



# Desktop Virtualization: Not for every user – but it is for every company

Industry researchers are forecasting steady growth in the desktop virtualization market. According to Gartner, "HVD (hosted virtual desktop) deployments are forecast to reach 74 million users by 2014 or 15% of professional desktop users."<sup>1</sup> In addition, Gartner also states, "while the installed base is relatively small today, Gartner has spoken to clients with deployment plans that include tens of thousands of employees using HVDs in an organization."<sup>2</sup>

<sup>1</sup> Source: Gartner, "Emerging Technology Analysis: Servers Deployed to Support Hosted Virtual Desktops," 18 March 2010.

<sup>2</sup> Source: Gartner, "Hosted Virtual Desktops Are the Catalyst Behind Changing How Organizations Manage Storage," October 2009.

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If you think desktop virtualization should only be discussed in theoretical terms, or put on the back burner because it's not ready for today's environment, think again. Desktop virtualization products and services are viable and available; it behooves IT and business executives to begin exploring how the technology can transform the way people work.

Desktop virtualization may well turn out to be the most disruptive technology innovation since server virtualization in the 1990's and even perhaps since the advent of the personal computer itself. Decision makers should look at it as a new way of computing that leads to enhanced IT controls, improved intellectual property management and substantial employee productivity improvements.

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Industry researchers are forecasting steady growth in the desktop virtualization market. Gartner predicted in its March 2010 "Emerging Technology Analysis: Servers Deployed to Support Hosted Virtual Desktops" report that the hosted virtual desktop market will accelerate through 2014, reaching 74 million users. In its October 2009 "Hosted Virtual Desktops Are the Catalyst Behind Changing How Organizations Manage Storage" report, Gartner notes that while the installed base of virtual desktops is relatively small, some organizations plan to deploy them to tens of thousands of employees.

A new survey commissioned by Dell and conducted by market research and consulting firm Penn Schoen Berland (PSB) shows that over 80 percent of the large enterprises in the U.S. and U.K. surveyed have already initiated desktop virtualization deployment in some capacity. Improving data security and reducing costs are top motivations for deployment, and adopters often focus on things like lowest total cost of ownership when evaluating desktop virtualization partners, according to the report.

Desktop virtualization promises a number of key benefits that can have a

broad economic impact on organizations. As with most organizations the initial focus is on hard cost savings, which for desktop virtualization are quantifiable if the organization runs an effective desktop environment. But hard costs are only part of the economic impact. Examples of soft costs include: the creation of a more efficient enterprise; increased employee productivity; the support of a distributed workforce; improved security; support for business continuity/disaster recovery; and reduced energy consumption.

Organizations in a variety of industries already are seeing some of the benefits of a move to desktop virtualization. At Dell itself, for example, the H1N1 flu outbreak in Mexico had a silver lining: the perfect opportunity to pilot a desktop virtualization solution.

Dell Guadalajara's network operations center (NOC) was concerned that the outbreak might make it difficult for employees to come to work and for others to travel to Mexico. At the same time, Dell had been working on a Managed Virtual Desktop solution and was looking for an opportunity to implement a pilot. Dell Guadalajara implemented a pilot Managed Virtual

Desktop solution with 15 desktops using Dell™ OptiPlex™ flexible computing systems and Dell PowerEdge™ servers with Intel® Xeon® processors.

The pilot was immediately successful, prompting the Guadalajara NOC to request that it be rolled out to approximately 85 desktops, creating a redundant NOC resource that could be used in the U.S. in the event of an emergency. Dell is also planning to roll the Managed Virtual Desktop solution out at its Malaysian facility outside Kuala Lumpur.

While desktop virtualization is available as a contingency solution, the benefits spread far beyond. Ben Taylor, global NOC manager, observes, "The Dell Managed Virtual Desktop solution allows us to control the environment and maintain tighter security."

## Mr. CIO, Tear Down This Wall!

Deploying desktop virtualization presents formidable challenges. Companies must first recognize that this is a disruptive technology, crossing traditional IT organizational boundaries and substantively modifying how enterprise applications and infrastruc-

ture are utilized by many employees. Like the first personal computers were to typewriters, desktop virtualization represents a significant shift in the way things are done.

The technology fundamentally changes the way employees use enterprise applications and dramatically alters the way a company's IT assets are controlled. Employees will have to understand that previous individual freedoms created mass amounts of variability that substantially increased management costs and exposed them and the company to security and privacy issues.

Perhaps the most dramatic change will be the improved access and sheer performance of enterprise applications on a global basis. For example, today many companies utilize expensive terminal services (Citrix and Microsoft are the most notable) to

extend applications to remote users worldwide. With desktop virtualization the desktop is now in the data center, right next to those applications, basically providing every employee with LAN performance.

For many organizations, a key question will be who manages this new environment. Because the technology involves moving the desktop to the data center, turf battles could result. For example, the majority of the desktop virtualization investment is within the enterprise data center for server, storage and network. End-user devices, which may or may not be replaced, are managed by the people in charge of desktop computing rather than by data center managers.

In addition, the implementation of desktop virtualization fundamentally shifts control from the individual end user to the data center or IT organization. These cultural aspects must

be managed before, during and after the implementation through effective communication among management and staff.

Desktop virtualization is for every company, but it's not necessarily for every user, especially early on. Some types of workers and functions are better suited to the technology, while others will do well continuing with traditional PCs. For example, road warriors will not likely replace their laptops; (although the day will come when providing every employee a virtual desktop as their primary computing device is within reach). It's up to IT and business managers to determine where virtualization fits best.

Another challenge is deciding which of the desktop virtualization technologies available are the most suitable for the company or the particular user groups or business functions that will initially implement them. Each vendor and technology has its strengths and weaknesses, and offers a variety of features and capabilities that companies need to carefully consider. Today just two vendors (VMware and Citrix) represent more than 90 percent of the desktop virtualization software market.

Security is yet another challenge. Organizations must be sure that the virtualized desktop environment is protected against security breaches. According to the PSB survey, security is the top motivation for deploying desktop virtualization and also the top barrier. Companies are most concerned with security features, functions and controls.

## Steps to success

Organizations that are considering or planning a move to desktop virtualization first need to identify and put in place a strong cross-organizational team lead by a change agent who will push through barriers in both IT and the business community. The team should include people from various



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Building the team is step one. In step two the CIO or other top-level IT executive must spread the word among key business stakeholders to qualify and quantify the IT and business reasons to initiate the project. It's essential that senior IT and business personnel be kept abreast of progress and key developments.

Step three involves selecting a couple of use cases as pilots. Clearly this is not a "set it and forget it" endeavor; companies should predefine what areas within each use case need improvement, and how desktop virtualization can deliver on those improvements in a relatively short period of time. Consider these to be trials within production with "real" end users, accessing their primary enterprise applications. There are far too many companies today starting with a proof of concept approach in more of an IT playground within a lab environment. That approach delays the realization of the business value required for meaningful adoption, says Terry Vaughn, Director Global Market Development at Dell.

Examples of possible initial use cases include:

- Highly distributed knowledge workers
- Shop floor and warehouse workers who do not require utilization of an entire desktop
- Roaming doctors and nurses
- Application development and testing teams
- Work-at-home employees for contact and call centers

It's important to share the results with the organization as a whole. Specific communication and word of mouth regarding improved application performance, enhanced mobility and

the excitement of working with new technology can lead to viral adoption, at which point organizations can let user acceptance of the technology drive successive deployments.

## Tapping a trusted advisor

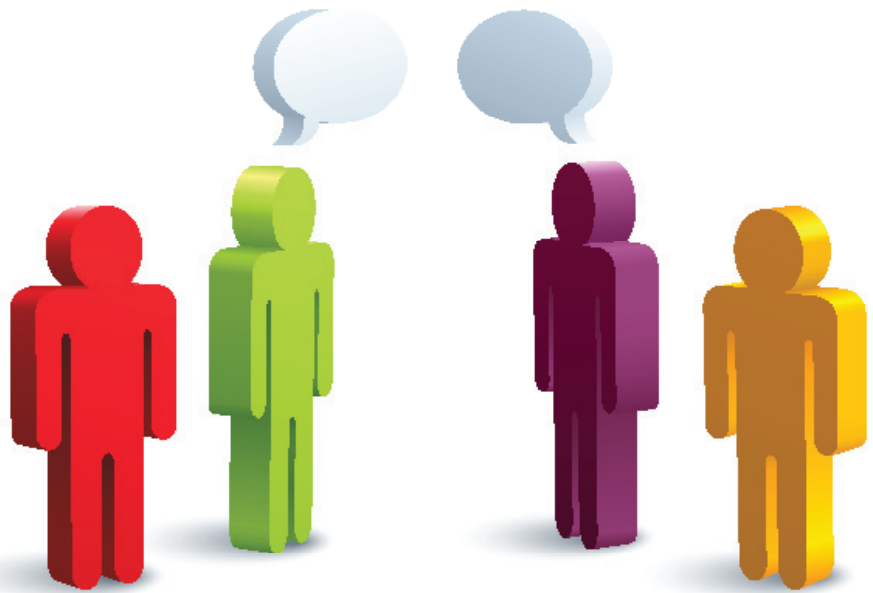
Choosing a trusted advisor—someone who can define the path that yields the enterprise empirical data companies need to make key early and sustained decisions—is one of the most critical steps for organizations looking to broadly deploy desktop virtualization. Dell Services has the expertise and experience to help organizations in any industry plan for and move to a desktop virtualization environment.

The PSB survey shows that Dell is already viewed by many companies as

one of the top desktop virtualization vendors. Two-thirds of the respondents expect Dell to be a leader in the category. Upon learning that Dell offers desktop virtualization, more than half the U.S. respondents said they were more likely to consider deploying it.

Dell's desktop virtualization approach takes into account the people, processes and technologies required for an effective implementation. The company uses best-in-class tools to create a holistic, fact-based approach to building an efficient enterprise, ensuring that all components of IT (enterprise applications and infrastructure) are considered.

Among the virtualization services offered by Dell are Discovery Workshops, Assessment which includes a "digital footprint;" Blueprint Process, Design,



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Implementation and for certain customers ongoing Management Support.

Like server virtualization, desktop virtualization is not a project but a new way of doing things. It takes team, company and vendor commitment to make this new paradigm work. Where you start matters, and with a trusted partner like Dell, an organization can make an informed decision on the best time and place to deploy desktop virtualization.

With the right people in place, the organization can then focus on providing them with thorough, product-specific training as a foundation. Policies to prevent virtual machine sprawl are essential, and licensing issues should be factored in at the outset. Use management and monitoring tools from the start, and focus on managing the cultural change that's inherent in a shift like this.

Dell can help customers effectively deal with the enterprise-class challenges that are often barriers for many companies, including: centralizing remote file and print servers; migrating or relocating applications that do not run well over the LAN with traditional PCs; implementing solutions to deploy virtual desktops for the mobile workforce; and evaluating unified communications alternatives to pair with the virtual desktop.

Dell provides customers with "unprecedented choice when deploying desktop virtualization. This ranges from customers providing their own reference architecture, purchasing Dell components via Business-Ready Configurations or OEM bundles and implementing on their own, to an enterprise cloud environment where Dell implements, operates and manages an "as a service" architecture in a Dell data center.

This level of flexibility enables any organization to make the move to desktop virtualization while respect-

ing its long-term strategic plans for the data center. For those enterprises considering moving from a centralized, company-owned data center to a cloud computing environment, Dell is definitely an enterprise-class option.

Because each organization is different, Dell offers "as a service" desktop virtualization solutions with partners Citrix/Microsoft and VMware. The key is flexibility. Whether deployed on-premise, in the customer's data center, or in Dell's data center via extension of the customer's enterprise, these end-to-end, managed solutions offer broad customer choice, along with breadth and depth of capabilities. Since one size does not fit all, Dell offers numerous price performance options via Dell enterprise servers, Dell Equal Logic storage, and Dell automation powered by Dell Services.

## Disruptive Technology, Multiple Benefits

Desktop virtualization is a transformative, game-changing technology that can enable productivity gains, cost savings, increased security and more efficient use of IT infrastructure. Like other transformative technologies, desktop virtualization promises to radically change the way people access and utilize enterprise applications to do their jobs on a day-to-day basis.

Here are just a few of the potential benefits that can have a dramatic impact on users and the business at large:

- End users: Improved application speed and accessibility; full-featured desktops with "anywhere access" and immediate session continuity; greater end-device selection and work location flexibility
- IT management: Centralized desktop technology and operations that mirror the existing enterprise data center infrastructure; automated monitoring tools; a centralized OS and application

library that dynamically build up-to-date images when users connect

- The organization as a whole: Improved information security and regulatory compliance; greater control of data flow and accessibility; enhanced business continuity; improved scalability to match actual use; longer end-user device lifetime; reduced desktop management and support costs

For organizations seeking an edge in a competitive market, this is no time to be sitting on the fence. Desktop virtualization solutions are viable, and now is the time to deploy the technology, or at least launch trials that demonstrate its benefits.

Because desktop virtualization is disruptive and involves multiple aspects of the IT organization, implementations can come with significant challenges. Done well, a desktop virtualization implementation can help transform an enterprise into a more efficient operation, empower end users to do their jobs more effectively, and enable companies to get the most value out of their information assets. Done poorly, it can lead to wasted time and money, and disgruntled staff and management.

Because the stakes are so high, organizations need a trusted advisor to help plan and execute their desktop virtualization strategy. Dell Services has the expertise and the solutions to help companies deploy this transformative technology.

# How Virtualization is Changing the Shape of Your PC

WHAT WILL YOUR NEXT WORK COMPUTER LOOK LIKE? VIRTUALIZATION IS CHANGING THE CORPORATE PC INTO AN AMORPHOUS MASS OF COMPUTING RESOURCES — MEANING MUCH OF THE POWER OF YOUR NEXT PC WILL BE DEFINED NOT BY THE HARDWARE ON YOUR SHOULDER, BUT BY THE DATA CENTERS AND EXTERNAL SERVICE PROVIDERS THAT YOUR COMPANY UTILIZES.

Near the end of almost every year, dramatic reductions in the size and weight of typical business laptops and PCs spark a series of blogs and media stories about how drastically different “your computer” will be next year.

The way it looks so far for 2011, much of the power, data and abilities of “your computer” will have less to do with the hardware on your shoulder than with the data centers and virtualization capabilities of both internal IT organizations and external service providers.

“The industry has been delivering technology to users based on the physical model of the computer, which doesn’t fit the way they want to consume the technology,” says Chris Wolf, analyst at The Burton Group. “The future really is convergence of virtualization technologies and services that include client VMs, server-hosted VMs, SaaS, PaaS and other services, so what users think of as ‘their’ computer is more about resources than the box.”

## 2011: The Year SaaS and PaaS Take Off?

The increasing variety of ways in which desktop virtualization technologies can supplement or safeguard the end-user’s computing experience makes virtual desktops much more attractive than in years past, especially with recent enhancements in the ability of thin clients to support graphics and Web browsing,

according to Mark Bowker, analyst at Enterprise Strategy Group.

Consumers who flocked to free online e-mail and social media sites and then absorbed increasingly complex business-oriented services including CRM, ERP and accounting have helped push corporate IT into accepting the idea that relatively generic online services such as those and the platform-as-a-service offerings of cloud vendors could play legitimate and critical roles in IT infrastructures, Bowker says.

“In a survey we did of corporate Gmail users, 17 percent said they’d also be interested in a hosted desktop model using some third party to supply desktops for their enterprises,” Bowker says. “That’s a big change from a few years ago.”

Laptops, nettops and handhelds will make up more than 60 percent of all PC shipments during 2010, but fully 10 percent of new enterprise desktop clients will be virtual, according to analyst firm International Data Corporation’s report, “Personal Computing Top 10 predictions for 2010.” (IDC is part of CIO.com’s parent company, IDG.)

“We’re expecting consumer and commercial PC buyers alike to be more experimental with new types of PCs,” lead analyst Bob O’Donnell said in the report.

But anything that squeezes more productivity out of existing hardware will find an audience waiting for it, Bowker says.

## Desktop Virtualization Battle Heats Up

Among the rush of new products trying to take advantage of that are Microsoft (MSFT) and Citrix, which enhanced Citrix’ graphics-enabling HDX technology for remote-session computing and the addition of virtual-PC-friendly touches like licenses that explicitly allow customers to use licenses for apps running on virtual hardware, adding dynamic memory management to Windows Server 2008, and incorporating Microsoft’s RemoteFX new-generation terminal-services protocol in both Citrix products and Windows 7.

Thin-client competitors Pano Logic and NComputing are also waving the flag; Ncomputing released bare-bones versions of its thin-client unit that cost between \$70 and \$150. Pano Logic announced a deal under which Fujitsu would ship flat-panel monitors equipped with Pano Logic clients to make the monitor itself the computer.

Citrix and VMware (VMW) both promise bare-metal versions of their client hypervisors that could improve performance of virtual clients and potentially make non-standard devices such as the iPad into VDI clients.

More interesting is that entire classes of vendors like AppSense, LiquidWare, RingCube, Unideks, Infinity and others are springing up to add personalization and greater capabilities to thin-clients by containerizing the drivers, profiles, DLLs and other data to improve both the user experience and effectiveness of the virtual client, Bowker says.

Many companies like the idea of reducing both capital and operational expenses by giving end users ‘desktops’ hosted in a data center, but the cost of doing it themselves or outsourcing the service is often too high to make it viable, Wolf says.

# Desktop Virtualization: It's Microsoft vs. VMware in Cost Smackdown

VIRTUALIZATION WATCHERS HAVE SPECULATED FOR YEARS WHEN MICROSOFT WOULD THROW A LOW-COST BLOW AT ARCH-RIVAL VMWARE IN THE DESKTOP VIRTUALIZATION FIGHT. THIS WEEK, MICROSOFT DELIVERED THE PUNCH VIA A NEW PARTNERSHIP WITH CITRIX.

Microsoft's (MSFT) new desktop virtualization initiatives announced yesterday are a long-anticipated move to make desktop and application virtualization easier and cheaper for enterprises. But it's also part of a broader Microsoft strategy to capture market share from virtualization arch-rival VMware (VMW).

Desktop virtualization is still a nascent technology, but it does offer the kind of flexibility and ROI that enterprises are looking for, especially ones that are migrating to Windows 7 and are worried about application incompatibility. Microsoft's desktop virtualization model, including VDI (virtual desktop infrastructure), promises to rein in desktop costs, improve security and management and speed up the delivery of new applications.

One key part of the sweeping announcements, covered in an hour-long Webcast, is a simpler and cheaper model for licensing Windows in a virtual desktop environment. Specifically, on July 1, Software Assurance customers will no longer have to buy a separate license to access Windows via a VDI.

Moreover, for customers that use devices that don't qualify for Software Assurance, such as thin clients and PCs used by contractors, there will be a new license called Windows VDA (virtual desktop access) available for \$100 per device per year. This license will allow users to still have access to their complete virtual desktop outside the corporate network on devices such as personal laptops and airport kiosks.

But from an industry perspective, the most noteworthy aspect of Microsoft's virtualization announcements is the company's tighter bonding with partner Citrix to bundle each other's virtualization software, in an effort to gang-tackle virtualization market leader VMware. While well ahead of Microsoft on the server management side of virtualization, VMware is now scrambling to stay ahead in the desktop space, says Chris Wolf, senior analyst at Burton Group.

"Vmware had a two-year lead in desktop virtualization, but it is only beginning to take it seriously," says Wolf. "Citrix and Microsoft want to take on VMware in this space, and they're closing the gap here. Vmware needs to step up its game."

To this end, VMware recently released a new version of the ThinApp application virtualization software to ease migration to Windows 7.

Microsoft and Citrix are merging technologies, but they are also giving customers bargain deals. In addition to merging Microsoft's 3-D graphics technology for virtual desktops, called RemoteFX, with Citrix's high-definition HDX technology, the two companies will offer a price-cutting promotion called "VDI Kick Start" from March 18 until Dec. 31, 2010.

VDI Kick Start allows existing Microsoft customers with CALs (client access licenses) to pay \$28 per desktop for up to 250 users to get the Microsoft

Virtual Desktop Infrastructure Suite, standard edition, and Citrix's XenDesktop VDI Edition for one year. This comes out to be approximately half the typical annual license cost.

The other offer from Microsoft and Citrix is a more direct confrontation with VMware. Called "Rescue for VMware VDI", it's a promotion that lets SA licensed Microsoft customers replace their VMware View licenses for free. VMware View customers will get up to 500 XenDesktop VDI Edition device licenses and up to 500 Microsoft VDI Standard Suite device licenses for no charge for a full year in exchange for their VMware View licenses. Like the "VDI Kick Start" promotion, "Rescue for VMware VDI" is available from March 18 through December 31, 2010.

"This is for customers we've spoken to who maybe had a great experience with VMware with servers and then rushed out to do the same thing on the desktop and ran into a brick wall with poor user experience and scalability and ROI problems," says Wes Wasson, chief marketing officer at Citrix.

It's too early to declare a winner in desktop virtualization — because the market is so raw, says Burton Group's Wolf. But he thinks VMware executives should be on high alert over this new assault from Microsoft and Citrix.

"VMware should be worried about this," he says. "If they're not, they're doing something wrong." ■

Microsoft's desktop virtualization model promises to rein in desktop costs, improve security and management and speed up the delivery of new applications.

# IDC: Avoid 'one-size fits all' for desktop virtualisation

## COMPANIES SHOULD WEIGH ALL OPTIONS SAYS ANALYST

Users looking to move to desktop virtualisation should be wary of thinking that it's a panacea of all their desktop problems. That's according to Lionel Lamy, IDC's research director for software and services who warned that companies often had unrealistic expectations of what moving to the technology would do for their business.

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Many analyst companies have spoken about the rise in the take-up in desktop virtualisation, many commentators have spoken about 2010 being the year of desktop virtualisation and a survey from Citrix earlier this month, found that more than half of UK are either using or trialling desktop virtualisation.

Lamy, speaking at an IDC conference on desktop virtualisation in London, said that there were several elements of an organisation's infrastructure that could have an impact on the cost-effectiveness of a desktop virtualisation rollout. User organisations needed to take into account elements such as the cost of acquisition of the hardware - a commitment to capex - as well as the cost of hardware and software deployment and maintenance; the cost of managing of multiple applications - dealing with conflicts between programs - and the cost of disaster recovery.

And the differences between the various types of desktop virtualisation shouldn't be brushed aside warned Lamy. He said that companies often adopted a "one size fits all" approach to the technology - one that wasn't always appropriate. "There are different types of desktop virtualisation, ranging from server-based computing, which would be suitable for simple applications or for task workers, VDI for knowledge workers and consolidated clients, blade PCs, suitable for power users. There's also another category of client hosted virtualisation for mobile workers, something that's increasingly in demand," he said.

It was important to note, said Lamy, that there were plenty of advantages going down the desktop virtualisation route, in terms of manageability, flexibility and control over security, it's just that organisations had to be careful to cost the rollout correctly and opt for the right type of virtualisation.

Lamy added that even if all the technological issues could be surmounted and the rollout proceeded smoothly, there was still the question of company politics to deal with. "Never underestimate the resistance to organisational change," he said. ■