



VIEWFINITY

A Practical Guide for Migrating to Windows 7

2010

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INTRODUCTION

Migration is always a long process- and more often it's a much longer project than what is originally planned. The longer the migration takes, the greater impact it has on users' productivity and patience. Thorough planning and pre-tested migration processes shorten this time, helping you to perform the migration in a controlled and timely manner.

Migration is also a costly process, often requiring hardware and software upgrades, specialized tools and training, and re-education and acclimation of users.

This guide aims to aid, at least in broad terms, in the migration process from start to completion. We've concentrated on utilizing tools and resources that are freely available to the general public where ever available.

PREPARATION AND ASSESSMENT

A well thought-out migration process should begin with the collection and analysis of your hardware and software inventory. With this information in hand, you have a better idea of how to proceed with building the appropriate infrastructure to support the migration processes.

COLLECT

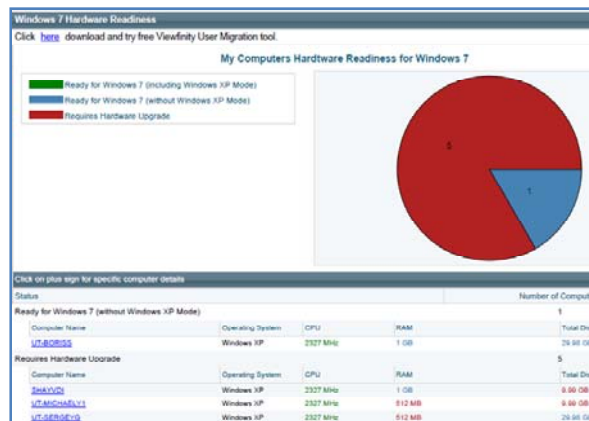
Depending on the size of your organization, this step might require you to obtain a specialized tool or, worse case scenario, you may have to collect the inventory the old fashioned way: manually. The information you will require includes:

- **Hardware specifications**
- **Devices:** printers, scanners, faxes, business-specific devices, etc.
- **Installed applications**



If you already have this information, or the means to obtain it, you can move on to the next step. Otherwise, we recommend two methods for obtaining this information:

1. **Viewfinity's Systems Management** is a simple and straightforward desktop management tool which also includes rich hardware and application inventory reports. Viewfinity offers free, unlimited use of its Systems Management suite for up to 50 desktops. Viewfinity Systems Management will provide you with accurate information concerning hardware and software, and help you assess your "Windows 7 readiness" for your environment.



2. **Microsoft Assessment and Planning Toolkit** is a simple and free tool provided by Microsoft for the purposes of inventory data collection and analysis. The tool, and a 'getting started' guide are available here: <http://technet.microsoft.com/en-us/library/bb977556.aspx>

ANALYZE AND ASSESS

With this information at hand, you now need to determine your environments' readiness for Windows 7 migration. Focusing on the same aspects as before:

- **Minimum System Requirements** must be met for adequate performance. Microsoft [recommends](#):
 - 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
 - 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)
 - 16 GB available hard disk space (32-bit) or 20 GB (64-bit)
 - DirectX 9 graphics device with WDDM 1.0 or higher driver
 - Windows 7 'XP Mode' requires hardware virtualization extensions. If you plan to run 'XP Mode' in your environment, you can use **Viewfinity's Systems Management** solution – which includes Windows 7 Readiness reports, or manually run Microsoft's readiness tool on individual machines: <http://www.microsoft.com/windows/virtual-pc/download.aspx>
- **Device Drivers** for important hardware should be found, and tested, prior to migration
 - **Microsoft's Compatibility Center** is the best first-step resource to verify device compatibility. It is available by browsing to the following link: <http://www.microsoft.com/windows/compatibility/windows-7/en-us/default.aspx>
 - If your device or hardware does not appear in the compatibility center, you should check the *manufacturer's website* for updated device drivers. The manufacturer's support department may also be able to point you to a solution, or provide an estimated availability date for its Windows 7 compatible drivers.
 - If the manufacturer is unresponsive, or is no longer doing business, you can try and locate solutions on the web, community forums, or try Vista compatible drivers (if available). Otherwise, consider upgrading or replacing the hardware or device.
- **Application Compatibility** with business-related applications needs to be verified, or, if incompatible, a resolution via upgrade, fixes, or workarounds must be found prior to migration.
 - Again, [Microsoft's Application Compatibility Center](#) is the best resource for verifying compatibility. However, a more condensed form can be found for IT professionals who wish to expedite the process: <http://www.microsoft.com/downloads/details.aspx?FamilyID=890E522E-E39E-4278-AEBC-186F81E29173&displaylang=en>
 - If an application does not appear on the list, check the *software vendor's* website and/or support department for possible solutions
 - **Windows Application Compatibility Toolkit** may help with some common issues. It is available here: <http://www.microsoft.com/downloads/details.aspx?FamilyID=24DA89E9-B581-47B0-B45E-492DD6DA2971&displaylang=en>
 - Many applications, even when not explicitly compatible with Windows 7, still function fully and without any problems. If you do not find any explicit references for your particular software, test it on a Windows 7 machine and note any special problems you encounter.

- As already mentioned, Windows 7 supports 'XP Mode', which utilizes virtualization to support application compatibility.

If you have any doubts on the above items, or if you simply wish to “get a feel” of the process, you can run and review Microsoft Upgrade Advisor, a free tool performing all these assessments on a **single** machine, available here:

<http://windows.microsoft.com/en-us/windows/downloads/upgrade-advisor?7f5a1de0>

BUILD

Now that you have collected the required information, it is time to prepare your infrastructure for the OS rollout. While for a small number of machines it may be plausible to manually install Windows 7 from the media on each computer, it is impractical for larger organizations. An imaging and deployment solution must be used. Many popular imaging and deployment tools exist by popular vendors such as Symantec, Acronis, and others. We will present a solution based on the free Microsoft WDS solution. To adapt the solution to other imaging and deployment solutions, visit the *software vendor's website* for additional information. We are assuming that you already have an *Active Directory Domain* as it is a prerequisite for the following.

REQUIREMENTS

What will you need before getting started:

- **Windows Deployment Services** is Microsoft's automated deployment solution for organizations. It allows a bare-metal OS deployment over the network for multiple machines. To install WDS, follow these links according to your server OS:
Windows Server 2003 - [http://technet.microsoft.com/en-us/library/cc766320\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc766320(WS.10).aspx)
Windows Server 2008 - [http://technet.microsoft.com/en-us/library/cc771670\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc771670(WS.10).aspx)
- **Windows Automated Installation Kit (WAIK)** is a set of tools you will need both for WDS and some other migration processes. Download and install it on a management station.
<http://www.microsoft.com/downloads/details.aspx?FamilyID=C7D4BC6D-15F3-4284-9123-679830D629F2&displaylang=en>
- **Microsoft Deployment Toolkit 2010** is an *additional* set of tools that assist deployment. While *not critical* to the process, it can be very useful and offers a convenient solution. You can get it and read more about what it offers here:
<http://technet.microsoft.com/en-us/solutionaccelerators/dd407791.aspx>

HOW-TO

Follow these steps to build and upload a reference machine to the WDS server:

1. **Create media for Discover Images and Capture Images** – these are bootable media containing the PE environment used for bare-metal deployment. You will need these during the Image creation, testing, and final deployment.
[http://technet.microsoft.com/en-us/library/cc730837\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc730837(WS.10).aspx)
2. **Configure DHCP and WDS for PXE boot** – while *not required*, this *optional* and somewhat complex step can reduce deployment time. Depending on the structure and type of network you have, this step may require additional resources. A good starting point would be here:
<http://technet.microsoft.com/en-us/library/bb680753.aspx>

3. **Create an unattended answer file**, using step 1 of this guide:
[http://technet.microsoft.com/en-us/library/dd349348\(WS.10\).aspx#BKMK_1](http://technet.microsoft.com/en-us/library/dd349348(WS.10).aspx#BKMK_1)
4. The unattended answer file given in this example is a trivial example of what can be done with Sysprep and accompanying tools. Reading the following and experimenting can give you much better results for deploying and customizing your installations. Don't hesitate to take a while and experiment with different features and settings. You'll find that some work better for you in the long run.
[http://technet.microsoft.com/en-us/library/dd744263\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd744263(WS.10).aspx)
<http://technet.microsoft.com/en-us/library/cc732723.aspx>
[http://technet.microsoft.com/en-us/library/cc732280\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc732280(WS.10).aspx)
5. **Create a reference machine(s)** – depending on the size and variety of your environment, this step may take a fair amount of time. For creating multiple reference machines, consider establishing a “base” machine, which you will image, and then you can build other reference machines off of the base. This way you save yourself a lot of work, and further standardize your environment. The following guidelines are recommendations only:
 6. Reference machines should be as general as possible. However, anything that can be customized before reaching the end-user should be done so, without overly bloating the image.
 7. Update Windows with the latest hotfixes using Windows Update. Install any specific updates which you think might be required for any special software or hardware you have.
 8. Install the most recent versions of all applications that are used by the majority of users. Do not install licenses or customize settings. This of course includes security products such as firewalls and antivirus.
 9. Include any support tools or information tools you and your support staff use on a regular basis, this might help with future troubleshooting.
 10. If you have any management product installed in your organization, consider pre-installing the agent or software to save having to deploy it later. For example, **Viewfinity's Systems Management** agent can be preinstalled on the reference machine. Consult the *software vendor's support* for instructions on how to include the agent in an OS image as simply installing it may cause unexpected issues later.
 11. When the reference machine is satisfactory, you need to close and upload the image to the WDS server. Have your **capture image** ready, and follow these steps:
[http://technet.microsoft.com/en-us/library/dd637993\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd637993(WS.10).aspx)
12. **Test, re-test, and test again** the reference images. Some mistakes take awhile to discover, and taking the time to discover them ahead of time is well worth it in the long run. Be sure to test on various hardware configurations and in various situations. Confirm that all software is working properly and that the machine “behaves” well with all organizational infrastructures. Check the event logs for any errors or warnings as well as for any unusual activity. When you are satisfied – you are ready to move on to deployment.

DEPLOY AND MIGRATE

Now you are ready to start the deployment and migration process, hopefully the most painless and quickest of them all. The following subsections will guide you through the migration process and recommend methods and tools for each. As always, your discretion should take precedence of these recommendations.

RECOMMENDATIONS

Before we begin, here are some general guidelines:

- Start with a small **pilot** group with varied configurations. Test these thoroughly and gather feedback before moving to a larger scale deployment.
- Once your pilot has a green light, rollout the new OS in small groups (but not too small) with common needs. Allow sufficient time to make adjustments before moving onto the next group.
- Take special care during the backup and restore phases, once data is gone, it is often lost forever.
- Inform users of the upcoming migration multiple times; take the time to explain the process to them, the benefits of the upgrade and the support contacts they can reach out to during the migration.

MIGRATION

The migration of user data, settings, and application settings is a crucial step in this process. For the purposes of this document, we have included instructions for using the Microsoft supplied USMT and 'Windows Easy Transfer' tools. However, these tools are manual and can be time consuming. **Viewfinity** offers a **free** and **automated** tool called **Viewfinity User Migration**, based on Microsoft's own USMT and Group-policy, for mass migration of users. It requires no end-user installation or agent, and while USMT requires local administrative accounts – **Viewfinity's** solution only requires a domain administrator to initiate the process, but **no administrative privileges** on the end-user machine. In the steps describe hereon, we will include instructions **both** for administrators opting to use Viewfinity's migration tool and for those who choose not to.

PRE-DEPLOYMENT

As we all know, deployment of a new OS means wiping the slate clean. This is why it is of utmost importance to make a proper backup prior to migration. If you are using Viewfinity's or Microsoft's migration tool, an automated backup procedure will be performed during migration. This, however, does not mean you should rely entirely on the automated algorithms used to determine the items to be backed up. Perform full backups of recent data in case anything goes missing during the transfer, and request that users perform backups to the network for critical documents and data prior to the migration.

Depending on the migration method you have chosen, please follow one of the three following options:

1. **Viewfinity's User Migration** automates and simplifies the migration process for multiple domain users simultaneously. You can get the migration tool, and a detailed step-by-step guide at the following link: http://www.viewfinity.com/Support/Documentation/Viewfinity_User_Migration_1.5_Quick_Start_Guide.pdf
2. The process is streamlined and simple, presenting a uncluttered dialog box upon user log in and the user is guided through the steps. In the background, Viewfinity's tool will automatically generate a custom USMT project, which will run to completion. Now you can proceed to deploy and perform the 'migration: target' step post deployment. No further action is required!
3. **Windows Easy Transfer** is a guided step-by-step tool provided by Microsoft for purposes of **single machine** Windows migration. It migrates user data, documents, and personal and application settings. It is best used for small environments with a **limited** amount of desktops, as it requires extensive interaction during all steps. Use the following links to obtain, and view tutorials, on how to use Windows Easy Transfer:

<http://windows.microsoft.com/en-GB/windows7/products/features/windows-easy-transfer>
<http://windows.microsoft.com/en-us/windows7/help/upgrading-from-windows-xp-to-windows-7>

4. **User State Migration Tool 4.0** (or, more commonly, USMT4) is a command line tool with similar capabilities and functionality to Windows Easy Transfer, only it is customizable and requires far less intervention. An experienced administrator can create automated scripts to *shorten* the time a support personnel needs to dedicate to each machine migration, though due to the **administrative account** requirement, manual interaction is still required. To get up to speed with USMT, follow the Quick Start guide up to the collection point. For further information on customization, consult the User Guide:
[http://technet.microsoft.com/en-us/library/dd560775\(W5.10\).aspx](http://technet.microsoft.com/en-us/library/dd560775(W5.10).aspx)
[http://technet.microsoft.com/en-us/library/dd560801\(W5.10\).aspx](http://technet.microsoft.com/en-us/library/dd560801(W5.10).aspx)

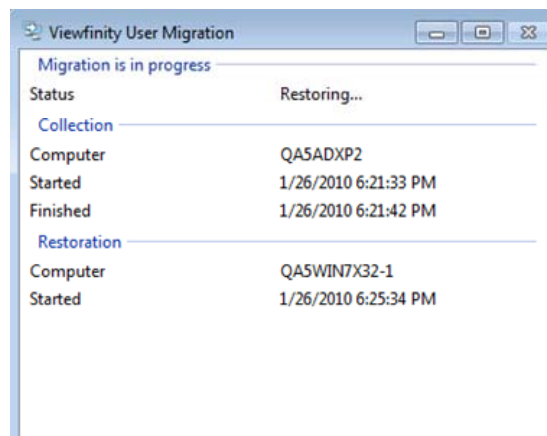
DEPLOYMENT

Now you are finally prepared and ready to deploy Windows 7 to your desktops. If care was taken during the planning phases, and proper testing was performed, this step shouldn't take much in terms of time and effort. Using WDS we will deploy to and configure the destination desktops. Proper use of the **unattended answer file** described in the previous section will greatly reduce the time required to configure each machine.

- **Multicast Transmission** is an optional deployment method which can expedite over-the-network deployment time. You can learn how to configure and initiate a multicast transmission for WDS here: [http://technet.microsoft.com/en-us/library/dd637994\(W5.10\).aspx](http://technet.microsoft.com/en-us/library/dd637994(W5.10).aspx)
- **Boot into WDS Client** either through PXE Boot or the **Discover Image** described and prepared in the previous section. Follow the on-screen instructions to connect to the WDS server and deploy the **reference image** you prepared.
- **Finish initial configuration** of the client machine, including basic personalization and domain membership. **Hold off on further customization** tasks until after the post-deployment migration step.

The migration option with which you started, be it with the Viewfinity automated migration product or Microsoft tools, should be used for restore purposes as noted below:

- **Viewfinity's migration tool** will present users with a restore process during initial login to their new Windows 7 Machine. The process will present basic customization options, followed by a restore progress bar. No further user intervention is required.
- **Windows Easy Transfer** should, when launched via Windows 7, display the restore process. Use the guides provided in the previous section to proceed with the Windows Easy Transfer restore.
- **User State Migration Tool** should be run with the **loadstate** command in order to restore user profiles and settings. USMT must run under administrative permissions during the restore procedure.



POST DEPLOYMENT

Now that your desktops are up-and-running with Windows 7 and user's data restored, use the information obtained in the first section ('Prepare') to make sure all users have access to their old programs and resources. Allow sufficient time for feedback and troubleshooting before moving on to the next migration group.

MANAGE YOUR PROBLEM-FREE DESKTOP ENVIRONMENT

Migration is a long and costly process, but it also offers a unique opportunity to improve your environment. A "fresh" machine is free of old problems, junk-ware, malware, odd-configurations, and patch jobs. The combination of a new OS, coupled with the care taken during the migration process, results in a problem-free machine which can be maintained as such when employing the right practices. We recommend that you consider using **Viewfinity Systems Management** and **Viewfinity Privilege Management** in your environment for exactly that purpose.

VIEWFINITY SYSTEMS AND PRIVILEGE MANAGEMENT

Viewfinity Systems and Privilege Management via Cloud-Computing

Viewfinity offers systems and privilege management solutions that are extremely cost effective and easy-to-use. Our solutions are available via a cloud-computing software delivery platform, thus there is no need to build internal servers and databases or maintain a complex, costly infrastructure. The cloud-computing platform allows IT department to focus on delivering services that address the business needs of end users rather than using their time to support the platform that houses the systems management solution.

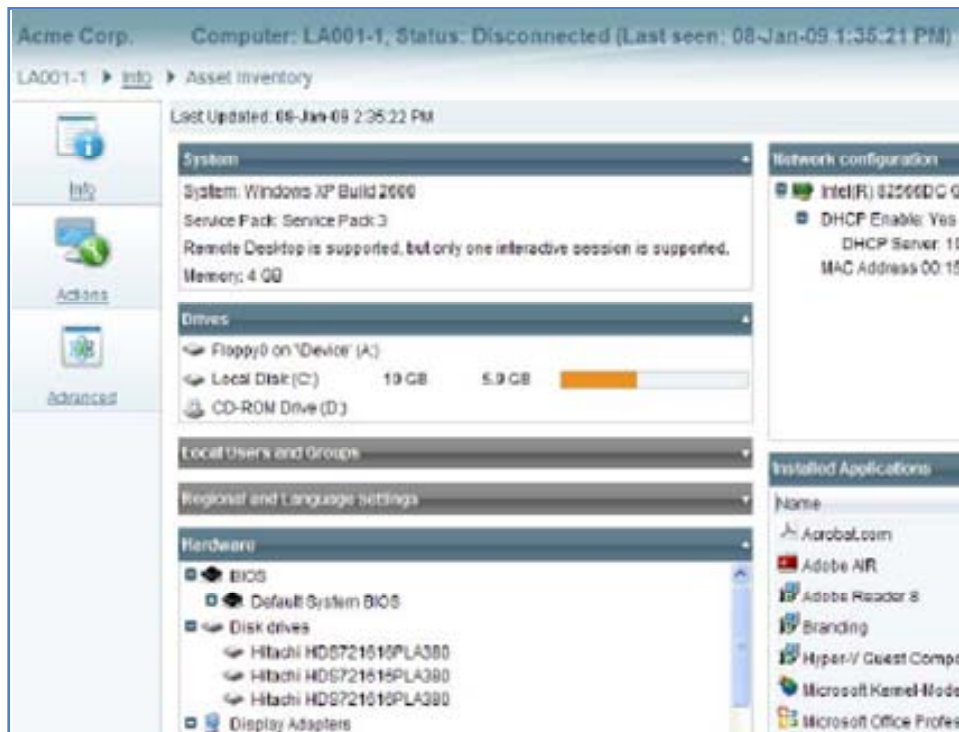
Starting with a straightforward agent deployment and discovery process of your resources, which can be done remotely, you can begin managing your desktop, laptop and servers from anywhere and at any time, regardless of the worker's location, as long as the PC is connected to the Internet. There is no need to have VPN connections or open any additional firewall ports. The connection relies on default browsing ports 80 and 443.

Viewfinity Suites

Systems Management: Centralized and silent software deployment, asset inventory, remote desktop, power management and unique IT support features, including activity recording and rollback/undo of user personality components. Viewfinity Systems Management is available for unlimited use for up to 50 PCs.

Privilege Management: Flexible blocking/whitelisting, privilege elevation, automated policy management and auditing, all through granular regulation of administrator rights.

User Migration: Migrates desktops and laptops to the Windows 7 OS on a one-to-many basis, from a centralized location, reducing time spent on this task by 83%.



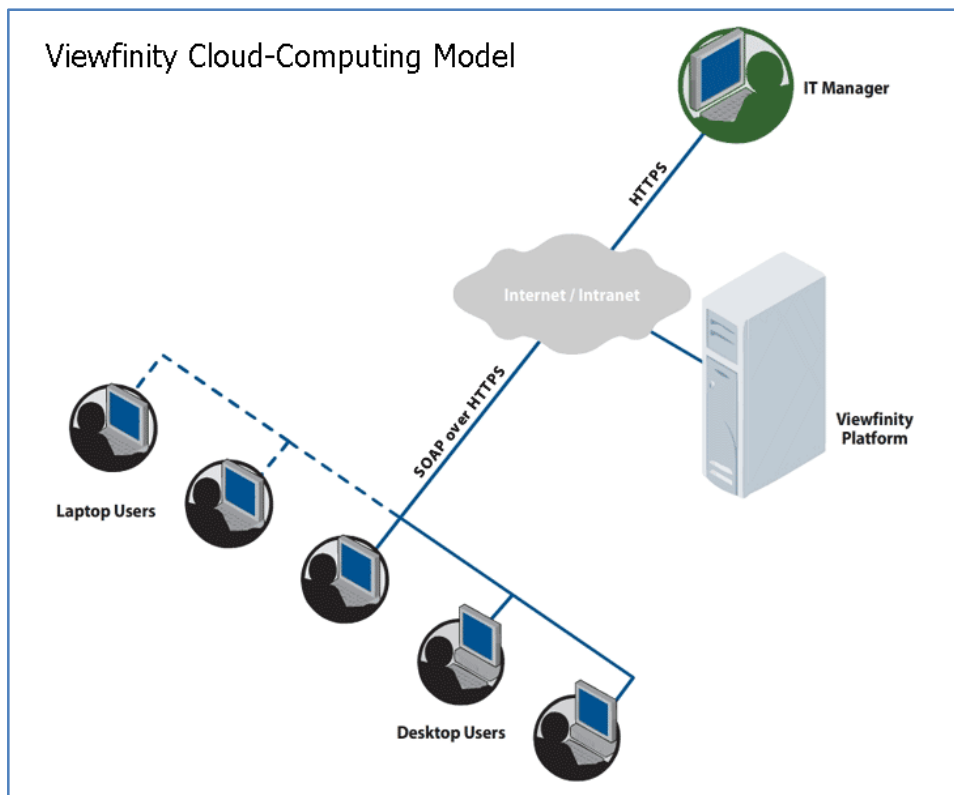
Viewfinity Systems Management – Sample Asset Inventory Report

Viewfinity Cloud Security

Viewfinity uses advanced technology for Internet security. When you access the Viewfinity hosted site using your web browser, 128 bit Secure Socket Layer (SSL) technology protects your information. Using both server authentication and data encryption, SSL ensures your data is safe, secure, and available only to registered users within your organization.

Viewfinity servers are hosted in a secure server environment that uses a double layer firewall infrastructure - a physical firewall at the data center and another software firewall on the Viewfinity server. Other advanced technologies to prevent interference or access from outside intruders are also utilized.

The Viewfinity Site/Cloud Service is not used to host customer data other than information that is necessary for user authentication and basic computer inventory information. The Viewfinity server is utilized as a tunnel whereby all sensitive information is immediately transferred between the customer's computers and the Internet browser, without storing this information on the Viewfinity Server.



Viewfinity Cloud-Computing Platform Architecture

SUMMARY

Migrating your users to the Windows 7 OS is a major project. While this paper presents several proven methods for effectively migrating your desktop environment to the Windows 7 OS, IT Administrators can benefit from a centralized migration for multiple users and settings from a single management point and avoid custom scripting.

In response to this market need, Viewfinity has developed a wizard-based User State Migration tool that works with the Microsoft User State Migration (one-to-one) scripting tool and adds out-of-the-box automation for multiple-user migration, all from a centralized monitoring and status reporting console. The tool will collect all settings and user data, perform the migration cycle and the restore process all on the same PC or you can elect to completely migrate to a new piece of hardware. All this is done automatically without the need for any custom scripting.

The Viewfinity User Migration product will save time and money and reduce the amount of frustration that might be otherwise encountered.