A Wanova / Intel White Paper

The Power of One

560 S. Winchester Blvd.

San Jose, CA 95128

408-236-7440

wanova.com

July, 2011

CONTENTS

INTRODUCTION

An ideal desktop virtualization solution provides the centralization and manageability benefits associated with server-hosted virtual desktop infrastructures (VDI) but with the performance and responsiveness of a PC with a locally installed OS. However, the flexibility to run a virtual copy of the centralized image on a laptop, so that users take advantage of the native performance of a PC – including the ability to run multimedia apps and work while disconnected from the network – is not intrinsically offered by traditional Desktop Virtualization (DV). The value of a no-compromise solution lies in its ability to centrally and effectively manage computing resources, without sacrificing user performance, flexibility or accessibility. Intelligent Desktop Virtualization, as defined by Intel, is a set of principles that prescribe how to achieve a no-compromise solution for both IT and end users.

 |

Desktop virtualization is one of the most important technology initiatives that an organization can implement, as it provides a versatile approach to desktop management.

One of the basic characteristics of a DV solution is the centralized management of desktop images. Furthermore, management can be streamlined by consolidating the thousands of desktop images down to a single golden image stored and maintained in an enterprise data center or a service provider's network operations center. This single-image approach enables one copy of Windows and one copy of each application to be managed centrally, as opposed to remotely managing the multiple instances that are distributed across PCs.

The central management of a single image helps reduce operational expenditures and eases desktop management. This helps organizations lower costs, improve agility and focus on projects that are more strategic to the business.

Virtual desktop infrastructure (VDI) was the first, mainstream DV technology to market and because of that, VDI evolved to be synonymous with DV.

The classic form of VDI can be appropriate in some use cases but is limited in the amount of personalization it can support and fails to use laptops and desktops to their full potential.

While VDI allows IT to centrally manage images, the fact that the image is also executed centrally comes at the detriment to end users who have beyond basic computing requirements.

This limitation of VDI exemplifies one of the fundamental challenges of Desktop Virtualization as it is typically practiced today. Users want the benefits of the native performance capabilities of a PC, such as using multimedia and VoIP applications, installing personal applications, and personalizing their overall computer experience. End users also need to be able to operate over a slow Internet connection, as well as when they are disconnected from the network completely. They want a computing platform that gives them the mobility and flexibility they need to be productive. IT wants to maintain a well-managed client in order to control costs and security. How do organizations reconcile these two seemingly opposed drivers? Intelligent Desktop Virtualization (IDV) is the answer.

INTELLIGENT DESKTOP VIRTUALIZATION

Intelligent Desktop Virtualization is a concept defined by Intel that describes a desired future state for desktop image management and computing. Intel sees IDV as the next logical step in desktop management. Rather than a drastic compute model change, where IT professionals have to abandon familiar and successful technologies, IDV is an evolutionary

step. It enhances and expands the use of virtualization technologies to create a better future that eliminates the tension between IT and end users.

IDV comprises three principles: 1) Centralized management with local execution, providing better economics and user experience; 2) Layered image delivered intelligently, giving IT fine-grained control over a synched, golden image on both the client and server; 3) Intelligent device management, which provides operational excellence through out-of-band access to the device when the OS is not functioning. In short, Intelligent Desktop Virtualization holds the promise of a no-compromise solution for IT and end users.

A solution that adheres to these principles will centrally and effectively manage computing resources, without sacrificing user performance, flexibility or accessibility. The value for end users lies in an optimized user experience and enhanced productivity through limited PC downtime. IT benefits by having fine-grained control of a single centralized image that is layered and in sync with users' images on their PCs. Intelligent Desktop Virtualization allows enterprises to transition IT function from a cost-center, into a critical, strategic leader within the company that generates real business value and opportunities for growth. Companies that have become disillusioned with traditional VDI, which calls for fully executing an image in the data center, should consider Intelligent Desktop Virtualization.

DV, VDI – IT'S ALL THE SAME, RIGHT?

Definitely not. As virtualization technology has evolved, VDI has frequently, and mistakenly, been referred to as, and interchangeably with, DV because the advancement of virtualization technology began with server-hosted VDI. VDI has been an effective tool for the central management of desktops, while providing users a familiar desktop environment but there are limits to what VDI can achieve. These limitations have prevented VDI from becoming a widespread user-centric computing solution.

VDI provides a satisfactory experience for users that operate on a high-speed LAN with relatively static images and low computational requirements. Because of this, VDI's optimal use-scenarios include call centers, hospital rooms, retail bank operations and other task-oriented environments. In this type of operation, images are relatively static, there is no need for high-performance or multimedia applications, and there is a high-speed, low-latency connection in place.

VDI is also limited by the fact that the desktop image executes centrally, in the data center. IT's challenge is to support as many users per-server as possible while maintaining an acceptable level of user experience and quality of service. With VDI, it is all but impossible

to provide the same native PC performance, responsiveness and flexibility that users are accustomed to.

A desktop virtualization solution that provides both centralized image management and local execution at the PC does not suffer from the limitations associated with VDI, while meeting the needs of end users and IT.

Winning desktop virtualization solutions take advantage of the most powerful and ubiquitous end points available, intelligent PCs. In 2011, 410 million PCs will be shipped as compared to six million thin clients. Additionally, Gartner Group estimates that 72% of all end points will be laptops in 2014.

THE POWER OF ONE

An Intelligent Desktop Virtualization solution combines the manageability provided by centralization, with a user-centric computing architecture, so IT can realize efficiencies in desktop management and end users can work with the best possible user-experience.

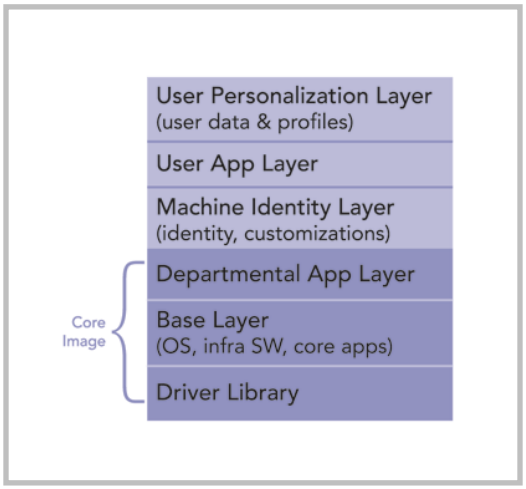
An example Intelligent Desktop Virtualization solution is one in which each user's full-desktop system, including the operating system, company apps, user-installed apps, user data and settings are centrally stored and managed in the data center. End users run a virtual copy of their desktop on their own device, giving them native PC performance, the flexibility to install their own applications and the ability to work offline. The virtual desktop acts as a two-way cache so that only one image must be maintained and managed. When a user connects to the network, changes made by IT propagate to the end point and changes made by the user propagate to the data center.

Centralization is enhanced by single-image management, which in turn is made possible by breaking-up the desktop image into layers and managing each layer separately. By separating the driver layer and departmental application layer from a layer that contains the operating system and core applications, organizations can take advantage of the "Power of One."

The Power of One enables organizations to manage just one copy of Windows and one copy of each application –instead of having to manage thousands of desktop images inside the firewall, or worse, outside the firewall. IT only has to update a single copy of Windows and a single copy of each app, dramatically reducing the time needed to install updates and patches, and eliminating the need for PC configuration tools.

Layering not only applies to IT-controlled images, but also all the things that make a personal computer personal.

As shown in the figure to the right, the personal section of the image (in light purple) is broken down into machine identity, the applications the user has installed and the user's data/ personalization. Layering of the personal section enables each of these layers to be synchronized and restored separately, which is especially important with Windows 7 migration and accessing data from mobile devices.



Centralization also vastly improves system back-up and restore procedures. The entire image is backed up, not just the data, so users can access an exact copy of their desktop, right down to their personalized user interface. Image centralization also improves Help Desk troubleshooting and system restoration processes, without affecting user data, apps or personalization. Other benefits include more effective software asset management, reporting capabilities, and organization for compliance support and enforcement.

While server virtualization focused on reducing capital expenditures, Intelligent Desktop Virtualization is about reducing operating expenditures. For every dollar that an organization spends on PC hardware, they will spend an additional $3 in operational expenses to maintain that PC. Cost reductions can be achieved by maintaining a centralized, controlled desktop, which also cuts the impact of end point issues and downtime, as the recovery time from lost, stolen or damaged data is markedly reduced.

Intelligent Desktop Virtualization also provides a longer-term, more strategic benefit: it allows IT to begin to operate as an internal service provider, by providing a "desktop-as-a-Service" (DaaS) offering. Most IT departments currently function as a cost center and do not contribute much strategic or competitive value to their organizations, as most of their resources are used primarily to maintain and secure a computing environment. By transitioning to a DaaS model, IT can begin to re-position its efforts away from maintenance and repairs, to activities that improve enterprise agility, reduce costs and add direct value to the business. In essence, Intelligent Desktop Virtualization allows IT resources to be redeployed from system maintenance to more strategic, business-critical functions.

 |

THE FUTURE – MANAGE CENTRALLY. EXECUTE LOCALLY.

With all the great promise that DV offers, why is it stuck in pilot mode at so many organizations? The reason is simple. To date, DV has really only been about VDI.

VDI is most closely associated with thin clients. Yet there are approximately 600 million business PCs installed today as compared to around 20 million thin clients. Further, PC users have come to expect outstanding computing performance, system personalization, flexibility to work anywhere and the ability to run multimedia applications, which is difficult to accomplish using VDI with thin client end points.

Type 1 hypervisors, a mechanism to virtualize desktops on the client, take advantage of the new computational horsepower seen in the market, but solve only a part of the problem. Type 1 hypervisors create a natural separation between the "play" side of the PC and the "work" side of the PC. Users can install all the applications they want on the play side and it does not affect the work side. Since a Type 1 hypervisor is installed on bare-metal client hardware, under the OS, users can enjoy native PC performance. However, just as with a regular PC, a PC that runs with a type 1 hypervisor can be enhanced with centralized image management, back up and integrated support – in addition to having the capability of doing this over the Internet.

Intelligent Desktop Virtualization is the next step in the journey to user-centric computing. It allows for the maintenance of a single, gold image of Windows and each application regardless of the use case/deployment model – VDI, Type 1 hypervisors, or a traditionally installed OS.

Centralized management of a layered image benefits both desktop virtualization solutions and traditional desktop computing. Today, it is possible to centrally manage a layered image, while executing a cached version of that image on the end point device, without the use of hypervisors at either the server or the client.

Any organization that sees value in centralization and is investigating VDI for task workers using thin clients should be aware of the benefits Intelligent Desktop Virtualization offers and how it can be applied to desktops, laptops and mobile devices.

For more information about Wanova, go to: http://www.wanova.com

For more information about Intel, go to: http://www.intel.com/go/vpro

