The Cure For The Seven Deadly Desktop Management Pain Points

Virtualization Technologies Are Transforming Desktop Management and Reshaping the Desktop Administrator's Role

By David Davis

At many companies, the job of the traditional desktop administrator is unenviable. In fact, most will admit, it's a daily struggle. After all, administering end user desktops isn't easy. Desktop admins are always hard pressed to fulfill the diversity of needs from, potentially, thousands of end users by using aging inefficient technology solutions.

At the heart of the problem is the local OS/App/User Profile design of the traditional enterprise desktop, which is locked in to a hardware device. Because of this design, desktop admins still mainly resort to manual approaches or the limited efficiency of existing tools when trying to automate the process of updating operating systems, patching applications and fixing user issues.

Before we talk about how virtualization technology can help take the daily life of the desktop admin from dismal to delightful, let's more clearly define the greatest pains afflicting desktop administrators today.

How Virtualization Cures Desktop Management Pain

1. **Simplifies The Environment –** fewer desktop images to manage (and images that work with every device) will give users fast access to the latest OS and apps
2. **Enhances Security –** by keeping apps and data in the datacenter and with more granular control, the company's data will be more secure than ever before
3. **Boosts Productivity –** by reducing desktop management headaches, your company and end users will save time

Seven Deadly Desktop Administrator Pain Points

I've administered hundreds of desktops so I know, first hand, that potentially hundreds of issues can come up in any one day. Most desktop admins will agree that there are a handful of common pain points that come up over and over again. The good news is that evolving virtualization technologies have spawned desktop management solutions that can help you address many of these pain points even if you never virtualize a single desktop.

The Seven Deadly Desktop Administrator Pain Points are:

1. **Provisioning New Desktops** – Provisioning new desktops at most companies still requires a purchasing process, and configuring the device before it gets to the user, a time consuming process. When deploying new desktop and laptop computers, most companies try to standardize on a brand and a few select models of hardware so that they can deploy the OS and apps using a library of hard disk images. Over time, admins create and maintain "golden" images for each version (OS and applications) of desktop or laptop computers, and push these images out over a network to the hardware, a process that must be heavily managed and scheduled. In many cases, during transition periods, you may even have a different image for each type of hardware, and for each operating system (such as Windows XP, Windows 7, and now Windows 8). Managing these images and keeping them up to date with new applications and patches can be a full-time – and very laborious -- job at many companies.

2. **User Customization Management** – Over the years, end users have become more technically savvy, thanks to greater access to affordable consumer technology. No longer is it acceptable to give every user the

exact same one-size-fits-all desktop without the ability to customize it. Today, end users expect to be able to personalize their company desktop, just as they do at home. Depending on the applications they are using, they may need to be able to login on XP, then on Windows 7 or even Windows 8, and then back to XP without any trouble. They also want to use other devices using other OS, like Android or iOS to access all or parts of their workspace. Additionally, end users expect their company desktops to be as fast, or faster, than their desktops at home. However, any desktop admin has learned the hard way, that letting users do absolutely anything that they want to on their desktops is a recipe for disaster. So desktop admins struggle with the balance of controlling user behavior while still letting them have sufficient autonomy to be productive – having the perfect balance for your users and use case is essential.

3. **Patching Desktops** - Microsoft releases a never-ending barrage of Windows OS and Office patches, not to mention the fusillade of patches coming from other commercial vendors or customized company applications. Then there are the maintenance applications like backup software and anti-virus. Using Microsoft Windows Server Update Services (WSUS) or third-party application patching solutions can seem like a losing battle, especially if you have thousands of desktops or multiple sites to contend with.

4. **Operating System Upgrades** – While end users may be clamoring for the latest OS, the thought of upgrading all your company's desktops even over the course of months, is a painful one for desktop admins. Once the testing of applications is complete, the rollout process could

cause significant downtime for end users and may be fraught with trouble. This could be, hands-down, the single-most stressful project that desktop administrators undertake, and Microsoft has upped the ante with their release of Windows 8 on the heels of Windows 7. With the impending EOL of Support for Windows XP, this pain point has become especially severe and is not only affecting admins today, but promises to really escalate into a full-blown catastrophe without an automation solution.

5. Profile Issues - Windows roaming profiles are a grand idea but end up being one of the common desktop admin pain points because, over time, they become too large, take too long to load, become corrupt or don't contain what the end users needs. The entire idea of a roamed profile is a great one, but there are solutions on the market offer full blown user management that go way beyond Microsoft Roaming Profiles and even profile-only solutions such as Microsoft UE-V.

6. Security – Trying to prevent data loss in the large enterprise can feel like losing battle. While security admins tend to push this responsibility onto the desktop admin, without the right tools, desktop admins can't possibly mitigate the likeliness that data will go home on a USB drive or that a laptop will get lost/stolen. The loss of corporate-owned data (Personal data, financial data, etc.) and IP (inventions, designs, engineering designs and more) is probably the most critical concern of executive management at companies, and falls directly into the desktop administrators' realm of responsibility.

7. **Help Desk** – While online resuscitation for desktops is more prevalent, a lot of administrators still have to visit the user's desktop to perform diagnostics and deal with issues. And "stuff" happens, whether it's hardware failure, user error or problems in the aftermath of an upgrade. When desktops are geographically dispersed, whether across buildings or worse, across countries in remote branch offices, it is very difficult to keep up with all the issues that arise.

So…is there any cure for these Seven Deadly Pain Points? Is it really possible that virtualization technology can overcome the design of today's hardware, operating systems and applications, making the life of a desktop administrator easier, more productive, creative (and happier)? Can someone help to reduce complexity, improve manageability and automate the tools that you'll need to accomplish the job?

The answer is yes – yes—and yes -- and here's how.

Transform Your Job with Desktop, User and Application Virtualization

Trust me, there is a better solution than printing out your resume to look for a new job. I was able to administer hundreds of end user devices and over a hundred servers with a very small staff thanks to virtualization and you can too. (We'll provide some use cases and examples of other organizations which have done it as well, in the next section.)

To any desktop administrator out there who isn't using desktop, user and application virtualization - now is the time! Let's talk about how virtualization applies for desktops and how it can relieve those Seven Deadly Pain Points.

User Management, User Virtualization

User Management, also called User Virtualization in some circles, essentially decouples desktop OS software from desktop hardware. To see how this plays out for desktops, let's start with a brief look at server virtualization. Server virtualization basically inserts an abstraction layer in between the hardware and the OS. Each application or group of applications that you run on a particular OS could be contained into a single virtual machine (VM) on that server. The main advantage of this approach was server consolidation – you could run more applications on fewer servers, thus conserving power and reducing data center real estate needed. And, you could run older applications and OS on newer, more powerful hardware.

Early desktop virtualization proposed to do, essentially, the same thing, except that an entire user's desktop…user settings, configurations, customizations, applications, data and OS – would be isolated into a single VM, which would be delivered to that user upon login. This approach came to be termed "persistent" (or stateful) desktops in that each VM would be dedicated to a particular user and retain all the previous user interactions.

However, over time, it became apparent that having all users on persistent desktops didn't really scale cost-effectively. So, stateless or non-persistent desktops were designed as a more practical approach. Stateless means there is no record of previous interactions and each interaction request has to be handled based entirely on information that comes with it.

So, in practical terms, you could run a pool of stateless, non-persistent desktops. Every user, upon login, temporarily gets a brand new desktop to

use, and when that session is over, the VM returns to the pool and/or base image. The good news is that this approach is scalable and cost-effective. Better yet, because all VMs return to their original pristine image, when the session is over, security is enhanced because any bad thing the user does is wiped out.

However the huge drawback to this approach is that you cannot provide user customization. It's definitely a one-size-fits all, and most organizations will tell you that this tends not to be the most popular with their workers, who want their customized familiar desktops.

So… enter user virtualization, which is a method of decoupling the user profile, and all that is associated with it, from the OS and hardware. What you end up with becomes essentially, a software-based identity for the user that is stored in the datacenter along with all their settings and data. When the user logs in, their "identity" and data is paired with a non-persistent VM to provide them with a total workspace that functionally is exactly the same as a normal hardware PC kind of experience.

So now you are getting the best of both worlds. A cost-effective, more secure desktop and user personalization, which by the way, is also more secure and manageable.

Another critical advantage of user virtualization, is that by decoupling users profiles from the OS, migrations to the new OS becomes exponentially easier, providing that then "harvested" user profile is compatible from OS to OS. (Please see: *Heavy Industry Manufacure XP to Windows 7 Use Case* to

understand exactly how revolutionary this aspect can be to save literally hundreds of staff hours in a migration.)

The last piece of the puzzle is the user data. A full User Management solution helps to make possible the separation of the user data from the OS as well. Through restoration of links to the data center or cloud, the user can have access to their user authored data outside of the base OS image or user profile. This separation of data is an essential component of desktop DR strategies and addresses the need to protect corporate data and files when your boss tells you to bring user data under control in the data center.

Application Virtualization

So, that sounds really good, right? But wait, it gets better! Application virtualization can really fine-tune this model.

Commonly desktop virtualization solutions are deployed in tandem with application virtualization solutions. With application virtualization, applications are "packaged" such that, in a single executable file, the entire application is contained and can be run, with no installation. What that means is that multiple versions of an application can be run at same time on the same computer. Upgrading an application is as easy as replacing an executable, and application conflicts are eliminated. When combined with a desktop virtualization solution, the packaged applications can easily be assigned per user, desktop, or group.

By leveraging application virtualization, it becomes possible to run only a single "golden image" for all company users. Thus desktop admins only have one image to keep up to date with the latest operating system and the applications that span all or most users in the organization. There is only one

image to patch or upgrade when new OS or application patches are released. When it comes time to upgrade to, let's say, Windows 8, you can create a new image, test end users on it however, you would like, and, when everyone is comfortable, "flip the switch" to put them on the new OS. There is no mass upgrade that causes downtime for end users and pain for administrators.

Liquidware Labs ProfileUnity – The Magical Solution for Desktops

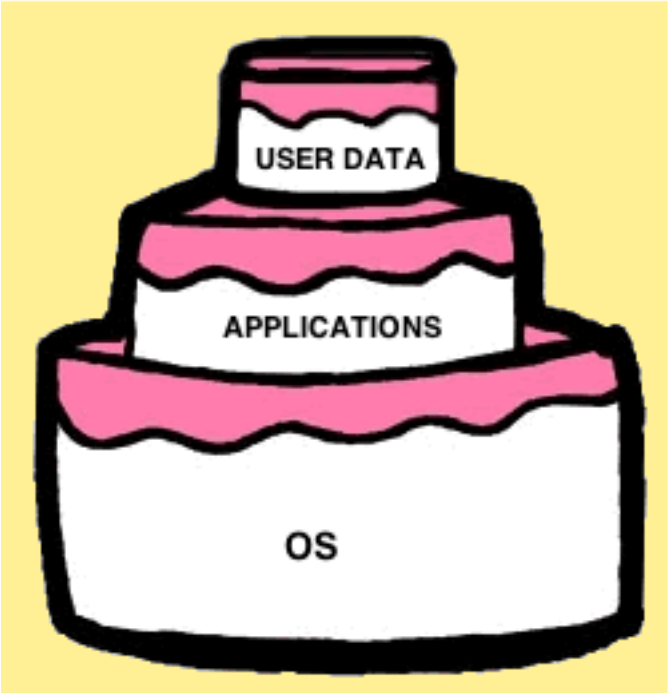
So how do you get all the combined functionality for user and application virtualization in one concise solution that can be leveraged across physical and virtual desktop platforms? One way many enterprises have found is through using Liquidware Labs ProfileUnity User Management.

Liquidware Labs ProfileUnity is able to:

- Design and provision new user profiles – administrators decide what applications, customizations, and application data will be available to end users
- Create smart configurations applied with context aware capabilities – administrators can create profiles that give the end-users what they need based on things such as the employee's location or what Windows AD group they are a member of.
- Create secure profiles – as the ProfileUnity User Management configuration runs with administrative privileges, desktops can be configured at logon to can limit or lockdown what users can do with their desktops – such as lockout and secure pieces of the desktop. One example is to have the ability to disable USB storage, or to disable use of Control Panel functions as an administrator for a standard user.
- Provide heterogeneous profiles – user personalization and application assignments work from one Windows OS to another. This enables end

users to use any device with most any Windows OS and have the same experience (unlike a Microsoft's User State Migration Tool / USMT, which is a one-way migration from an older Windows OS to a newer Windows OS).

- And finally, do it all in a single console



When you separate the desktop's OS, company applications, and end-user data, you create a sweet "three layer cake solution" that is a positive antidote for the Seven Deadly Pain Points.

The combination of desktop virtualization, application virtualization, and smart profile management capabilities is the magic concoction that so many desktop admins need.

Desktop Management Use Cases – Leveraging Virtualization Tools

Don't just take my work for it; let's look at a couple of examples from the real world, before and after virtualization.

Community College of Rhode Island (CCRI)

Desktop administrators at the Community College of Rhode Island (CCRI) were struggling to manage end user desktops. With over 18,000 potential end users, the daily struggle with software updates, profile issues, and looming OS and device upgrades was inefficient and an unnecessary burden on their staff.

Recently, they implemented desktop and application virtualization along with a profile management solution from Liquidware Labs. Of course, this took some planning and preparation but it was a one-time hurdle and was worth the effort to make the daily life of their desktop administrators easier (not to mention the numerous benefits that it provided the company and end users in terms of convenience, cost savings, and greater security).

After virtualization, end user desktops are based on just a few, centrally managed, virtual images. The applications are packages separately from the operating system and can be updated without fear. End user data is also separate from the desktop operating system and applications.

Before they had implemented the new solution, the schools CIO and Executive Director of IT, Steve Vieira, said, "Supporting the desktop PCs and laptops was unsustainable. We can't go on having to replace 400 to 500 devices every year." After implementation, Vieira said, "With VDI in place, all the replacement of hard drives, power supplies, etc., will go away." Besides the improvement in IT efficiency, security, management, an unexpected result was a boost in performance for the student computers. Vieira said, "Students noticed the change because it now takes three to four seconds to

log into a virtual desktop, compared to approximately one minute to boot up a physical PC or laptop."

Heavy Industry Manufacture XP to Windows 7 Migration

When this heavy industry manufacturer in the auto industry completes its desktop transformation to the VMware View environment, it will have one of the largest virtual desktop infrastructures in Korea. The company has approximately 30,000 Windows XP and Windows 7 desktop users using 300 different applications at its shipbuilding facility.

The company planned to migrate1,800 users in the first phase and 3,000 in the second, but discovered that converting physical Windows XP desktops to virtual Windows 7 versions could be much more challenging and time consuming than migrating Windows 7 users from the physical to virtual environment.

Early in the project, IT staff used Microsoft tools, including USMT, to migrate a group of its Windows XP users to Windows 7 virtual desktops running on the VMware View platform. This process turned out to be very labor intensive, involving manually harvesting data from physical Windows XP computers, copying application settings, capturing user settings and preferences, mapping drives and printers, creating backups and building new virtual desktops. After months of performing these tasks, a team of 10 IT staffers had only managed to migrate 80 XP desktops, leaving thousands more still to do. "Manual conversion, even with the tools Microsoft offers, takes a lot of people and time," says Haksoo Lee of Daou Tech, a leading Korean IT services company with extensive implementation experience in both the VMware and Xen virtual environments. Daou Tech worked on this project. "Manual

migration can be a nightmare because you have to collect data and settings from so many sources and no single person ever knows where it all is."
Using ProfileUnity, Lee of Daou Tech and two company employees, with offsite support from Liquidware Labs, managed the migration of 1,800 physical Windows XP PCs to Windows 7 virtual desktops over three weeks. Most of the migrations were done between 7 and 11 p.m. because the company did not want the project to interfere with day-to-day operations or to divert its IT staff from other projects. Once, the team completed 250 migrations in a single night.

Besides thousands of users, this heavy industry manufacturer also needed to prepare its approximately 300 applications for the virtual Windows 7 desktops. Organizations typically upgrade their applications when they upgrade from Windows XP. ProfileUnity helps this process too, seamlessly making users' custom application data settings available even across disparate versions of applications for virtually all applications. Users can roam between versions of MS Office and most other applications, enjoy automatic configuration of new versions of applications, and retain custom configurations on Windows desktop.

For the manufacturer, ProfileUnity made their Windows XP migration project fast, efficient, comprehensive -- and successful!! IT management at the company estimates it would have taken at least 10 staff members six months of concentrated effort, and probably much longer, to convert the 1,800 desktops that ProfileUnity handled with 3 staff running just part-time (four hours a day for three weeks). More importantly, the project was completed with literally zero employee downtime, a huge concern for company executives who did not want production time disrupted at all.

Summary: Is It Time For You To Take The Cure?

It's time for desktop admins to say, "There is a better way both for me and for my company." I encourage you to learn about desktop virtualization, application virtualization, and efficient end user management. Like so many other companies, you will reap the benefits in the following ways by solving those Seven Deadly Pain Points once and for all. And just in case you may still not be clear on all the advantages, I am happy to lay it out for you.

1. **Provisioning New Desktops** – Once you have made the switch, provisioning new desktops goes from weeks or days to probably less than an hour because you are simply delivering a new desktop VM to the user from your library of standard desktop images. Once that user doesn't need the desktop any longer, it can be eliminated. That same desktop VM can be accessed remotely by users from their home or from remote offices. Think of the time that saves for both you and your users.

2. **User Customization Management** – By using ProfileUnity, you can really tailor your desktops to the way your users want to work -- from any device, any location, any time, yet still enjoying that familiar interface. In some ways, ProfileUnity can be thought of as an extension of user organization in Active Directory and controls in Group Policy. Now users either get, or are restricted from, access to desktops and applications and local resources based on what groups they are assigned to in AD. Any customizations they make to the desktop, applications or data are saved to their user profile settings on a network share, never to a desktop, so it becomes a "follow me" identity that supports access from multiple devices at multiple locations – the perfect mobile desktop.

3. **Patching Desktops** – When you are able to limit the number of desktop images you have to support, and they are all located centrally, updating them, recomposing them and pushing them back out to users is a breeze. You can do updates to the golden master images literally overnight, and eliminate all the hassle of "saving up" application and OS updates to perform this activity during scheduled downtime when it won't impact worker productivity.

4. **Operating System Upgrades** – In the migrations example in this document, the manufacturer was using USMT to perform an XP to Windows 7 migration. With Microsoft USMT, 10 people working 8 hours a day for 3 months migrated 80 users. With ProfileUnity, 3 people working 4 hours a day for 3 weeks migrated 1700 users. No desktop user downtime. You do the math.

5. **Profile Issues** – Why are you still using Roaming Profiles and Folder Redirection? Replace them with ProfileUnity.

6. **Security** – Once you redirect user data securely in the data center, you have done a great deal to prevent data loss, either by accident or by deception. Now all user data is routinely backed up by your normal file and image-based backup software, so you can recover it in case of disaster or unplanned outages. If you need to shut down access because a device is lost or stolen; it becomes a very simple process to do so through filters in ProfileUnity. And because no data is on the hardware drive, you no longer have the risk of unauthorized access there.

7. **Help Desk** – When all of your user profiles, settings and data are decoupled from the hardware, one major source of issues is controlled. When

you are able to virtualize applications as well and keep them patched and updated in a central location in the data center, another set of issues is definitely mitigated. The best of all worlds is running user virtualization with non-persistent desktops. The non-persistent desktops always return to their pristine state after the user session, so the risks from outside threats, like worms and viruses, are pretty much eliminated.

I believe that with these solutions, the company will save money and the end users will be happier and, you, the desktop administrator, will finally achieve efficiency. More than that, a lot of the admins I spoke to tell me they are more creative on the job spending their time on desktop environment enhancements, not on provisioning or break/fix activities all the time. If this sounds like something you would like to experience, take a few minutes to learn more from www.LiquidwareLabs.com.

About the Author

David Davis is the author of best-selling VMware vSphere and Microsoft Hyper-V video training library from www.TrainSignal.com. He has written hundreds of virtualization articles on the Web, is a vExpert,VCP, VCAP-DCA, and CCIE #9369 with more than 18 years of enterprise IT experience. His personal website is www.VMwareVideos.com.