote employees, computer labs and administrative staff.

There are several factors to consider when determining when you should virtualize your desktops. Dhawal recommends looking into virtualization when a PC refresh is approaching.

He also notes that the upcoming release of Windows 7 provides an opportunity to explore virtualization. An OS refresh can take a considerable amount of time. It can also cause compatibility problems with the hardware and applications.

Desktop virtualization is about agility and efficiency. A virtual deployment of Windows 7 would allow you to update the existing desktop environment without any changes required to the hardware or applications.

Mallempati says virtualization is ideal if you’re looking to implement new security or compliance policies, or when you’re establishing a disaster recovery plan. He also notes that virtualization is ideal for companies looking to open remote offices or offshore key business processes to another country.

As for desktop virtualization products, VMware View is a comprehensive solution that includes desktop management, storage optimization and application virtualization. It provides end users with a single view of all their apps and data in a familiar personalized environment on any device and location.

“It takes it to the next step by creating a bubble around the applications and separates it from the underlying operating system,” Mallempati says. “You can stream an application and manage it completely separately from the operating system and the devices. You can mix and match applications and operating systems.”

VMware also offers desktop virtualization services, including VMware View Jumpstart. It helps companies get started with desktop and application virtualization deployment. VMware View Plan and Design Service develops and documents a VMware View architecture design.
Citrix’s primary desktop virtualization product is XenDesktop, which includes single image desktop management. The company also offers the XenApp application virtualization tool, which lets IT manage a single instance of each application in an application hub in the data center.

Applications are streamed directly to Windows PCs for offline application virtualization. They can also be run on high-powered servers in the data center for online application virtualization on any device or operating system.

“Once you start with desktop virtualization, applications are the key component of it,” Dhawan says. “If you don’t do applications, your costs go through the roof and you haven’t simplified the management.

“You still haven’t gone to a model where each application can be updated instantly and isolated in its own environment,” he says. “That’s why application virtualization is the key component in making desktop virtualization successful.”

Symantec refers to its solutions as endpoint virtualization. It offers four products as part of its Endpoint Virtualization Suite that organizations can mix and match depending on their needs.

Workspace Corporate provides centralized management of shared and dedicated desktop environments. It delivers these securely and instantly to any device, for both corporate and remote users.

Workspace Virtualization deploys and removes applications into various virtual environments. Workspace Streaming provides on-demand delivery of applications to both physical and virtual endpoints for simplified license management.

And Workspace Profiles records configuration changes to a central repository. This provides end users with a consistent, portable experience across multiple environments.

**VDI Considerations**

What all of these offerings have in common is that they deliver solutions beyond moving the desktop environment to the data center. True desktop virtualization is a complex undertaking, but one that can be richly rewarding for an organization if implemented properly.

“Everyone should be considering it,” Duckering says. “But don’t virtualize for the sake of virtualization.

“It's much more preferable to attack specific problems that you have,” he adds. “If you’re spending too much on licenses, let’s figure out how to solve that problem. Virtualization is a means to an end, it's a particular strategy, but it's not a solution unto itself.”

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