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New Considerations to Maximize Your Desktop Virtualization Implementation In 2011

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Executive Summary

Once the cutting edge of IT practice, server virtualization is now a fact of life for corporations. The ability to reduce costs, simplify technology management, improve service levels, and increase IT control, all at the same time, is the compelling reason for this change.

The same factors that make virtualization powerful and useful in the data center apply to the desktop. Enterprise-size organizations can have hundreds of thousands of client devices whose capabilities are almost always under-utilized, meaning inefficient use of resources and capital. However, companies of all sizes can face this dilemma. Important data can sit on these devices unbeknownst to the corporation and, so, be unavailable to others in the company or for business continuity planning. Managing devices is difficult, unwieldy, and often ineffective.

Solving these client management issues with the tools and techniques of virtualization offers a largely untapped opportunity to improve operations, reduce risk, and regain lost profit. A combination of hardware and software from Hewlett-Packard, VMware, and AMD makes this possible today.

Reaping the Benefits of Desktop Virtualization

Virtualization has become a mainstream data center philosophy and a top priority for a majority of companies. The first step to virtualization is server virtualization, now an industry standard for improving data center efficiency and cutting infrastructure costs. According to Gartner, 25 percent of server workloads ran on virtual machines at the end of 2010, and Gartner expects this percentage to double by the end of 2012.[1]

With the management efficiencies and cost savings realized through server virtualization, companies are looking for other ways to expand their use of virtualization methodologies and continue to streamline management, improve service levels and harden data security. Virtual desktops can help provide the tools that companies businesses want. According to IDC, global PC unit shipments in 2010 were about 346 million.[2] The number of servers that ship globally is a small percent of that number. Factor out consumer sales and that still leaves an enormous number of client devices to be managed.

Of those commercial client devices, a majority are employed in ways that under utilize their capacity and performance. Even power users only occasionally put a significant strain on the computational and graphics ability of their desktops. Other users spend most of their time in such daily tasks as email, word processing, spreadsheets, and server-based application accesses that do not necessarily require high-end client capabilities, and so client system capacity is regularly underutilized.

Furthermore, desktops and laptops with local storage can present a serious data problem. Workers can keep important information on their hard drives, which can make it invisible to the rest of corporation. Local data also complicates data recovery, business continuity implementations, and security planning for the business.

IT departments have now begun to extend

1 *"ATV: Virtualization Reality," January 2011, Gartner*
2 *Worldwide Quarterly PC Tracker," IDC*

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virtualization beyond servers, out to the desktop because of the many benefits this technology offers. Desktops run as processes in the data center with the physical clients acting like a combination of display and input device.

Desktop virtualization helps eliminate some common challenges of desktop provisioning and support while improving overall company data management and security, streamlining system patches and upgrades, helping to achieve increased service availability, strengthening business continuity, and decreasing total cost of desktop ownership. Here are just some of the benefits:

Optimize End User Applications

Installing applications on desktops poses many challenges, including conflicts with the operating system and with existing applications, company-approved or end-user installed. Tracking all versions of an application for software compliance is difficult, and keeping all users on the same versions is a logistical challenge, especially when newer versions of applications may require hardware upgrades.

With desktop virtualization, IT departments can turn applications into isolated executables controlled and run in the data center to eliminate conflict, streamline deployment and allow for centralized delivery and management to ensure software compliance across all devices.

Increase Management and Control

It is far easier to manage virtual desktops, as all administrative work occurs centrally, which reduces or eliminates redundant tasks, time and resources that are necessary when technicians service individual desktops or other client devices. IT can improve service levels, ensure licensing compliance, and better control system updates because data and software are all within its direct control.

Another challenge that virtualized desktops resolve is that of operating system upgrades. A jump from one OS version to another can be challenging and time consuming, requiring separate data restoral and reinstallation of applications. Centrally-managed virtual desktops do not have that issue. Once the change is made to a Linked Clone base image, IT can quickly and easily transition users to the new operating environment.

Improve Data Security and Continuity

Having corporate data hosted on desktops and laptops presents another challenge to IT managers, because they don't have control over it. The information can easily be lost or stolen with the device. A technical problem with a client machine can corrupt or even destroy the data. Furthermore, access is restricted to the non-virtualized computer.

With virtual client computers, all data resides in the data center. IT can control user access, centrally back up the data, and make appropriate data simultaneously available to all approved employees. Business continuity becomes easier to ensure. Workloads can move to different resources and employees can transparently continue their work. Furthermore, centralized management and control of desktops means that IT can efficiently apply operating system and application security patches throughout the organization, addressing a fundamental issue in ensuring information security.

Enhance End User Experience

Virtual desktops provide end users with more freedom than ever before. No longer tied to a single physical device to access corporate resources, they can now access their same desktops on any device whether in their physical office or remote. With desktops running in the datacenter, a client hardware failure no longer impedes productivity because the end-user can log in from another device.
Streamlined support means less user downtime. When connected, the VMware PCoIP protocol adapts to the end user's network environment, which is also the most up-to-date, to aid optimized end-user productivity.

Reduce IT Costs

PCs long ago reached commodity pricing. And yet, many thousands of computers multiplied by even a few hundred dollars per device can amount to great deal of money. Virtual desktops give organizations greater flexibility in selecting the number and type of end-user client devices. In addition, greater efficiency in maintenance and administration may provide additional savings. According to IDC, an organization can reduce the total cost of ownership of desktops by upwards of 50 percent.[3]

Almost any company that supports an extensive number of device-connected employ-

3 *Quantifying the Business Value of VMware View," IDC Research,Septemebr 2009*

ees can benefit from desktop virtualization. Even organizations that have outsourced functions or departments have found that providing virtually managed devices to the remote personnel provides the necessary computing resources while retaining control of data security, privacy, and intellectual property.

Although any industry can use desktop virtualization, some have adopted the technology more quickly than others because their particular requirements make it even more desirable:

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- Education – School districts and institutions of higher learning always face intense financial pressures, and yet teachers, students, and parents want more access to computers for the educational and administrative benefits they offer. Thin clients combined with virtualed desktops may help stretch budgets and provide more access to more students.
- Financial Services – Regulatory requirements on personal financial information makes control vital. Large firms that have thousands of employees can find this a challenge, so making administration easier is an enormous boon.
- Healthcare – Like financial services, the healthcare industry is under stringent regulatory control regarding the privacy of patient data. In addition, clinicians need access to technology that can provide the most efficient workflow and the highest quality of patient care. Virtual desktops can help ensure that the applications and data they need are both highly available and highly secure, whether using a mobile device or a fixed workstation.

The Road to Desktop Virtualization

Because of the numerous benefits that desktop virtualization offers, many organizations both want to and need to deliver this solution. HP, AMD, and VMware offer a set of products for building solutions that may assist IT teams in providing the flexibility to quickly deliver and refresh desktops, reduce business risks, and lower the complexity and cost of desktop management. And they do this while continuing to provide end-users with a fully functional desktop experience.

Real Cores to Handle Real Demands of Desktop Virtualization

The AMD Opteron™ 6100 Series processor is designed to handle increasingly complex and demanding virtualization environments. Based on the next-generation AMD Direct Connect Architecture 2.0 with up to 48 total cores in a 4P configuration, this platform more than doubles the memory bandwidth,[4] and provides nearly twice the I/O bandwidth of previous generation 2P and 4P servers,[5] helping companies tackle desktop virtualization with greater throughput, exceptional value, and readiness to scale as user demand increases.

More real cores means that data centers can run more virtual desktop sessions on a server, increasing your consolidation rate, or they can provide the robust environment needed to handle more resource-intensive power-user desktops. InfoWorld recently recognized the AMD Opteron 6100 Series processor (using the former code name "Magny-Cours") with a 2011 Technology of the Year Award, noting that it is ideally suited for dense computational work, such as virtualization hosting.[6]

High-End Server Performance at a Compelling Price

HP ProLiant servers and server blades featuring AMD Opteron 6100 Series processors deliver industry-leading performance, with exceptional value and low total cost of ownership. This allows IT departments to build the backend infrastructure needed to streamline desktop management and control and deliver complete desktop environments with greater application compatibility. HP's latest generation of servers – the HP ProLiant G7 series -- which includes several AMD Opteron™ processor based models, the ProLiant DL385 G7 and DL585 G7 servers, and the ProLiant BL465c G7 and BL685c G7 server blades — offer superior levels of processing power and memory while enabling extreme flexibility and management ease without breaking the IT budget.

AMD Opteron processor-based HP ProLiant DL585 servers, specifically, have been a mainstay

4 Based on quad channel DDR3-1333 for AMD Opteron™ 6100 Series processor vs. dual channel DDR2-800 for Six-Core AMD Opteron™ processor.

5 I/O comparison based on 3x HyperTransport™ technology links @ up to 4.8 GT/s (up to 14.4 GT/s total bandwidth) foSix-Core AMD Opteron™ processor vs. 4x HyperTransport technology links @ up to 6.4 GT/s (up to 25.6 GT/s total bandwidth) for AMD Opteron™ 6100 Series processor.

6 InfoWorld's 2011 Technology of the Year Award Winners," January 12, 2011, InfoWorld http://www.infoworld.com/d/infoworld/infoworlds-2011-technology-the-year-award-winners-285&current=3

for VMware customers since their introduction. The latest generation ProLiant DL585 G7 features four AMD Opteron 6100 Series processors and up to 512GB DDR3. It received a five star rating from PCPro and "suits businesses looking for a server consolidation and virtualization platform with massive expansion potential, the best remote management tools and good storage options."[7] The highest volume AMD Opteron processor based server, the HP ProLiant DL385 G7, also earned a 5 star rating from PCPro and is noted as a top choice for virtualization.[8]

Get Your Desktop "To Go" with VMware View

Purpose-built for delivering desktops as a managed service, VMware View provides the best end user experience and transforms IT by simplifying and automating desktop management. VMware View modernizes desktops and applications by moving them into the customer's cloud and delivers them as a managed service. Processes are automated and efficient, security is increased, and the total cost of desktop ownership can be reduced by up to 50 percent.[9] End users get a rich, consistent and high performance desktop experience from any qualified device whether in the office or on the go.

VMware View allows companies to increase the speed and reduce the cost and complexity of migration by delivering Microsoft Windows® 7 as virtual desktop with VMware View. VMware View also enables IT departments to manage and update all of their Windows desktops and applications from a central location in minutes. It makes testing, provisioning and support of applications and desktops much easier and less costly, and automates the provisioning of new desktops or groups of desktops.

What makes desktop virtualization particularly appealing for corporations is that the technology is available now and rests upon practices, standards, and vendors that leading companies already use to virtualize their servers and data center. Hardware and software available today allows corporations to solve long-standing problems with desktop and laptop computers and, in doing so, improve efficiency and security and make users more effective.

Typical Deployment

There are several components that comprise a VMware View solution, all of which are available through HP. The following is a typical configuration:

- HP ProLiant G7server blades (BL465c or BL685c) with AMD Opteron™ processors featuring AMD Virtualization™ (AMD-V™) technology
- HP BladeSystem enclosures
- HP StorageWorks SANs
- HP Virtual Connect Flex-10
- HP Insight Control for VMware vCenter
- HP Client Automation Management Software
- VMware vSphere®
- VMware vCenter® for Desktops
- VMware View Enterprise® or Premier
- HP Compaq Thin Clients powered by low-power AMD Turion Dual Core processors

An enterprise can use HP's Client Virtualization reference architecture, relying on its self-contained modular approach to speed implementation and deployment and to quickly begin delivering the benefits that desktop virtualization promises.

7 HP ProLiant DL585 G7 review," December, 20th, 2010, PC PRO http://www.pcpro.co.uk/reviews/servers/363838/hp-proliant-dl585-g7

8 HP ProLiant DL385 G7 review," October, 11th, 2010, PC PRO http://www.pcpro.co.uk/reviews/servers/361807/hp-proliant-dl385-g7

9 The Economics of Virtualization: Moving Toward an Application-Based Cost Model", IDC

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